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THE Gardeners' Chronicle

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 37.9.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, January 4, 10 a.m.: Bar. 30; temp. 41°. Weather—Sunny.

1921. The year 1921 will be memorable in the annals of horticulture on account of the prolonged drought, which was the severest within living memory. Extremes of weather, either of wet or drought, heat or cold are the most serious problems the gardener has to contend with, and it is not surprising that the drought was reflected in a general failure of many plants and crops in the south, while numerous subjects were killed outright; it was also responsible for some interesting happenings, such as the general flowering of plants that are natives of hot, dry districts. We do not propose to refer further to the drought here, as on another page we are publishing the first instalment of a series of notes from well-known gardeners in different parts of the country on the effects of the drought in their particular districts, in the belief that they will constitute a useful record of the behaviour of garden plants in a season of abnormal dryness.

The year 1921 opened auspiciously, for vegetation was healthy and the weather of early spring seasonable without much frost; moreover, the crops had wintered well. Trees and shrubs made good progress, and early flowering subjects, such as the Almond and Forsythias, were never more beautiful in flower. Fruit trees gave promise of bountiful yields, for fruit buds were plentiful and the wood well ripened. Later, however, the nights turned very cold, with bright sun by day, causing wide fluctuations of day and night temperatures that imposed a severe check upon developing vegetation. Actual frost held off until the fruit blossom was well expanded, but at the end of April and the

beginning of May the fruit blossom of nearly all kinds of fruits was ruined by frost, Apples alone escaping injury. The bountiful Apple crop compensated, in some measure, for the scarcity of nearly all other hardy fruits, and the Imperial Fruit Show at the Crystal Palace in October was an exhibition almost entirely of Apples. As this show was held mainly in the interests of commercial fruit growers, whose principal crop is this fruit, the shortage of other kinds did not affect it, and with plenty of Apples success was assured. This great exhibition doubtless had its inception in the efforts made by growers in such centres of the fruit-growing industry as Maidstone, Cambridge and Hereford, to stimulate the consumption of home-grown fruits, and rather than hold an Imperial Fruit Show annually we think it would be wiser to allow these several organisations to continue their shows, with a big exhibition, say, once in every four or five years. The interest taken in the exhibition by the Ministry of Agriculture proves the great value of the special horticultural department of the Ministry to the gardening industry, and with the Chamber of Horticulture, the Horticultural Trades' Association, and the British Florists' Federation actively engaged in looking after the business interests of the craft, horticulture has ceased to be merely the Cinderella of farming.

The Royal Horticultural Society and the special horticultural associations accomplished much useful work during the past year, and the support all received proves that public interest in gardening is as keen as ever. The progress made by the National Rose Society in the past few years has been phenomenal and the holding of some of its shows in association with the R.H.S. is in the best interests of both societies and of horticulture generally. The National Chrysanthemum Society is to be congratulated on the success of its show, which was entirely of Chrysanthemums and not, as in the past few years, held in conjunction with an R.H.S. fortnightly meeting. The show was held on two days and the hall was thronged with visitors on both dates. We are glad to know that the National Dahlia Society will hold its annual exhibition this year entirely on its own. All these floral societies should continue to look to the Royal Horticultural Society for help in every direction and especially in the matter of providing accommodation for their annual shows. Although, as has been mooted, it might be possible for these special societies to arrange for their exhibitions to be held in a common hall of their own, the centre of horticultural activities in the metropolis should be Vincent Square. The R.H.S. exhibition at Chelsea was as successful as ever, and the Holland House show was one of the best held in Lady Ilchester's beautiful London estate. As it is unlikely that this latter place will be again available for the holding of flower shows, the Council has made arrangements for a great exhibition under cover at Holland Park Rink in October next. The provincial exhibitions, including those at Shrewsbury, York and Birmingham, were well attended and showed a steady return to their pre-war importance. Most of the smaller societies, however, found it difficult to hold their annual shows, as expenses have increased, but not so receipts, and there is the Entertainment Tax to pay in addition. Those responsible for horticultural exhibitions may, of course, drop all additional attractions, such as bands, and thus obtain freedom from the tax, but this would not prove profitable in all cases. Agitation is on foot to form a special society in the interest of Daffodil growers under the

title of the National Daffodil Society, but the latest suggestion is to create a National Bulb Society to embrace all bulbous flowers. The reason may be a wish to force the hands of the R.H.S. to do more for the Daffodil cult, and especially in the matter of literature on the subject, such as the continuation of the *Daffodil Year Book*.

After a period of 134 years the publication of the *Botanical Magazine* was suspended, much to the regret of all lovers of plants, for this work affords easy reference for identification purposes and is to be relied on for its accuracy. The abnormal costs entailed in colour printing nowadays renders such a work as this unprofitable as a commercial proposition and its continuance could only be undertaken by some body with funds at its disposal for the purpose. We are glad to know that the R.H.S. has accepted this responsibility and will continue the publication of the *Botanical Magazine* in 1922.

Our gardens have been enriched during the past year by many new plants and the awards to novelties by the R.H.S. have been as numerous as ever. Plant collectors in China continue to send home large consignments from the flora of that vast country and great hopes are entertained that several useful alpinists and Rhododendrons will be forthcoming from the seeds collected by members of the Mount Everest Expedition. One of the saddest events of the year was the death of Mr. Reginald Farrer, in Asia, just as he was terminating his second plant-collecting expedition; it is regrettable, too, that most of the results of his recent labours were lost, as there was no one on the spot to look after his latest packages. We were fortunate in receiving a large amount of MS. from this intrepid collector and brilliant writer a few weeks before his decease, so that we are able to put on record his more recent discoveries. Mr. Kingdon Ward is at present engaged in plant collecting in Asia and we shall continue to publish the series of his articles commenced in these pages last year.

Horticulture has lost by death several other prominent members, notably the veteran Mr. George Paul, whose knowledge of gardening, and especially of Roses and shrubs, was profound—a man loved by his friends and esteemed by all who knew him—Mr. Robert Ballantyne, Mr. Joseph Godseff, Mr. R. A. Rolfe, Mr. James Coey, Mr. Archibald Findlay, Mr. Edwin Molyneux and Mr. William Purdom, all men of ability and whose loss to gardening is great. Altogether the year 1921 was not kind to horticulture, so, with our readers, we look forward to happier conditions and better results in 1922.

Coloured Supplementary Illustration.—With the present issue we publish a coloured supplementary illustration of Apple Norfolk Beauty, a description of which is given on p. 11.

The Sweet Pea Annual, 1922.—Sweet Pea enthusiasts cannot fail to be interested in the National Sweet Pea Society's Year Book just issued under the title of the *Sweet Pea Annual*. Although the new issue lacks the substantial binding of former years, it is well filled with interesting and instructive matter. Mr. S. B. Dicks adds something to his already numerous discoveries concerning "The Early History of the Sweet Pea," and it appears that Ceylon is now ruled out of court as a possible source of the original Sweet Pea. In the "History of the National Sweet Pea Society" Mr. Charles H. Curtis reviews the work carried out by the Society during the twenty-one years of its existence and makes a special point of the wonderful improvement made in the flower between the years 1900 and 1921. The institution of the Henry Eckford Memorial Medal is recorded, and an appreciation is published of

Mr. R. Bolton, the first holder of this important award. Mr. Andrew Ireland discusses "The Cultivation of Sweet Peas under Glass," and Mr. G. H. Burt contributes an interesting study of "The Life of a Sweet Pea Plant." The interest shown in Sweet Peas by Colonial members is reflected in two contributions from British Columbia and one from New Zealand, and the former are accompanied by illustrations of Sweet Pea seed crops in the far West. The Annual Report and Financial Statement for 1921 are included, as well as an Audit of the first prize exhibits at the show held in July, 1921, the prize-winners at the same exhibition, and an alphabetical list of members and their addresses, but the most important item from the point of view of seedsmen and exhibitors is the report of the Floral Committee upon the trials held at Reading and the up-to-date Classification and Too-much alike Lists. Humour is not wanting, and it is found chiefly in Press cuttings on "Sweet Pea Topics in the Year 1941."

Trial of Violas at Wisley.—The Royal Horticultural Society has arranged to carry out a trial of Violas in their gardens at Wisley during the coming year, and growers are invited to send three plants of each of the varieties they desire tried to reach the Director, R.H.S. Gardens, Wisley, Ripley, Surrey (Goods via Horsley Station, L. and S. W. Ry.) on or before February 28, 1922. Entry forms may be obtained from the Director on application.

War Memorial at the Ministry of Agriculture.—On the 21st ult. Sir Arthur Griffith Boscawen unveiled, at the Ministry's new offices, 10, Whitehall Place, London, a war memorial to the 38 members of the staff of the Ministry who died on active service in the war. The memorial, which is fixed in the entrance hall, consists of a marble of cartouche form, surmounted by a bronze roundel bearing a replica of the old seal of the Board of Agriculture and Fisheries within a wreath supported by emblems. It was designed by Mr. H. Duncan Hendry, A.R.I.B.A., a member of the Ministry's staff. The names on the tablet include Lord Lucas, a former president of the Board, who was killed near Bapaume in 1916 whilst serving with the Royal Flying Corps.

French Iris Conference.—The French National Horticultural Society is organising a Conference, to take place at its own offices in the Rue de Grenelle, Paris, of which the subject will be the Genus *Iris*, to celebrate the centenary of the raising of the first garden varieties in France by M. de Bures, about the year 1822. The Iris Committee will assemble on the ordinary meeting days of the Society, i.e., the second and fourth Thursdays of each month, from April 1 to July 30 at 2 p.m.. At the height of the flowering season, if there are sufficient exhibits to warrant it, the committee may also meet on the remaining Thursdays, at the same time. Plants and cut flowers should arrive at the Society's office at latest in the morning of Thursday. The Society will undertake to stage any plants the senders of which cannot attend themselves; but the Committee should be informed at least eight days in advance of any exhibits being sent. Cut flowers should be gathered in bud, with the whole of the stem and a few of the lower leaves. They should be carefully packed in such manner as to ensure their being in the best condition on the Committee day. The Conference provides an excellent opportunity to growers of Irises, whether amateurs or professionals, to have their plants examined and doubtful names verified. Exhibits may be awarded prizes, and certificates of merit may be given to new plants of value. Papers sent on the subjects given below will be examined beforehand by the Committee, and will be discussed at the plenary session of the Conference, which will take place on May 27, 1922, at the same time as the horticultural Congress. Papers must be sent to the Iris Committee at least a month in advance. (1) The history of the raising of varieties of garden Irises, groups *Pogoniris*, *germanica*, *pumila*. (2) The history of the introduction, hybridisation, and varieties of *Oncocyclus*, *Regelia*, *Regelocyclus*, and *Evansia*. (3) The history of the introduction, hybridisation, and varieties of bulbous

Irises of the group *Xyphion*, *Juno*, etc. (4) The history of the introduction, hybridisation, and classification of the varieties of *Iris* in the group *Apogon* (*Kaempferi*, *sibirica*, *ochroleuca*, etc.). (5) Hybridisation in the genus *Iris*. (6) Classification of varieties among garden Irises (group *germanica*). (7) Cultivation and multiplication of Irises in the four above-named groups (each group may be treated separately). (8) Utilisation of Irises in the ornamentation of gardens and cool greenhouses, for the production of cut flowers, etc. (9) Pests and diseases of the *Iris*. (10) Studies of the *Iris* from the point of view of the perfumer and chemist. (11) Elementary study of the genus *Iris* from the amateur's point of view. (12) The *Iris* in decorative arts. Papers treating of the *Iris* from other points of view will also receive consideration.

Mr. Frank Ladds.—Although still a young man, Mr. Frank W. Ladds has been for many years the head of the firm of Philip Ladds, growers for market, of Swanley Junction, Meopham and Bexley Heath. It was at Bexley that his father, the late Mr. Philip Ladds, commenced business as a plant and flower grower about the year 1860, and laid the foundation of



MR. FRANK W. LADDIS.

a business which now considers the disposal of 25,000 *Erica hyemalis* just before Christmas to be an ordinary routine item. Bedding plants of most kinds, but especially *Pelargoniums*, are grown in enormous quantities and in fine quality by Mr. Ladds, and other big crops grown in the ten acres of glasshouses or the sixty acres of open ground include several sorts of *Heaths*, *Palms*, *Fuchsias*, *Cyclamen*, *Genistas*, *Solanums*, *Marguerites*, *Ferns*, *Hyacinths*, *Hydrangeas*, *Chrysanthemums* and *Tomatos*. Before taking charge of the business, Mr. Frank Ladds spent about three years with Mr. Sweet, of Whetstone, and he was a very young man to take over so great a responsibility. Nevertheless, he accepted it, and the fame and increasing business of his firm is the measure of his success as plantsman and organiser. In this latter connection Mr. Ladds was extremely useful to his fellow-craftsmen in many ways during the war period, and is still a valuable asset to the plant and flower growing trade by virtue of his official association with the Kent Growers' Association, British Florists' Federation, Horticultural Trades' Association, and last, but not least, the Chamber of Horticulture. Mr. Ladds is a born fighter, but his obvious honesty of purpose and overflowing good humour are probably equally as helpful in winning over his opponents as are his cogent arguments fired off with machine-gun rapidity, but no matter how keen the fight at a Government office, the Railway Clearing House, the Committee Room or the

Council Chamber, or what the result of the fight, Mr. Ladds will shake hands equally heartily with victim or victor, as the case may be, and it is because of this characteristic that he is held in such high esteem by all who have business relations with him. It should be added that Mr. Ladds is a high authority on *Chrysanthemums* and a prominent member of the Floral and Executive Committees of the National Chrysanthemum Society.

Thefts at a Nursery.—Two men were sentenced to three months' imprisonment at Enfield Police Court on the 2nd inst, for stealing *Carnation* blooms from the nurseries of Messrs. Stuart Low and Co., Enfield. Their capture is the sequel to more than a score of similar robberies at the same nurseries during the past two years. The thefts usually occurred just before a flower show, and the choicest blooms were always stolen. *Carnations* that had been grown especially for exhibiting at the British *Carnation Society's* show on November 30, 1921, mysteriously disappeared, and the police were called in. The thieves were detected on Christmas Eve leaving a greenhouse with blooms in their possession, and, although they pleaded guilty to the charge on that occasion, they would not admit responsibility for the long series of previous thefts.

Sweet Potatoes in Queensland.—The Queensland Department of Agriculture is experimenting in the culture of Sweet Potatoes with a view to improving the type and yield. These excellent tubers have been grown for over fifty years by Queensland farmers, and when *Kanakas* were employed on the Sugar plantations, it was no uncommon thing for 10,000 acres to be under this crop for the use of the "boys." Latterly, smaller quantities have been grown for market and home consumption. Growers have been content with six to eight tons of Sweet Potatoes to the acre, but recent intensive experiments have yielded 30 to 35 tons an acre. Data are now being collected with a view to correct the classification and nomenclature of the many varieties grown in the State. In addition to tubers grown for human consumption or as food for cattle and pigs, attention is being given to those which yield most starch for manufacturing purposes. Should it be possible, as is hoped, to produce and manufacture starch, glucose, power alcohol, and other commercial products from Sweet Potatoes, there will be a great expansion of the cultivation of this crop in Queensland.

Appointments for the Ensuing Week.—Monday, January 9, United Horticultural Benefit and Provident Society meet. Wednesday, January 11.—East Anglian Horticultural Society's meeting; lecture by Mr. J. E. Fitt on "Berried Shrubs"; Royal Caledonian Horticultural Society's meeting; Newport and District Gardeners' Association's lecture by Mr. E. Brown on "Winter Flowering Plants in the Greenhouse." Thursday, January 12.—Bristol and District Gardeners' Association's meeting. Friday, January 13.—Paisley Florists Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Funkia grandiflora*.—This is one of the greatest conquests made by Dr. Siebold upon the barbarity of the Japanese, and at the same time one of the most precious things introduced into our gardens. It is the most beautiful of all the known species—equally remarkable for the size of its gay foliage as for the profusion and delicious fragrance of its flowers. The leaves are very large, lanceolate, and rather long-acuminate, with hardly heart-shaped and little elevated lobes standing on the base. They are of a lively green colour, with distinct swellings between their nerves. The plant bears multitudes of very long, funnel-shaped flowers, which are white as snow, and very sweet. Its caulinary bracts are very large, foliaceous, sessile, and bearing flowers. The hardly inflated and campaniform limb is divided into six rather narrow, long, revolute, and blunt segments. The exerted and ascending stamina, reclinate, according to the curvature of the perianth. The style is robust and green, and bears a capitate stigma.—*Ch. L.* (We believe that the sole possessor of this plant is Mr. Van Houtte, of Ghent). *Gard. Chron.*, January 2, 1847.

ORCHID NOTES AND GLEANINGS.

ORCHIDS OF 1921.

PROGRESS among Orchids was admirably demonstrated during the past year, both in private gardens and trade establishments, and the Orchid displays at the meetings of the Royal Horticultural Society, the Manchester and North of England Orchid Society, and at the provincial shows were better and more numerous than usual.

The Orchid Committee of the Royal Horticultural Society granted thirty-one First-Class Certificates and seventy Awards of Merit, beside a number of Preliminary Commendations to seedlings flowering for the first time.

AMATEURS.

Lt.-Col. Sir Geo. L. Holford, K.C.V.O., Westonbirt, Tetbury (gr. Mr. H. G. Alexander), whose grand display of *Cypripediums* at the last show of the year will be long remembered, received four First-Class Certificates and a number of Awards of Merit, the higher award being secured for *Sophro-Laelio-Cattleya Falcon* (*S. grandiflora* × *L.-C. Aureole*), the best rich scarlet of the year, and an interesting instance of successful scientific methods; *Laelio-Cattleya Orange Blossom*, a grand, rich yellow; *Cymbidium Landrail*, and *C. Dragonfly*. Among Sir Geo. L. Holford's other awards were those to *Cattleya Mary Sander* with a fine head of white flowers; *C. Fabia*, Westonbirt variety, the richest in colour of the set evolved at Westonbirt; the pretty *Odontoglossum Lady Avic* Menzies; some pretty new *Cypripediums* and *Cymbidium Martin*.

Baron Bruno Schröder, The Dell Park, Englefield Green (gr. Mr. J. E. Shill), received First-Class Certificates for the fine, white-petalled *Laelio-Cattleya Schröderae* var. *The Conqueror*; *L.-C. Ivanhoe*, The Dell variety; *L.-C. Mrs. Willoughby Pemberton*; *L.-C. Golden Glow*; the clear yellow *Brasso-Cattleya Mrs. J. Leemann*, The Dell variety; the rich yellow *Brasso-Laelio-Cattleya maculata aurea*, and for the large and handsome *Dendrobium Model*, The Dell variety; the best of the other plants to gain awards were *Laelio-Cattleya Victorix*, which shows evidence of *Cattleya Trianae Backhousiana* in its petals in a marked degree.

Sir Jeremiah Colman, Bart., Gatton Park (gr. Mr. J. Collier), the largest amateur exhibitor of the year, added to his noted collection of white *Brassavola* hybrids, raised at Gatton, the charming *Brasso-Cattleya speciosa* var. *Lady Colman*, a clear white flower, of fine size, for which a First-Class Certificate was secured; and *Brasso-Cattleya Gatton Snowflake*; two other very remarkable hybrids being *Laelio-Cattleya Copper King*, unique in colour; and *Dendrobium Gatton Sunray*, a clear yellow *D. Dalhousieanum* cross.

W. R. Fasey, Esq., Holly Bush Hill, Snaresbrook (gr. Mr. E. J. Seymont), one of the most constant exhibitors, especially of fine *Odontoglossums*, received a First-Class Certificate for the very richly coloured *Odontonia W. R. Fasey* (*M. Venus* × *Odm. Louise*), and Awards of Merit for *Odontoglossum Rufus*, *O. Barnaby Rudge*, *O. Sandow*, *O. Faustina*, *O. Chu Chin Chow*, curious *O. aspersum* cross; *O. Desdemona*, *O. Gloriette*, *Odontioda Nubia Fasey's* variety, and *Miltonia vexillaria Purple Emperor*, a remarkable dark rose-purple flower.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), exhibited regularly, his groups being always of special interest by reason of the selections of rare species included. Fine *Miltonias* were a feature with him last season. *M. Venus* var. *Fascinator* securing a First-Class Certificate, whilst the fine golden yellow *Brasso-Laelio-Cattleya Golden Crown*, the richly coloured *Odontoglossum Bullecourt*, and *Laelio-Cattleya General Maude* var. *Rubens* gained Awards of Merit.

Pantia Ralli, Esq., Ashted Park (Orchid grower Mr. Farnes), received Awards for *Laelio-Cattleya Sargon Ralli's* var., *L.-C. Canary II.*, a very pretty yellow, and *Odontoglossum Phillipsianum*.

Other remarkable exhibits shown by amateurs and receiving recognition were the beautiful *Vanda coerulea* Bodnant Rose of Lady Aberconway; the showy *Brasso-Cattleya Heatherwood*

var. *Prince of Wales* of J. J. Joicey, Esq., both F.C.C. plants; the large and handsome *Cymbidium Alexanderi giganteum* of Mrs. Bischoffsheim; *Cattleya Pittportia* var. *Lady Leon*, and *Cypripedium Lady Leon*, of Sir H. S. Leon; the very fine *Cypripedium Bedfordiae*, shown by Dr. Bedford, and some showy novelties shown by the Duke of Marlborough on various occasions.

(To be concluded.)

THE BULB GARDEN.

LILIUM TESTACEUM.

I AM somewhat surprised that Mr. Arnott (see p. 309, vol. LXX) should recommend planting bulbs of this Lily at a depth from six to nine inches. That may succeed in very sandy soil; but as it is not a stem-rooting species, in ordinary garden soil I find that three or four

FUNKIAS.

FUNKIAS hold a very high place among hardy herbaceous plants with bold, handsome foliage, and they are eminently suited for planting in a variety of positions in the garden. The several species and varieties vary considerably in their flowers and foliage. The handsome *F. Sieboldiana* (see Fig. 1) makes a fine marginal line for a shrubbery border, and may be used with good effect as a permanent edging to large beds that are filled either with hardy or tender summer subjects to produce a sub-tropical effect. They are also useful for grouping in front of the herbaceous border where bold foliage groups are required. Funkias are accommodating plants, and strong clumps may safely be divided and replanted at almost any time from autumn until spring. They grow best in a deep, rich, free soil, and, like most strong-growing herbaceous plants, enjoy liberal supplies of well decayed



FIG. 1.—FUNKIA SIEBOLDIANA.

inches is ample. It seems to share with one of its reputed parents, the Madonna Lily, a preference for shallow planting, and all the sun it can get. It may be noted that *L. chalcedonicum*, its other reputed parent, is not a stem-rooting species.

It is a pity that the older specific name for the Nankin Lily, *isabellinum*, has been dropped in favour of *testaceum*, which means "brick-coloured," an epithet which is far from appropriate to the flushed-apricot hue of this Lily's corolla. "*Isabellinum*" is the Latinised version of the French *isabelle*, meaning "dove-coloured"—the hue of a turtle-dove's breast, which pretty closely matches the flower. The origin of "*isabelle*," however, has no connection with turtle doves though it is not devoid of romance. When Archduke Albert caused Spinola to lay siege to Ostend on July 5, 1601, his wife Archduchess Isabel, vowed that she would not change her chemise till the city was taken. The siege lasted three years and ten weeks. Not until September 14, 1604, was the Archduchess released from her vow. When at last she doffed her chemise, it was of a hue which the French dyers exerted themselves to match, and Parisian milliners, with an eye to court patronage, romantically named it "*isabelle*." *Herbert Maxwell, Monceith.*

farmyard manure. The largest growing species are *Funkia Sieboldiana*, *F. Fortunei* and *F. ovata*, of which there is a variety with variegated leaves. The smaller growing *F. lancifolia* has a number of forms including several variegated sorts as well as a white-flowered form. A very beautiful, but less well known species is *F. subcordata* (syn. *F. grandiflora*). Towards the end of August and September this plant produces its large, pure white, sweet-scented flowers, but it requires a warm and sunny position in a well-drained, sandy loam, or it may prove uncertain in flowering. In colder districts it is well worth growing in pots for the autumn decoration of the greenhouse. For some reason *F. tardiflora* is not well known in gardens; botanically it is regarded as a variety of *F. lancifolia*, but for garden purposes it is quite distinct, especially in its flowering period. It blooms from the end of September until November, whereas *F. lancifolia* flowers during July. Whatever its specific rank it is a very beautiful plant, and, like *F. subcordata*, makes a good pot plant for the cool greenhouse. Some of the Funkias make good dwelling room plants and they are effective either in or out of bloom, for the foliage is exceedingly handsome. *J. Coult.*

The Week's Work.

THE HARDY FRUIT GARDEN.

By H. MARKHAM, Gardener to the EARL of STRAFFORD, Wrotham Park, Barnet.

Planting Apples.—Arrears of planting Apple trees should be done while the weather remains open and the ground in a suitable condition.



Do not plant the roots too deeply; if the stems are covered with soil to the depth of two or three inches this will be sufficient in most cases. On heavy land I prefer to plant on mounds raised a few inches above the ground level. In planting shake a few shovelful

of fine, light soil amongst the roots. Standard trees in orchards and paddocks should have a clear stem of 6 ft. to 7 ft., so that the future heads are kept well above the reach of sheep and cattle. Plant only good, useful varieties for the different purposes, and those that will maintain a supply of good sound fruits over a long period. Bramley's Seedling, Newtown Wonder, Lane's Prince Albert, Chelmsford Wonder, Dumelow's Seedling, and Crawley Beauty, are excellent and late keeping cooking varieties. All young standards should be securely staked to prevent swaying by high winds, which break many of the finer roots. Correctly label the trees and protect them against injury by hares and rabbits.

Pruning.—In pruning young trees take care to select from three to five shoots at equal distances apart and shorten these more or less, always cutting just above a bud pointing outwards. As a rule from 10 in. to 15 in. of growth will be sufficient to retain. Very careful pruning is necessary when the trees are young to form an evenly balanced, fruitful head. As the trees increase in size less pruning will be needed.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the DUKE OF MARGBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Forewords.—In the cultivation of all plants under glass, it is essential that the conditions should be as near as possible to those the different species enjoy in their native habitats. Success depends entirely upon the conditions provided for the different plants which go to make up a collection; yet (even when the best possible conditions are provided) certain districts are more favourable for



certain plants than others. Cleanliness being one of the greatest aids to good cultivation, the

annual cleansing of the houses should be completed as soon as possible. Whilst this operation is in progress, a favourable opportunity presents itself to thoroughly cleanse the plants, even if they are not infested with insect pests.

Temperatures.—At this season it is advisable to keep the temperatures of the different houses at those figures given so many times in these pages for the winter months. No effort should be made to hasten the plants into growth, but those which have developed secondary growth during the winter should be placed where they may receive the maximum amount of sunlight and heat, according to their respective genera. Plants grown in high temperatures in winter are more liable to receive a check through a temporary fall in the temperature during a very cold night than plants accustomed to less warmth. The plants will not suffer from the temperature dropping a few degrees during severe weather provided the atmosphere and the plants are in a dry condition. Another important detail to observe is that the lowest temperature in the houses during the twenty-four hours should be in the early morning, with a gradual rise until mid-day, and then a gradual falling-off till the night temperatures are reached. The two extremes of a very warm, dry atmosphere and a low, cold, damp one should at all times be avoided, as much harm may accrue from either.

THE KITCHEN GARDEN.

By JAMES E. HATHAWAY, Gardener to JOHN BRENNAND, Esq., Ralderby Park, Thirsk, Yorkshire.

Trenching.—Advantage should be taken of dry weather to complete the work of trenching land. It is not necessary to trench all the



ground of the kitchen garden every year; not everyone has sufficient labour to do this, but effort should be made to trench the plots which are to be cropped with Peas, Onions and Beans. Take out a trench 3 ft. wide, removing the first and second spits to the opposite end of the plot to be dug; the bottom spit should then be broken up and covered with a layer of half-decayed leaves. The top spit of the next trench should then be thrown on top, with a coating of manure added, and this in turn have the second spit thrown over it. The next trench will now be ready for breaking up the bottom. If the ground is not of a very heavy texture, the bottom spit may be brought to the top, and this method in a few years' time will ensure a depth of 3 ft. of rich soil, which is essential to good vegetable cultivation. The rougher the ground is dug the better, and no effort should be made to break up the soil finely. Heavy lands should receive liberal dressings of river sand, old mortar rubble, road scrapings and burnt refuse, in fact, anything that would have a tendency to keep the soil open. On no account should trenching be done when the soil is wet.

General Remarks.—Celery should be protected from severe weather by Bracken Fern or any light material of a similar nature. Frames containing vegetables should be attended to carefully and, whenever possible, freely ventilated. The glass should be well protected in frosty weather. All decaying leaves should be kept picked off from such crops as Lettuces and Cauliflowers in frames, otherwise loss from damp will follow.

PLANTS UNDER GLASS

By T. PATEMAN, Gardener to Sir C. NALL-CAIN, Bart., The Nod, Codicote, Welwyn, Hertfordshire.

Forewords.—As cleanliness in the plants and houses is probably the greatest aid to success in indoor plant cultivation the plant houses should receive a thorough cleansing during the early weeks of the present month. The glass, wood work and walls should be thoroughly washed with strong soapy water, and the walls afterwards limewashed. An important thing to guard



against is crowding the plants on the stages; many attempt to grow too many plants, a mistake which is as fatal to success as any other error in cultivation. With the advent of the New Year, no time should be lost in making the selection of seeds for the year's requirements. Obtain the best strains of the various kinds of flowers needed for indoor cultivation, and, whilst it is desirable to rely mainly on old and tried varieties, a few novelties should be included.

Carnations.—The propagating of these most valuable flowers should receive attention whenever suitable shoots for cuttings are available. Cuttings inserted now should produce good flowering plants that will bloom early in autumn. In selecting the cuttings, choose them from the healthiest and most vigorous plants, an important item in maintaining a healthy stock; a weakly cutting taken from an unhealthy plant will often result in failure. The cuttings should be made about 3 inches long, with a "heel," and inserted in a small pot filled with about equal parts of good loam, leaf-mould and sand; the cuttings should be inserted around the edge of the receptacle. They should be watered with a fine rose can and stood in a propagating frame where a temperature of 55° is maintained. Very little air is needed until roots develop, beyond removing the glass every morning and wiping it with a sponge to clear it of condensed moisture.

THE FLOWER GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VIVIAN GIBBS, Aldenham House, Hertfordshire.

The Mild Winter.—Following a summer of exceptional drought, with, as yet, little rain, few opportunities have occurred for proper roof



action, and the plants are consequently not in the happiest of conditions. This must be borne in mind where it is contemplated breaking up herbaceous borders for replanting. It is as well to do this work every two or three years in order to reduce the size of strong growing subjects, but replanting may not be necessary this year, and it will be better to allow most of the subjects to remain undisturbed, merely furnishing them with a dressing of manure that should be forked into the soil.

The Borders.—Where herbaceous borders have not been trimmed and tidied this work

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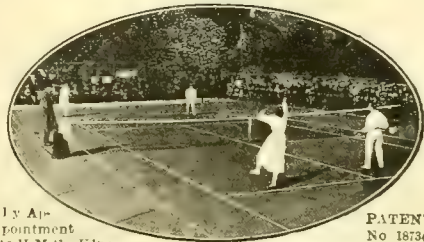
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should be done forthwith; old growths and stakes should be removed, and the border forked over carefully. Fern borders should be left for the present, for, though it is often advised that the dead fronds should be cut away, this is a mistake, as the fronds of the previous season are Nature's own and efficient means of protecting the crowns from frost. A light forking or raking of the Fern borders may, however, be done.

The Shrubberies.—Whilst the weather remains open every advantage should be taken to rearrange shrubberies and plant subjects afresh, generally clearing and tidying up the ground prior to forking it over to move and aerate the soil. Where small shrubs are being moved this does not call for special precautions, but where larger specimens are being placed into fresh quarters, care should be taken to retain as large a ball of soil around the roots as possible. This prevents too much root movement, and the plants will greatly benefit from such care and become established more readily. Where plants have been sent by rail from a distance the roots may have become exposed and possibly damaged; if this has occurred they should be trimmed carefully and replanted in good soil. Standards and subjects with large heads should be staked at the time of planting, to prevent root damage from the tree swaying in rough winds. Holes for the reception of the plants should be prepared carefully, and the soil at the bottom forked deeply. This is of special importance in heavy, clayey soils, where, if the holes are dug in advance, the sides and bottom may set hard and form a basin holding water about the roots, a condition that is harmful to most vegetation. The moving of shrubs occasionally is very essential; too often one sees what might be otherwise very beautiful portions of a well-kept garden spoiled by allowing the plants so to grow into one another that all beauty of shape and appearance is lost, the shrubs becoming drawn in growth, and the whole presenting an untidy tangle. Every shrub should be allowed ample space for development, and the choicer the subject the more important this is, for whereas proper trimming and pruning will materially assist in keeping the plants shapely, yet the moving of some and the retention of others is certainly the best way to obtain good specimens.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER (JAY, M.P.), Ford Manor, Lingfield, Surrey.

Melons.—Where efficiently heated pits will soon be available for these plants, a few seeds of an early maturing variety may be sown this

month. Melon seeds being plentiful, they may be sown singly or in pairs in small pots, plunging the latter in a bottom heat of 75°, with full exposure to light. Sow rather more seeds than are required, discarding, in the case of two growing

in the same pot, the weaker seedling when the seed leaves have developed. A good body of fermenting materials, consisting of Oak or Beech leaves and stable litter, should be secured, so that everything will be ready by the time the plants are large enough for planting finally. This early batch should be grown in 11 or 12 inch pots. The pots may be plunged where they are to remain, or, better still, set them on other inverted pots to prevent sinking and possible strangling of the plants later, placing the fermenting material

around them. Drain the pots well, using the roughest of the compost, which should consist of fairly heavy loam and lime rubble, to which a little bone meal has been added, at the bottom. Make the soil fairly firm. If planting out is more convenient, the same compost, placed on turf, grass side downwards, in the form of a ridge, will answer equally well; but, unless the hot-water pipes are equal to maintaining a bottom heat of 75°, the pot plants will ripen their fruits first. A night temperature of 65° to 68°, 75° to 85° by day, with sun heat, and a moderately moist, growing atmosphere secured by frequent sprinklings according to the weather, should be maintained. See that the pits are made sweet and clean for the reception of the plants, thoroughly cleansing the glass and woodwork.

ments or loles. The basal part of the leaflet is the broadest, being sometimes 1½ in. broad, but mostly less and cut down to the midrib. The tree can be multiplied by grafting on seedlings of the ordinary Walnut, and there seems to be no reason why it should not be more common.

The word Walnut means the foreign nut, as indicated by the names Welsh Nut in High Dutch, Walsch Noten in Low Dutch, and by Walsch Nut, used by John Gerard.

CASTANEA SATIVA HETEROPHYLLA.

In the early part of the present century I found four small trees of the above variety on Esher Common; and now that the Pine trees have mostly been cut down, for the purposes of the late war, I found it again during the



FIG. 2.—CHRYSANTHEMUM MRS. D. ANDREWS; A WHITE JAPANESE VARIETY. F.C.C. NATIONAL CHRYSANTHEMUM SOCIETY, NOVEMBER 28, 1921. SHOWN BY MESSRS. KEITH LUXFORD AND CO., SHEERING, HARLOW.

TREES AND SHRUBS.

THE FERN-LEAVED WALNUT.

The above is the only distinctly ornamental of the many varieties of Walnut which have originated under cultivation. It is the *Juglans regia laciniata* of modern botanists; the *J. filicifolia*, of Loddiges' Catalogue, ed. 1836; and the *Nux Juglans foliis laciniatis* of Renealmi, who published a book in 1611. This would indicate that a cut-leaved Walnut existed 310 years ago, whether the same form or not. It is strange that a distinct and beautiful variety could have existed so long and yet be so uncommon in gardens. There are small trees at Syon House and Holland House, or at least there were a few years ago. I saw it last autumn in the nursery of Messrs. L. R. Russell, Richmond. The leaves are twice as broad as those of the common Walnut, with leaflets 3½ in. to 6½ in. long, and stalks up to three-eighths of an inch long. The leaflets are greatly elongated and very irregularly cut into long, pointed seg-

ments or lobes. The basal part of the leaflet is the broadest, being sometimes 1½ in. broad, but mostly less and cut down to the midrib. The tree can be multiplied by grafting on seedlings of the ordinary Walnut, and there seems to be no reason why it should not be more common.

These narrow leaves gave rise to one of the old names, *C. salicifolia*, or Willow-leaved; but as many forms of leaves occur on the same shoot, the name at the above heading best expresses the variation. This, as well as other names, are sometimes listed in catalogues of trees and suggest variations. I have not seen a fruiting tree of the variety in the wild state, and the question arises whether or not it occurs from seeds of the type, which is a common tree on the Bagshot sand formation. J. F.



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Editors and Publisher.—Our correspondents would oblige by delaying in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the Publishers; and that all communications intended for publication or referring to the Literary department, and all notices to be named, should be directed to the Editors. The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.

MR. KINGDON WARD'S SIXTH EXPEDITION IN ASIA.*

8.—INTO THE WILD COUNTRY.

I HAVE said that the Pine clad hills round Yung pei, starved of flowers as they are, nevertheless are richer than similar country yet passed through. Besides the violet *Dracocephalum* everywhere met with, and a blue *Boraginaceous* flower also widely distributed, there is a *Euphorbia* with bright scarlet bracts (a striking plant, this) and a *Hemerocallis*, with large blooms for its size, tawny orange in colour—there are also the bright orange-flowered *Stellaria* and several *Labiatae*. One feature all these plants have in common: they all have enormously developed root-stocks, hard, woody, often tuberous, and as large as a small Potato, in which case (e.g., the *Euphorbia* and *Stellaria* referred to above) they probably serve as water reservoirs. From these growths the roots descend far into the inhospitable soil. On May 22 we started northwards again, and, crossing the mountains which run immediately east of the city, entered the wild country. All provisions, both for men and animals, had to be carried, as we could get nothing on the road for several days at least.

All this country east of the great bend of the Yang-tze is very dry, and we found the mountains covered with shrubs instead of trees. The streams, however, where they flowed in deep, narrow valleys, were fringed with forest, tangled up with climbing plants, which abound.

As if to emphasise the fact that we really were in the dry country, it began to pour with rain, and by the time we reached a camping ground we were soaked through and had the disagreeable task of putting up tents in the rain. However, as it was practically the first rain we had had since leaving Lashia, five weeks previously, we really couldn't grumble. Moreover, there were many fine plants abroad. A *Roscoea*, with ivory white flowers, was a delight. There is little grace about these perky *Monocots*, but their colours are beyond cavil; even the purple-flowered species, very common along this route, is a splendid thing.

An *Azalea*, with very pale pinkish-purple flowers, mottled the slopes with colour, and a white *Rhododendron*, already met with far away to the south-west, was still in bloom. The corollas of this latter are eaten in Ta-li and elsewhere as a vegetable, under the illuminating name of "white flowered vegetable."

Clematis montana was also in flower—the first of the genus we had seen, and a couple of days later a second species with rich velvet-purple flowers was found. This, however, is widely distributed in the dry parts of Yunnan. *Deutzia*, yellow *Jasmine*, *Privet*, and other shrubs, were in flower. There was a much greater variety of trees and shrubs here than we had yet come across in the dry mountains. *Barberry*, *Cotoneaster*, *Oaks*, *Maples*, *Willow*, *Poplar*, and many *Leguminosae* may be mentioned, in addition to those referred to: a small tree of the order *Rosaceae*, crowded with blossom, scented the air with Meadowsweet. Amongst several lianas, was a species of *Actinidia*, and on a bare limestone cliff matted tangles of a *Vitis* quite new to me grew in profusion.

We crossed a pass of 9,612 feet, and, descending a narrow ravine, camped at 8,984 feet in a valley which promised quite a lot of surprises,

considering that the mountains did not rise much above 10,000 feet here.

I am talking about camp already, and have said nothing about the field of the cloth of fine purple, where we had lunch, a meadow of pinky-crimson *Candelabra Primula*. It really was a fine sight, notwithstanding the obtrusive colour. The plant, which is a sort of giant *Primula burmanica*, grows 20 inches high under the shady hedges, with a few (generally only two or three) crowded whorls of large flowers which vary in colour from almost pink to a nearly Tyrian purple, with orange eye. There is a very light powdering of meal on the calyces and pedicels, and only a suspicion of scent. But the flowers are phenomenally large for a *Candelabra Primula*, though they are of the colour most frequently met with in the section.

Curiously enough, we did not meet with the plant again till we reached Yung-ning, when it turned up again in the meadows. *Primula Poissonii* also grows here abundantly, but always on wetter ground, in actual bogs; this vile coloured species stayed with us all the way to Yung-ning. If one could only find a blue or a red *Candelabra*! But they grow too far from heaven for that. I fear: there are no *Candelabras* at much over 12,000 feet.

Marching down the valley next day, we found the hillsides dabbled with purple *Roscoea*, and with white *Salvia*. There is a variety of this latter, speckled with purple, having darkly pigmented calyces, whereas, in the white-flowered form they are green. *Deutzia*, *Clematis*, a small-flowered *Akebia*, *Philadelphus* and *Azalea*, all blossomed profusely in the ravines, but above the stream, the slopes were thinly covered with Pines, which, however, managed to stand up straight and not resemble corkscrews. Here and there a *Tsuga* grew on the rock.

We crossed a pass of nearly 10,000 feet and found true *Rhododendron Delavayii*, the crimson flowers having the almost black honey glands which are a feature of that species; these the Shui-ning plant previously referred to lacked.

Over the pass we came on masses of a blood-orange *Candelabra Primula*—a fine plant. The buds are distinctly brick red, but they are more orange when open. A slight powdering of meal whitens the calyces as an early snowstorm might whiten the trees: and there is a fugitive scent of Cowslips, for which the exile sniffs desperately. We saw this plant henceforth every day till we reached Yung-ning on May 28; sometimes in the open meadow, sometimes in deep shade, or by streams, scattered, or in masses. Good plants were as much as twenty inches high, the flower whorls tightly jammed with blossom. After travelling through wooded ravines and Pine forest all day, we emerged into broad, open, grassy valleys, and camped while it was still quite light, the weather having turned fine again.

This country to the east of the great bend of the Yang-tze is one enormous block of limestone, sliced into by streams, which, at first flowing north and south more or less parallel to the trend of the mountain axes, eventually turn east or west, and break through the ranges. There is a tendency for the water to disappear underground, and even at this season, not a few of the streams were dry. The whole region is very dry, and where the valleys are wide, only a thin covering of Pine and Oak is seen below 10,000 feet. Variety is added to the scenery and to the vegetation by deep ravines, filled with trees, giving shade and shelter to a number of other plants; and in places are grassy meadows, delightful spots in which to camp.

On May 24 we crossed a fair-sized river, climbed to a pass, and descended into a typical valley. That is to say, being wide and open at the summit it was dry and bare; but presently we came to Pine woods, where the slopes were carpeted with two species of dwarf *Rhododendron*, both of them over, though I secured lingering flowers. With them grew *Barberry*, *Corylus* and Holly-leaved Oak. Presently the valley narrowed and we came to groves of Oak and Alder by the stream, and halted on such a wooded lawn for lunch.

A most odd little *Aristolochia* grew in the Pine woods here, on the dry, rocky slopes; and a series of scarps displayed a number of *Primula* capsules, suggesting *muscariaoides* or something

near to it. There was not a sign of a new plant coming up, but by collecting every capsule I could find, we managed to coax a few clinging seeds from a living death, in the hope that they would open their eyes in a new land.

It may be remarked here that more or less bare scarps are of frequent occurrence throughout this limestone region, both down in the valleys and high up in the mountains. Some of these cliffs are very conspicuous objects, visible from a great distance. For the most part they are as bare as they look, but in chimneys and crevices plants often lurk, especially at high altitudes. Of these cliffs none anon.

That afternoon we ascended another valley, and crossed several beautiful grassy meadows, rather marshy, and crowded with flowers of a somewhat tame appearance. At the head of this valley was a high rocky range, which had been in sight all day; unfortunately the pass to be crossed left it well to a flank, and next day it dropped out of sight behind. We camped by the stream at 8,000 feet, the country still being almost uninhabited. F. Kingdon Ward.

FLORISTS' FLOWERS.

THE CARNATION.

WHAT one generation of florists or lovers of flowers may esteem perfect in a *Carnation* may by another and a later generation be set aside as unworthy of attention. This has been the case for as long as anything is known of the plant. The old English *Carnation* was eclipsed by the yellow or "orange-tawny" strain introduced by the merchant Lete in the 16th century, that again, in the 17th century, by Dutch varieties, conspicuous by the enormous proportions of their flowers, and these in turn by a more refined strain about 1740 from France, and its progeny served to keep florists employed in improving its characteristics and that of the *Picotee* for a very long time. In 1820 we read of more Continental varieties being dispersed.

Up to the end of the 'eighties of last century the florist confined his attention to, and bestowed his homage on, *Carnations* and *Picotees* of a rigidly florist type—*Picotees* with pure grounds and the edges of their petals neatly margined in colour. *Carnations* also with pure grounds striped with various colours. But there were always a few varieties with self colours grown in gardens, though in the one in which I served my time none but show flowers was admitted.

When the *Carnation Manual* was published in 1892 there was already a fair selection of border varieties, and in it a selection of selfs for borders is given. However, they all belonged to a type or strain that has been superseded by another, the characteristics of which I propose to notice. Briefly the first-named were wanting in stamina, flowered but sparsely, and the "grass" grew in a cluster close to the ground, an example of which is seen in Sam Weller. On reference to notes I find that a new type was in existence in 1893-4. The plants were very robust, upright in habit, with flowers non-drooping, but upstanding and a proportion producing shoots on the stems, and showing a partially perpetual tendency. Of British cultivators, Mr. Martin Smith, if not the originator, was certainly the first who worked up this strain. His first plants were obtained from Mr. Matthew Campbell, of High Blantyre, who once told me he had obtained plants from America quite distinct in growth from ours, particularly in their rigid stems. Mr. Smith also, though later, procured plants from Benary, the German florist, and he informed me that Germania had been one of his stud plants for many years. This old variety has exactly the general habit though not the robustness of the novelties Mr. Smith produced annually. It was introduced about 1890. In 1892 I cut over 300 dozen of its blooms and had about 2,000 plants in the autumn, while in the ensuing spring I struck as many more from stem cuttings. Against all the rules Mr. Smith set about producing varieties with colours

* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 19, July 23, August 20, September 3, October 8, and October 29, 1921.

so remarkable that new sections had to be found for them by the names of Fancies and Yellow Fancies. Such flowers may have been produced before, but, if they were, no doubt the earlier florists would dispose of them as monstrosities. However, no one need be told how popular they were and are and how useful to the mere gardener who has ladies to provide with flowers. Their productiveness is remarkable, and has been increased in the later varieties, strong layers of which will throw as many as ten flowering stems, and if grown in pots will continue producing odd flowering stems all the winter. I recollect one of the earlier varieties grown in pots never having been without flowers or buds for the space of three years.

Perpetuals are obviously similar in diversity of production to other Carnations, and we seem to be within reasonable distance of varieties as remarkable for colouring as in the border section. Out of a small number of seedlings which have flowered or are now flowering a large proportion are Fancies, one, a true yellow ground. Some are pink striped with red, some flushed, and one at present in course of expansion reminds me of the variety Sir D. Haig. A single is a true bizarre, and in the hope of F_2 throwing doubles of the same type, it was allowed to bear seed, which, however was completely devoured by voles. Another single of these seedling Carnations is marked exactly like a Pink with a ringed eye of deep rose, the other parts of the petals being blush, spotted. What I esteem the most remarkable break is one of the Painted Lady type with the stone-white reverse of the petals curling over on the crimson front. There is no apparent reason why any of the breaks, as well as a true apricot self, should have occurred, as the seeds were derived from selfs and from Alma Ward. It seems to demonstrate the wonderful variability of the Carnation, and also leads one to conclude that Perpetuals have inherited "blood," which one would never have anticipated to be possible.

For the encouragement of others who might like to try raising seedlings I may add that all ours are grown in 4 in. pots, potted on from thumbs, the seedlings being transferred from cutting boxes to these. The seeds are sown as soon as ripe and this year's seedlings are now in thumbs, singly. R. P. Brotherston.

INDOOR PLANTS.

GLOXINIAS.

A GLASSHOUSE filled with choice varieties of Gloxinias with their masses of richly coloured flowers is a most beautiful object. When the erect-flowered varieties made their appearance the older type with drooping blooms gradually disappeared from cultivation. At first there were only a few colours, and these without any brilliancy, but by continual fertilisation and selection a remarkable change has been accomplished, and there are now strains of the finest quality, the plants free flowering, of compact habit, and with flowers of perfect form and great substance. The colours include scarlet, violet, pink, purple, crimson-scarlet, and pure white while others are beautifully marked with distinct shades in great variety. A fine plant of the erect-flowered type is illustrated in Fig. 3. There is also a strain with extra large flowers delicately spotted and marked in an infinite variety of colours which are extremely interesting and unique, these making a pretty contrast to the self and other shades of colour.

The Gloxinia has not proved itself to be very amenable to hybridising with other genera. An interesting hybrid was raised from *Gesnera pyramidalis* fertilised with the pollen of a brilliant scarlet Gloxinia; it was put into commerce under the name of *Gloxinia Brilliant* (see Fig. 4). The flowers were as large as those of a medium-size Gloxinia, horizontal in position, and of a brilliant carmine-crimson. Many other crosses were made both ways between Gloxinias in variety and *Gesnera* in variety, but the result was practically the same, the *Gesnera* predominating in each case. All bore drooping flowers of different shades of mauve, but none was equal to the Gloxinia.

The Gloxinia is easy of culture provided it is grown in a moist atmosphere and a temperature of 65°. If grown in cooler conditions the plants flower later, and do not grow so vigorously, or give such good results. The first batch of seed should be sown at the beginning of January in a temperature from 65° to 70°. Well-drained pots or seed pans should be filled with clean crocks to within two to three inches of the top, and over these should be placed a thin layer of some of the rougher parts of the prepared soil, filling the receptacle to within half an inch of the rim. The surface should be made perfectly level and firm by pressing it lightly. The seed should be just covered with fine, sandy soil, and watered with a fine rose pot. Shade the soil from the bright sun, and never allow it to become dry.

may be easily examined. Place them under a dry stage or in a cellar with a temperature about 55°. The corms should on no account be allowed to get dry enough to shrivel nor should they be kept damp, as this would cause rotting. The corms may be started again in the beginning of January or February in shallow boxes, or potted singly in small pots placed in a genial, moist atmosphere with a temperature of from 65° to 70°. Pot moderately firmly in soil consisting of two-thirds turfy loam, one-third good leaf-mould or fibrous peat, and a little decayed cow manure with silver-sand added. Water the soil sparingly at first; shift the plants into larger pots as required, but be careful not to over-pot them.

When the flower buds begin to appear and the plants are well rooted a little liquid manure



FIG. 3.—A FINE PLANT OF THE ERECT FLOWERING TYPE OF GLOXINIA; EXHIBITED BY MESSRS. E. WEBB AND SONS.

Cover the pot or pan with a piece of glass, tilted at the back about an inch, until germination takes place.

When the seedlings appear they should be gradually exposed to the light and air to prevent them becoming drawn or weak. As soon as they are large enough to handle prick them off, about an inch apart, in shallow boxes or pans, and when sufficiently strong repot them singly in small pots. When the roots of the plants reach the pots, and before they become pot bound, give them another shift as required. Be careful not to over-pot the plants.

Gloxinia seedlings will flower, under normal conditions, in about eight months from the time of sowing; when in bloom select the best varieties for next season's flowering. After they have done flowering gradually ripen the plants by withholding water, and when they are fully ripened and have lost their foliage shake the soil from them and store the tubers in boxes or pans in a little nearly dry coconut fibre or sandy soil, in which condition they

is beneficial to growth. Shade the plants from bright sunshine, and, until they are in flower, keep the atmosphere always moist by damping the stage and floor in order to prevent that troublesome pest, the mite, attacking them. The mites are so small they can scarcely be detected by the naked eye, and if not dealt with in time the plants will be ruined for the season. Avoid draughts and a dry atmosphere, which encourage the spread of mite and thrip. The latter pest may be guarded against by fumigating the house from time to time when the plant commences to make fresh growth.

To increase the stock of any special variety, take well ripened leaves and make them into cuttings below the principal veins, about three inches in length, and put the leaf cuttings in small pots. The stock may also be increased from leaves laid on sandy soil with the principal veins cut across, and placed in heat under a hand-light or frame. These will form small corms for flowering the following season. John Heal, V.M.H.

THE GREAT DROUGHT OF 1921 AND ITS EFFECT ON GARDEN PLANTS.

S.W. SCOTLAND.

THE northern frontier of the great drought of 1921 has been the Caledonian Canal. All the Scottish counties south of that line shared the shortage of rainfall which prevailed in England. Conditions in the Northern Highlands may be best illustrated by quoting from a letter received on November 9 from Mr. Osgood Mackenzie, whose fine collection of shrubs and herbs is grown on the west coast of

vapour suspended in the air protects vegetation from scorching, and plenty of stones in the soil check both evaporation and radiation.

No genus is more liable to suffer from drought than *Rhododendron*, whereof upwards of ninety species are grown here, chiefly Asiatic. Not one plant has been lost, but the season's growth has been normal, with plenty of bloom set for 1922; the result might have been different had not all young *Rhododendrons*, and those older ones, whose upright or sparse habit exposes the soil over their shallow roots to sun heat, received as usual a heavy mulch of withered leaves during the winter.

was not so good as usual, and *Tricuspidaria lanceolata* resented the cold and wet summer of 1920 by a deficiency of bloom, the flower-buds being set in the summer preceding that in which they open. *Mitraria coccinea* suffered from the heat and flowered poorly, while *Abutilon vitifolium* and *Desfontainea spinosa* were as free as usual.

In the Australasian flora all species of *Olearia* and *Senecio* revelled in the sunshine; but not one out of about forty *Cordylina australis* bore flowers, though several of them did so in 1920. *Herbert Maxwell, Monreith.*

SUSSEX.

I am afraid it is rather difficult to send any definite particulars as to the effects of the drought of 1921 in my garden. So far the effects are not very marked, but I feel sure another six months will reveal a certain amount of serious damage to flowering shrubs. Certain plants have suffered, but shrubs will recover if the winter is normal and the spring of 1922 favourable.

Fruit trees on the whole seem to have got through very well. There is a good deal of weak growth. The most noticeable feature was the late fall of the leaf on many Apples. There is a fair show of fruit buds on Apples, Pears and Plums.

Vegetables were damaged, and in many cases winter greens had to be planted two or three times before a crop was established.

Potatoes were a light crop, and "growing out" was very marked. Carrots were completely checked in growth, and when rain came growth recommenced. The result is that most of the roots contain a hard core, and are useless for cooking. On the whole I should prefer to give an account of the effects of the drought about April or May, 1922. *Charles G. A. Nix, Tilgate Forest Lodge, Chawley.*

WARWICKSHIRE.

The outstanding feature of the abnormally hot summer at Ward End Park, Birmingham, was the remarkable recovery of grass. Situated on the top of rising land, the ground is practically a bank of sand and gravel, therefore grass showed the effect of the hot sun more than that on heavier land. The grass was burnt completely off, yet it recovered, and looks better than it ever did before by reason of the fact that one half was not cut and the plants seeded all over the place. Patches that have never had grass on before are now thickly covered with grass. The only trees or shrubs we have lost through the drought are those transplanted last season. *Rhododendrons*, although at one time they looked dead, broke into growth, and one of Cunningham's White was in full flower in August. Self-sown seedlings of various flowers have been common. *Collerette Dahlias* which came up in the border last spring flowered well, but what surprised me most were two beds of *Golden Verona Pelargonium* hundreds of seedlings came up at the end of July, and 90 per cent. were true to type, with golden foliage. *Chrysanthemums* were very dwarf, and varieties which in normal seasons grow 6 feet tall, were only 2 feet 6 inches high. I left a few rows of *Majestic Potatoes* in the ground until the first week in November, and found the secondary tubers were of suitable size for seed, and there were plenty of them. *A. J. Elgar, West End Park, Birmingham.*

NORFOLK.

In answer to your inquiries concerning the effect of the drought of 1921 in my garden I must begin by stating that it is situated on the top of a hill, that the soil is very poor and sandy, and that I had no water to use for the garden, as I was fearful of my well (my only water supply) failing. Under these circumstances it will be understood that my list of plants which have done well is a very small one.

On the whole the fruit crop was wonderful. Pears, Apples and all small fruit, except Raspberries, were really good, and there was a half crop of Plums. Vegetables were very poor and dried up.

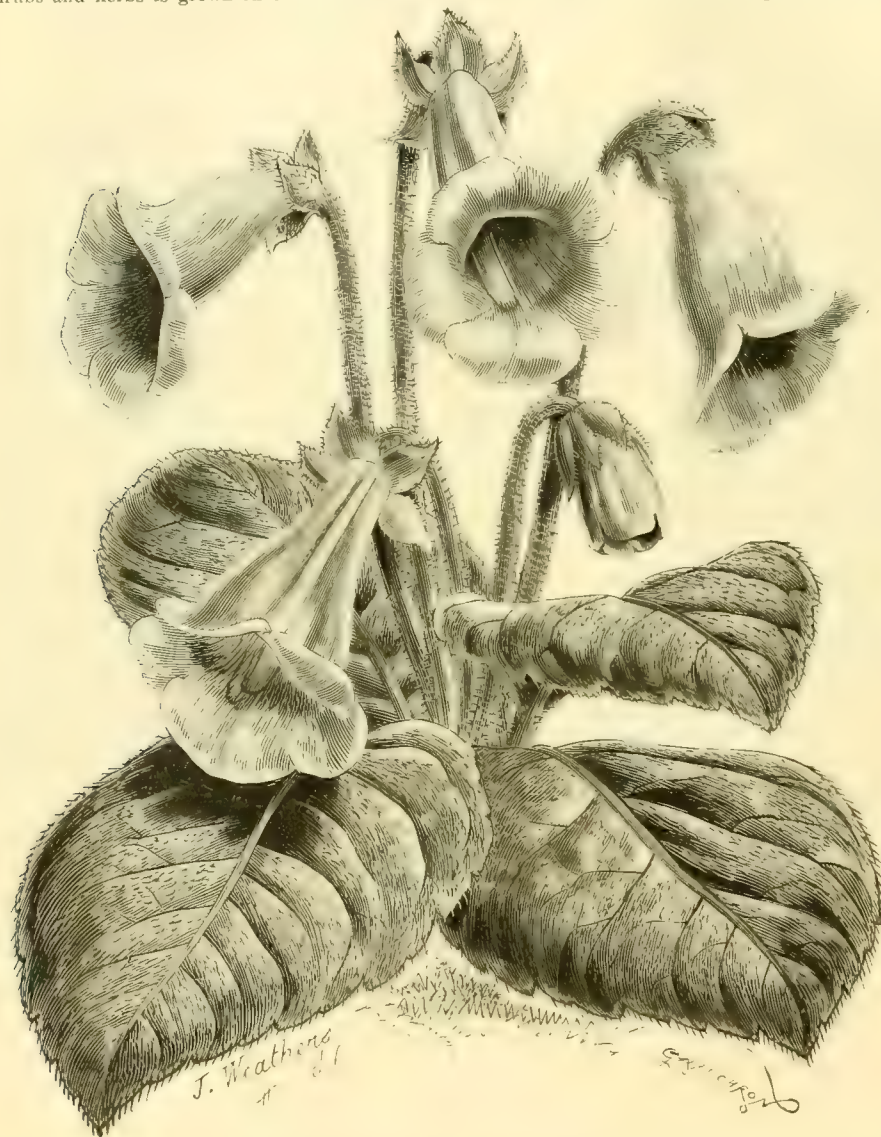


FIG. 4.—GLOXINIA × BRILLIANT (SEE P. 7).

Ross-shire:—"What we have suffered from perpetual rain all this summer and autumn, I cannot describe; never a dry day north of the Caledonian Canal." In 1920 the conditions were just reversed. During the summer months when all in the south were shivering and soaked, the summer north of the Caledonian Canal was exceptionally warm and sunny.

In the extreme south-west of Scotland (this garden lies actually further south than Durham) no rain fell between April 27 and July 22, a drought unprecedented in my recollection. Owing, however, to a cool subsoil—boulder clay underlying sharp loam full of stones of all sizes and to the humidity of the atmosphere near the sea, we really have no losses to complain of, except an occasional plant of the *Kabschia* section of *Saxifrage*. The invisible

Lilies and Roses flourished exceptionally; there has been a total absence of *Botrytis* on the former; but *L. giganteum* was far below its average height of flowering stem. There was practically no green fly on Roses; but this has been the case during the last four years, which I attribute to the industry of the tits that occupy nesting boxes in the garden. Before these were put up, we used to suffer badly from green fly.

Amaryllis Belladonna flowered most profusely, more so than usual. On the other hand, *Lycoris squamigera*, which flowered freely in 1920, produced nothing but leaves in 1921.

Among Chilian shrubs, *Eucryphia pinnatifolia* and *E. cordifolia* were sheeted with blossom; *Berberidopsis corallina* (on a wall)

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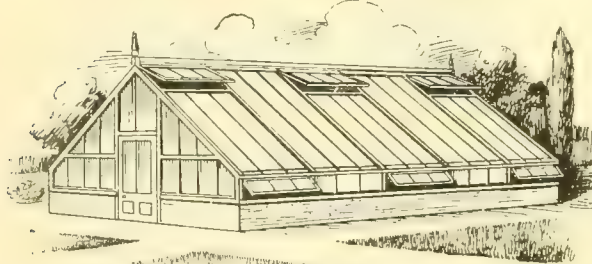
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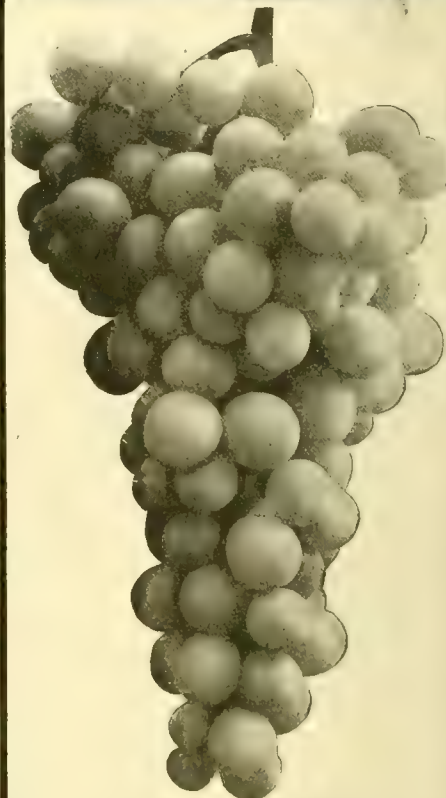
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Plants that died from the effects of the drought in this garden include almost all the mossy *Saxifrages*, *S. Aizoon*, *S. Aizoon rosea*, *S. oppositifolia*, and *S. Elizabethae*; *Potentilla nitida*, *Desfontainea spinosa*, all the *Pernettyas*, *Paeonia lutea*, and many *Thuya Lobbii*, 8 ft. high, in a hedge.

Practically the whole of the plants in the large herbaceous borders were reduced to dried sticks with shrivelled flowers (if any). All the different varieties of *Ericas* except *E. stricta* and *mediterranea*, *Daphne Cneorum*, *D. Blagayana*, *Saxifraga apiculata*, *S. sancta*, and *Androsace lanuginosa* all suffered badly. *Montbretias* (a speciality here) had their leaves all dried up and smothered with red spider. All *Primulas* and *Gladioli* suffered. *Sydney Morris, Earlham Hall, Norwich.*

(To be continued.)

MESEMBRYANTHEMUM AND SOME NEW GENERA SEPARATED FROM IT.

(Continued from page 336, Vol. LXX.)

10. *G. LONGUM*, N. E. Br.—Leaves 2-ranked, tongue or strap-shaped, 3-5 in. long and about $\frac{3}{4}$ in. broad, ascending or spreading, moderately straight, variably obtuse or more or less hooked at the apex. Pedicels up to 2 in. or more long. Flower 2-2½ in. in diameter. Capsule 6-7 lines in diameter, slightly domed at the top.

M. longum, Haw. *Obs.*, p. 177 (1794), founded upon *M. foliis linguiformi longiore*, Dillen., *Hort. Elth.*, p. 238, t. 185, f. 227; N. E. Br. in *Journ. Linn. Soc. Bot.*, v. 45, p. 70.

M. linguiforme, D. C., *Pl. Grasses*, t. 71, not of Linné.

M. lucidum, Haw., *Suppl.*, p. 89 (1819), and *Rev.*, p. 96.

M. ascendens, Haw., *Synop.*, p. 220 (1812), not of Salm. Dyck.

This species is distinguished from the others that have 2-ranked leaves, by the ascending leaves and long pedicels. But in his *Revisions*, p. 96, Haworth seems to have substituted a different plant, with several varieties to it, having sessile or subsessile flowers. With the exception of the variety *uncatum* quoted under *G. uncatum* (p. 336, 1921), I can find no clue to what plants these may have been, but think it quite possible they may have been hybrid forms raised from seeds produced in Europe, and I feel sure that several of the forms now cultivated under this and various other names are also of hybrid origin.

The plant figured as *M. heterophyllum*, Jackson in *Andrews Bot. Rep.*, v. 8, t. 540 (not of Haworth), I suspect to have been one of these seminal forms. It has very long leaves irregularly incurved-hooked at the apex, pressed to the ground and flowers about 2½ in. in diameter on pedicels an inch or more long. Haworth (*Rev.*, p. 102) names this plant *M. angustum* var. *heterophyllum*, but according to his original description of *M. angustum*, it has nothing in common with that species. It may be the same as *M. longum* var. *flaccidum*, Haw., *Synop.*, p. 22.

A. A.—Leaves not in two regular ranks, but pointing in various directions, the pairs crossing one another obliquely or rarely at right angles.

* Leaves usually broader than thick, flat above, without a hump or teeth on the flat face.

11. *G. TAURINUM*, N. E. Br. Leaves obliquely cruciate, half-cylindric, obtuse, very thick, incurved, "less cruciate than *M. cruciatum*, usually somewhat finger-like and nearly the size

of a finger, the younger incurved like the horns of a bull." Flowers sessile; stigmas 8.

M. taurinum, Haw., *Synop.*, p. 224 (1884). I think it probable that to this species should be referred *M. angustum*, Salm. Dyck, *Hort. Dyck.*, 1818, p. 17, and *Mes.*, §7, f. 6 and 6B (not of Haworth, but named by the latter *M. angustum* var. *pallidum*, *Rev.*, p. 101, with the statement that it is "perhaps a distinct species or variety of another species"). Its flowers are 2½-2½ in. in diameter.

12. *G. PRAEPINGUE*, N. E. Br. Leaves obliquely cruciate, not depressed, up to 3 in. long, some tongue-shaped with the points obliquely incurving, others narrower without any oblique curve or ridge near the point, others with subulate triangular or broad compressed points, bent and ending in a soft white bristle, whitish or shining near their bases, or as if frosted over with exceedingly minute papillae, when young minutely ciliate. Flower about 2 in. in diameter, nearly sessile, or according to Salm. Dyck with a pedicel 9-10 lines long. Stigmas 8.

M. praepingue, Haw., *Obs.*, p. 179 (1794); Salm. Dyck, *Mes.*, §7, f. 5.

13. *G. CRUCIATUM*, N. E. Br. Leaves exactly cruciate (but the pair as figured by Salm. Dyck

that of the capsule, is made from Salm. Dyck's figure, as Haworth's original description is rather vague, and does not agree very well with Salm. Dyck's figure and description. But I think there can be no doubt that both descriptions refer to the same plant, the difference being caused by Haworth having described from a young plant that had not assumed the adult form. In his *Revisions*, p. 100, he describes three varieties besides the type, all of which he states were received from Salm. Dyck. Original drawings of some of these varieties made in 1823 and 1826 are preserved at Kew, and merely represent young plants not arrived at maturity, and as they seem better to agree with Haworth's description, support my above expressed view that he described from immature plants.

** Leaves nearly cylindric, ascending, without teeth on the face.

15. *G. ARRECTUM*, N. E. Br. (new species, Fig. 5). Leaves 2-3 (rarely 4) pair to each branch or growth, suberect or ascending-spreading, usually more or less curved, and the pairs set obliquely to one another, 2-3 inches long, 3½-5 lines broad near the base and 3-4 lines thick.



FIG. 5.—*GLOTTOPHYLLUM ARRECTUM*, N. E. BR. (NATURAL SIZE.)

are obliquely crossing each other), 3-in. long, 1 in. broad at the base; all old leaves appear swollen (? convex) on the upper side, particularly near the somewhat dilated base. Pedicels stout, 1-2 in. long, of equal thickness to the very calyx. Flowers large. Petals not so long as those of *M. difforme*, but broader. Stigmas 8-9.

M. cruciatum, Haw., *Obs.*, p. 173 (1794), and *Misc.*, p. 35; Salm. Dyck, *Mes.*, §7, f. 7.

If Salm. Dyck's figure correctly represents Haworth's species, the leaves are unequal, much curved, 2-4 in. long and 6-9 lines broad, semiterete, flat above nearly to the obtuse tip. Pedicels 2 in. long. Flower 2½ in. in diameter.

14. *G. SALMII*, N. E. Br. Leaf-pairs crossing one another, variously curved, 3-4 in. long, 7-9 lines broad at the base, thence tapering to an acute point, flat above, convex beneath, with the apical part sometimes obliquely prolonged beyond the flat surface and laterally compressed or keeled. Flowers sessile, 2-2½ in. in diameter. Capsule depressed, half included.

M. Salmii, Haw., *Suppl.*, p. 89 (1819); Link and Oto, *Icon. Pl. Sel.*, p. 95, t. 44; Salm. Dyck *Mes.*, §7, f. 8.

The above description, with the exception of

somewhat cylindric, but with the inner face more or less flattened, not at all keeled on the back, acute or subobtuse, smooth, glabrous, light green, not at all glaucous nor dotted. Flowers subsessile or on pedicels 1-2 lines long and 1½ line thick. Calyx 4-lobed; lobes 3-4½ lines long and as much in breadth, broadly ovate, obtuse, green, all with membranous margins. Corolla 2-3 inches in diameter, cup shaped, expanding in sunshine, scentless; petals about 50, in 1 series, lax, 12-16 lines long and about 1 line broad, linear, very obtuse or subtruncate and notched at the apex, bright yellow on both sides. Stamens numerous, erectly spreading in a ring around the stigmas; filaments pale yellow; anthers darker yellow. Stigmas 7-8, widely spreading, about 2 lines long, lanceolate, acute, plumose, pale yellowish-green. Capsule subglobose, with a high dome-like top, 3-5 lines in diameter, 7-8 valved.

Sent to me from Sevenfontein in Swellendam Division, by Dr. I. B. Pole Evans, 6922. It flowered in September, 1921.

This species is easily distinguished from all the others by its ascending, nearly cylindric leaves. N. E. Brown.

(To be continued.)

SCARLET TOMATO-FRUITED EGG PLANT.

PERHAPS a few further notes on this ornamental plant (see p. 269, vol. LXX.) may be of interest. It is not an Egg Plant, though related to the Egg Plant. The fruits are quite different, both externally and internally. Nor is it a Tomato, though the fruits externally resemble an early form of the Tomato. The confusion of the name with *Solanum ovigerum*, which is an Egg Plant, doubtless arose because by accident a Continental firm appears to have distributed seed of this plant under the name *S. ovigerum*. Dunal (1852) distinguished a plant which was growing in a garden under the name *S. texanum*, and said it was distinct, but not very dissimilar from *S. integrifolium*, Poir., which he places next to it. Some botanists since his time (Kew apparently among them) have placed the two species, as he considered them, together, as not so distinct from one another as to be regarded as more than forms of one species, which would then have the older name of *S. integrifolium*. Dunal's plant was figured in *Le pict. fac. sc. Monsp.*, vol. 9, t. 857, and he states, "*Habitus S. esculenti*," i.e., the Egg Plant. The seed from which it was grown was sent from Texas, but not directly.

S. integrifolium is native in Mauritius, and was figured by Jacquin in *Hortus Botanicus Vindobonensis*, t. 12, and elsewhere under the name of *S. aethiopicum*, but it was known long before his time. Apparently the same thing appeared in Robert Morison's *Plantarum Historiae Universalis Oronensis* (1715), sect. 13, t. 2, vol. 3, p. 525, under the name *S. pomiferum*, fructu rotundo, striato, duro, and Caspar Bauhin mentions it in his *Pinax* (1623), and J. Bauhin in his *Historia* (3, p. 920), while Dodoens refers to it as *Mala aethiopica* in *Stirpium Historiae Pemptades Sex* (1616) 459. It is thus an old plant well known to early botanists. F. J. Chittenden, Wisley.

CHINESE RHODODENDRON SEEDLINGS AND LIME.

IN 1920 Professor C. S. Sargent, Director of the Arnold Arboretum, very kindly sent me some Chinese Rhododendron seeds collected in 1919 by Forest, in Yunnan. The soil in this district of Vancouver Island has very little, if any, lime in it; the ground for miles is covered with such plants as *Gaultheria*, *Vaccinium*, *Kalmia*, *Ledum*, *Blechnum*, *Linnaea*, and other subjects known to prefer soil of a peaty nature, and the only Rhododendron that ever failed with me as regards soil was a batch of either *R. hirsutum* or *R. ferrugineum*. I don't remember which now, but it was the want of lime that killed them.

I divided each packet of the seeds sent me by the Arnold Arboretum, and on June 4, 1920, sowed one half in a box with the ordinary soil, the other in a compost of one ounce of air-slaked lime—that had been exposed to sun and rain for years—to each pound of soil. The seeds, placed in a cool, half-shaded situation, germinated at about the same time and at the same rate in both boxes, but the seedlings in the lime mixture soon turned brown, and to-day not one of them is alive, and the box now has a covering of green moss, in which over a dozen different species of flowering plants, including a Mountain Oak (sometimes associated with Rhododendrons in the Himalayas) is growing, showing that there could have been nothing poisonous in the soil and that the percentage of lime could not be considered excessive. Owing, no doubt, to the long distance they had travelled, the Yunnan seeds germinated very poorly compared with a sample of home-saved *R. californicum*, sown as a test in the lime mixture, but now also dead. Those alive, in the box with the ordinary soil, are numbered F. No. 15745, F. No. 17827, F. No. 13769, *R. detoulum*; F. No. 15667, *R. Scottianum*; F. No. 17828, and F. No. 15736. The last two numbers had very fine seeds, and the seedlings look as if they might be deciduous. George Fraser, Ucluellet, Vancouver Island, B.C.

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Freeing a Pond from Weeds.—From my note recommending swans for the extermination of Potamogetons (see p. 304, vol. LXX.) it might be inferred that some other weeds would also be exterminated. This, I daresay, may be expected, but swans are far from being indiscriminate feeders, and they will not touch perhaps the majority of those weeds that are the least desirable. After the extermination of several kinds of Potamogeton, I have found them of little use. The only way of dealing effectively with a weedy pond is to drain it and dig out the weeds that root in the mud. This I have had to do a number of times. Loose floating vegetation like *Limnanthemum* can be dealt with quite effectively in summer by a man with a punt and a rake, it might be with assistants, one on each side of the pond, with a rope end each to keep the punt in position. I have found that very little good can be done with scythes blades strung together. If the pond is not too deep, it is possible for a man to wade into it and pull out the young growths of Typha, which often extend very inconveniently. For the cleaning out of a pond, by which is meant the removal of weeds, some years ago I got an estimate of 6d. per square yard from a firm of drainage contractors, but at that time it was possible to do the work for much less by hiring one's own men. I have never adopted the scheme, but I have often thought I should like to try the plan of diverting the water supply and cultivating the bed of the pond until all the water plants were dead. It would then be possible to plant only the choicest and most desirable sorts, exercising a very careful *Index Expurgatorius*. First on this list I would place Nuphar luteum, which seeds freely and quickly becomes a nuisance. Very carefully I would keep out Polygonum amphibium, which I have known to grow in the deepest water of the pond, and also apparently from the same stock on the driest ground of the whole garden. Water-fowl are not now in question, but they may cause a considerable amount of work and trouble by pulling down the banks and making very ugly breaks in the curves determined upon. I have never seen the plan referred to, but at Cambridge, whereof I write, the difficulty was effectively and easily overcome by laying wire netting on the turf. It was soon hidden by the grass, and few, I believe, ever knew of its presence. To meet the turf margin from the water it is of great value to have the bank lined with old bricks, unless some more expensive method to accomplish the same end is preferred. R. Irwin Lynch, V.M.H.

Exocorda Albertii (Regel).—Doubtless as the result of the past abnormal summer and mild autumn, *Exocorda Albertii* is flowering (December 13) sparingly on the bare shoots of this year's growth. The racemes are shorter, flowers smaller and more compact, suggesting at a little distance the white variety of *Daphne Mezereum*, an impression enhanced by the leafless branches, though naturally the habit of growth is not the same. I would like to know if plants elsewhere have behaved in a similar manner. There are no flowers on *E. macrantha* or *E. grandiflora*. A. B. H., Smeaton, East Lothian.

Iris unguicularis.—This Iris, established in a row at the foot of a south wall, continues to produce its fragrant blue flowers. During December the border has been most beautiful—a mass of blue colour. It has been flowering since the middle of October in very poor soil, and flowers have been out almost daily. They are best cut in the bud state and opened in water, and when cut down as low as possible they last longer than those with a comparatively short length of stem. I attribute the early flowering of this Iris to the unusually long dry, warm season. James A. Paice, Aldenham Vicarage Garden.

Begonia Gloire de Lorraine.—Referring to your recent reference to the measurements of plants of *Begonia Gloire de Lorraine* grown at Hindhead Court, it may be of interest to give the dimensions of those grown at King's Walden

Bury. Several houses are occupied by Winter-flowering Begonias, one house being wholly given up to *B. Optima*, in 5-inch and 6-inch pots. Of *Begonia Gloire de Lorraine*, several in 10-inch pots have a circumference of 7 ft. 6 in., diameter 3 ft. and height 2 ft. 9 in. Some twenty plants, including the white Turnford Hall form in 6-inch pots, measure 6 ft. 6 in. in circumference, 2 ft. 4 in. in diameter, and 2 ft. high. The sticks which support these plants are practically hidden by the foliage and the masses of flower. A. J. Hartless, King's Walden Bury Gardens.

Wilt in Melons.—In answer to the inquiry by "Ardara" (page 316, vol. LXX.), regarding the application of sulphate of copper, I dust the powder freely on the Melon stem from base upwards, at frequent intervals. One tablespoonful of sulphate to a gallon of water, syringed over the foliage, leaves a deposit which is also beneficial. This remedy was kindly suggested to me in answer to an inquiry in *Gard. Chron.* last spring. Sulphate of copper does not prevent the disease, but prolongs the life of the plant attacked and allows it to finish good fruit. Without its use, my plants have always collapsed when the fruit begins to net. One of our leading mycologists is studying the disease from plants I have sent him. Melons were a success here until 1914; since then, I have had "Wilt," even in houses in which Melons have never been grown before. Anxious.

Doubling in Stocks.—I have been, and still am, very much interested in the articles and correspondence relating to the doubling of Stocks. Personally, as a young student of Mendelian Law, I support Miss Saunders in her statements; incidentally my experience also coincides with hers. As someone seeking the light where it is not (for does not the mature experiences of these competent gardeners, Messrs. Brotherston and Taylor, shut out the vista which Mendel had opened before us), I ask why do these two gentlemen not proceed to enlighten us upon their method of defying fundamental laws. I would far rather believe that the much derided scientist is right and that the Lothian methods are, after all, only a perpetuation of the abnormal. I also observe Mr. Brotherston's remarks (page 97, vol. LXX.) relative to the history of Malmaison Carnations, which remarks apply equally to other subjects, vegetable or floral. A strong constitution is only to be got when based upon a good pedigree, and in starting new stocks it is often only possible to work upon tradition, the results of which are only known in all their several details to the breeder himself, and sometimes, maybe, his superiors. I do not think that Messrs. Brotherston and Taylor would really wish to contradict Miss Saunders, who merely states a scientific fact supported by practical demonstration and general experience, so that I have no doubt they will willingly elucidate any mystery (if there is one) surrounding their statements. G. R. Sargeant, Kelso.

Oncidium ornithorhynchum.—This pretty species has recently passed out of flower. As soon as new roots are observed at the base of the new growths, the plant should receive attention. If the pots are of a suitable size and the compost in good condition, the latter need only to be resurfaced with fresh material. Some may, however, require repotting, and such should be attended to at this stage. The plants succeed best in a position near the roof glass in an intermediate house. J. C.

Rare British Orchids.—If Mr. G. Claridge Druce will refer to that delightful book on natural history, *A Hundred Years in the Highlands*, by Osgood Mackenzie (Arnold, 1920), he will there find a record of the discovery of that rare Orchid—*Cephalanthera rubra*—at the Gairloch. The late Lord Avebury pointed out with pride to several naturalists, including the late Professor Marshall Ward, quite a little colony of this Orchid, growing by the margin of the racecourse at High Elms. Since that time I have again seen it, where long may it remain undisturbed. A lengthy descriptions of *Orchis maculata praecox* will be found in the second edition of my *British Orchids*, and more fully in the *Transactions of the Botanical Society of Edinburgh*. A. D. Webster.

FRUIT REGISTER.

APPLE NORFOLK BEAUTY.

IN the coloured plate accompanying this issue we present our readers with an illustration of Apple Norfolk Beauty, a variety first exhibited by Mr. W. Allan (gr. to Lord Suffield), Gunton Park, Norwich, at a meeting of the Royal Horticultural Society held on October 15, 1901, when it was granted an Award of Merit. He exhibited it again on December 9, 1902, when a First Class Certificate was awarded. Norfolk Beauty appears to have resulted from a cross between Warner's King and Waltham Abbey Seedling, as these two varieties were growing closely together where the seedling appeared and the fruits bear some resemblance to both. The Apple is a culinary variety in use from October to December. The fruits are large, round, slightly flattened, lemon yellow in colour, with a faint red flush; the closed eye is set in a moderately deep and plaited basin round which are more or less prominent knobs. The long and thin stem is set in an even, narrow and russet cavity. It is an excellent culinary variety, of good flavour and crops well. Apple Norfolk Beauty was introduced to commerce in 1902 and is already regarded as one of the standard early sorts.

APPLE CALVILLE BLANC.

To the aged or toothless, this Apple is most commendable, as it has flesh of remarkable tenderness, not unlike that of James Grieve when in first-rate condition, the texture being soft and Pear-like, with a sugary juice, sub-acid and refreshing. The tree requires a warm situation, and does well only as a cordon, espalier or bush.

It is also suitable for growing as a pot tree in cold orchard houses, and is very productive if stood in proximity to Bismarck or Worcester Pearmain. The keeping qualities extend to March, if properly stored. It is a very old French variety, and was known in the 16th century. *J. L.*

DAMSONS.

WHILST planting Damsons in the hedgerows in Herefordshire and Shropshire—from which prolific crops are obtained—the thought often occurred to me that the majority of gardeners plant Damson trees in too rich a soil, thus accounting for the trees being unproductive. My contention is, this particular member of the *Prunus* family should have a restrictive root run consisting of soil well charged with lime and lime phosphates, such as is provided in mortar rubble, bone-meal and basic slag.

I have particularly noticed how well certain varieties do in one place compared with their comparative failure in another. Large crops of fine, luscious fruits may be obtained from bush-formed trees, especially of the Merryweather and Ring's Early Damson.

For standard planting, I prefer Bradley's King, which makes a tree of medium size, with oval-shaped, deep black fruits having a beautiful bloom and of brisk, sweet flavour. The growth of this variety is moderate, and the tree most fertile.

Farleigh or Cluster Damson is a late keeping variety. The fruits are oval, small, and of good flavour. The growth is compact, and the tree of great fertility.

The variety Frogmore is the sweetest of all the Damsons, and when the fruits are perfectly finished and ripe they are suitable for dessert. They are roundish-oval in shape and coloured purplish-black with a thick bloom. The tree grows vigorously and is most productive. *Pomona.*

SOME GOOD LATE PEARS.

GLOU MORCEAU is one of the best late Pears, but the fruit should be allowed to hang on the tree until they are thoroughly ripe. I have gathered this variety on November 20, having covered the tree with a double layer of fish netting to ward off frost. It is a good sized fruit, and when put on the table in good condition is very refreshing and buttery.

Beurré d'Arenberg is another very good late Pear.

Marie Benoist is a large Pear, and is in

season through December. Its flavour is not, perhaps, so luscious as some, but it is acceptable as a large and handsome fruit at the present season.

Princess is another late variety of good flavour.

Winter Nelis, from trees on a N.W. wall, is a fine flavoured Pear, and may be kept until Christmas. I consider this one of the best of all late Pears.

For cooking purposes, no variety is superior to Catillac or Pound Pear. Moreover, the tree is a free grower and good cropper, and it seldom fails to fruit on any kind of soil.

Uvedale's St. Germain is also very good from now onwards till April.

I have grown upwards of 80 varieties of Pears, and consider these the best for use at the end of December. *W. A. Cook.*

PEAR CONFERENCE.

A WELL-KNOWN pomologist declared in our hearing that if he were restricted to a single Pear for his garden he would choose the variety

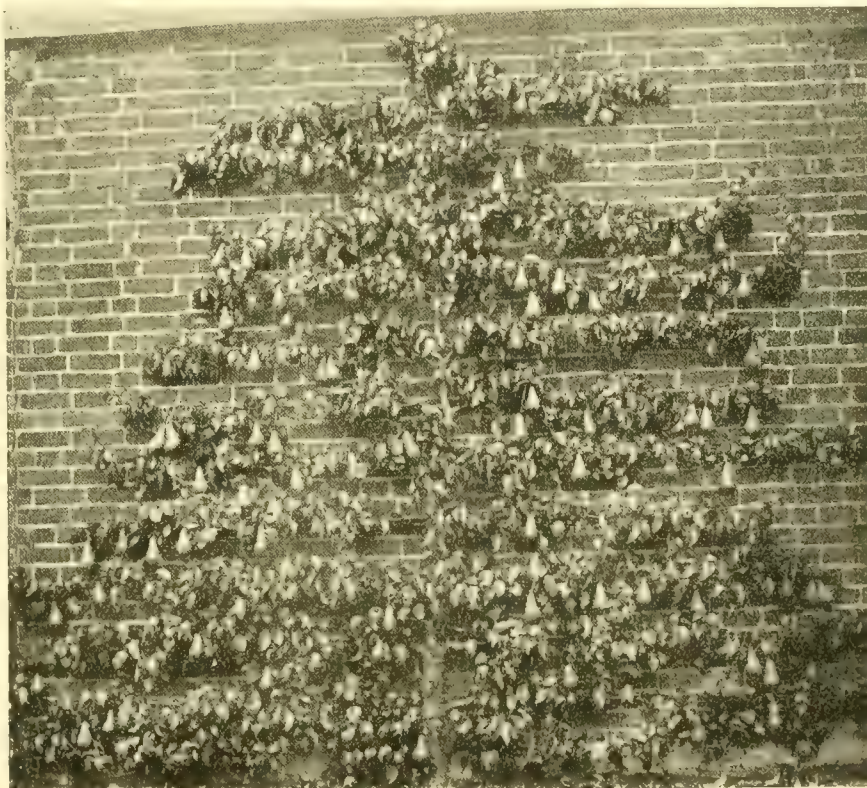


FIG. 6.—A WELL-CROPPED ESPALIER TREE OF PEAR CONFERENCE.

Conference. This high praise is certainly merited by the variety, for, in addition to its prolific and consistent fruiting qualities, it possesses the merit of hardiness and grows well in most kinds of soil. The variety is named from the National Pear Conference held in 1885 at Chiswick, when it was shown by Messrs. T. S. Rivers and Son.

The fruits have a very characteristic appearance and may be easily recognised. They are pyriform in shape with a dark green skin that fades to pale yellow when ripe, with much russet spotting. The flesh is pale yellow, very juicy, melting and of good flavour. Because of its hardiness and fine cropping qualities this Pear is extensively cultivated by market growers, and those with small gardens will find it one of the most suitable for their purpose, as it succeeds splendidly trained as a cordon. Fruits from trees on warm walls are of exceptionally fine quality; an espalier tree trained on a south wall at the Node, Welwyn, is illustrated in Fig. 6, but the fruits shown represent only a portion of the crop, as some had been gathered before the photograph was taken.

SOCIETIES.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

DECEMBER 15.—Committee present: The Rev. J. Crombleholme (in the chair), Mrs. Slingsby, Messrs. R. Ashworth, Dr. F. Bedford, B. J. Beckton, J. Birchenall, A. Burns, A. Coningsby, J. Cypher, A. G. Ellwood, J. Evans, W. Giles, Dr. R. N. Hartley, J. Howes, A. Keeling, J. Lupton, D. McLeod, F. K. Sander, E. W. Thompson, and H. Arthur.

Awards.

FIRST-CLASS CERTIFICATES.

Cypripedium Dalmatian: The large, white, dorsal sepal has a green base spotted with purple; the petals and pouch are reddish-brown. *C. Elise* var. *Grand Monarch* (Hermes × Lady Dillon): A variety with very large, flat, dorsal sepal that has a white-green base, and heavy purple spots; the petals and pouch are light brown. *Odontoglossum Princess Mary*: An exceptionally

fine, white flower heavily blotched with deep reddish-brown. From S. GRATRIN, Esq.

Cypripedium Eurybiades Bedfordiae: The large, white dorsal sepal has a green base and deep purple spots; the petals and lip are greenish-brown. *C. Sanacderae Bedfordiae*: The dorsal sepal is clear white, green base, petals and pouch greenish-yellow. From Dr. F. BEDFORD.

Odontoglossum St. Edmund (Jasper × spectabile): A fine flower of good shape with bluish-purple markings. *O. Ithone Edgemoor* var.: A large flower with a white ground, blotched with intensely deep claret-brown. From A. HANMER, Esq.

Cypripedium Grey Friar (Grovesianum var. Richard Ashworth × Traceyanum var. Lady Evelyn James): The dorsal sepal is white with a green base and small purple spots; the petals are yellowish-green with a brown line in the centre; the lip is yellowish green. From Dr. R. N. HARTLEY.

Calanthe Harrisii: A beautiful large white flower. From the Hon. ROBERT JAMES.

AWARDS OF MERIT.

Cypripedium amberleyense (Lady Dillon × Mrs. Mostyn), *Piccaninii* (majesticum × Leander superba), *C. Brilliantissimum*, *C. Birkdaleense* var. *Chanticleer*, from Hy. GREEN, Esq. *C. Trebizona*, *C. Monte* (Farrieanum × nitens), *Odontoglossum crispum Medusae*, from S. GRATRUX, Esq.

Cymbidium Mastersii Cusson's var., from A. T. CUSSENS, Esq.

Cypripedium Challenger (Curtmanii × Beryl West Point var.), from A. HANMER, Esq.

C. Roy Hartley (Earl Tankerville × alportense), from Dr. R. N. HARTLEY.

GROUPS.

Lt.-Col. Sir GEORGE HOLFORD, K.C.V.O., Westonbirt, Tetbury (gr. Mr. H. G. Alexander), staged a group of *Cypripediums*, for which a Gold Medal was awarded. Mrs. BRUCE and Miss WRIGLEY, Bury (gr. Mr. A. Burns), were awarded a Silver-Gilt Medal for a group of *Cypripediums*. S. GRATRUX, Esq., West Point (gr. Mr. J. Howes) was also awarded a Silver-Gilt Medal for a group of *Cypripediums*. H. GREEN, Esq., Birmingham (gr. Mr. G. W. Marsh), was awarded a Large Silver Medal for a group of *Cypripediums*. A. HANMER, Esq., Buxton (gr. Mr. G. Giles), was also awarded a Large Silver Medal for *Cypripediums*. A. T. CUSSENS, Esq., Kersal (gr. Mr. F. Cookson), staged a group for which a Silver Medal was awarded. Silver Medals were also awarded to Messrs. CYPHER AND SONS, Cheltenham, and Messrs. SANDERS, St. Albans, for collections.

Obituary.

George Baxter Sharpe.—It is with great regret we have to record the death of Mr. George Baxter Sharpe, which occurred on the 24th ult., following an operation. Mr. Sharpe served his apprenticeship with Messrs. William Paul and Son, of Waltham Cross, and afterwards spent some time with Messrs. William Bull and Son, of Chelsea, but for the past 45 years he was propagator and grower at Hollamby's Nurseries, Groombridge, where he was held in the highest esteem by employer, fellow-employees and all who knew him. The funeral took place at Eridge Green on Wednesday, the 28th ult.

William Edward Bisset.—It is with deep regret we announce the death of Mr. Wm. E. Bisset, Show Superintendent of the Royal Horticultural Society. Mr. Bisset, who was 55 years of age, passed away at a nursing home on Thursday, the 29th ult., the cause of death being cancer, and was buried at West Norwood Cemetery on Monday last. During the eight years Mr. Bisset had been in the service of the R.H.S. he made many friends in the horticultural world, and with ready courtesy was always eager to give every assistance to exhibitors and to promote the interests of the Society and of horticulturists generally. He was formerly in the service of Messrs. Milner, Son and White, and we understand that for a time he was also engaged in farming at Brighton. He rendered valuable assistance in connection with the International Horticultural Exhibition of 1912, and it was in the following year that he was engaged by the R.H.S. to assist in the organisation of their exhibitions. The shows at Chelsea and Holland House involve a large amount of work, and it is notoriously no light task to satisfy all the exhibitors' requirements; yet Mr. Bisset did his part in the organisation of these great exhibitions to the satisfaction of everyone. We understand that a fund is being raised in aid of Mr. Bisset's widow and that Mr. Frank Reader of the R.H.S., who is acting as treasurer, is prepared to receive subscriptions from all who desire to show their appreciation of Mr. Bisset's services to horticulture.

Dr. John Harley.—We regret to announce the death, at Beddings, Pulborough, on the 9th ult., of Dr. John Harley, aged 88. Dr. Harley was a prominent geologist, but he was also interested in botany, and his memoir on the parasitism of the Mistletoe was published by the Linnean Society in 1863.

TRADE NOTE.

At a recent meeting of the Transport Subcommittee of the Chamber of Horticulture, the Secretary submitted a memorandum from the railway companies setting forth modifications to their proposed classification in respect of the nursery side of horticulture, which have already been published in detail. The Committee briefly discussed these modifications, and with the exception of evergreens, they were considered very satisfactory, giving a lasting benefit to traders.

A message was received from the Railway Clearing House, that the companies had considered the formulae with respect to shrubs and plants, submitted the previous week, and they could not see their way to modify their proposed classification in these commodities, on the grounds that the formulae were not sufficiently distinctive and would be liable to abuse. This Committee was of opinion that they should stand or fall by their previous decisions in this respect, and agreed to recommend that the Chamber carry this matter to the Rates Advisory Committee, whose decision in matters of reclassification is final and binding. The meeting agreed to recommend that cases pressing for lower classification as to bulbs and evergreens also be prepared, and it was resolved to draw up a full report to the Parliamentary and Transport Committee, outlining:—(1) What modifications have been conceded by the railways; (2) Objections that have been lodged and rejected; (3) Request for permission to proceed before the Rates Advisory Committee. The question of expenses in this matter was brought forward by the Secretary, and it was generally thought that each association concerned should contribute equal proportions thereto.

NEW HORTICULTURAL INVENTIONS.

LATEST PATENT APPLICATIONS.

- 31,277.—Deutsche Gold and Silber-Scheideanstalt.—Treatment of seeds for agricultural purposes.—November 22.
- 31,165. Holmes, R.—Plant fertiliser.—November 22.
- 31,268.—Savage, A. J.—Hand tool for cultivating and scarifying land.—November 22.
- 32,310.—Llewellyn, G. E.—Combined shovel and fork, etc.—December 2.
- 32,116.—Rasmussen, R.—Material for fumigating plants, and process of using it.—November 30.
- 30,280.—Ballantyne, J. B.—Beehives.—November 14.

SPECIFICATIONS PUBLISHED LAST MONTH.

- 171,155.—Broadbridge, W.—Production of fertiliser.
- 171,744.—Edmonds, J.—Machine for spraying fruit and other trees or plants and crops generally.
- 171,784.—Western, C. J.—Construction of hand grubber or hoe.

ABSTRACT PUBLISHED LAST MONTH.

Teaching Gardening.—An apparatus for teaching gardening has been invented by Mr. C. H. Jones, of 14, Custom House Street, Aberystwyth. It consists of an oblong frame having flanges along adjacent sides, and a series of oblong troughs of wood or light material, whose length is less than the width of the frame and which represent garden plots. The uncovered parts of the frame represent an alley and a path respectively. Grooves are provided to carry off drainage water. The device is used to illustrate the series of crops or plants, and plants so raised may be transferred to the garden. For those who desire further particulars of the invention, the patent number is 170,198.

This list is specially compiled for *The Gardeners' Chronicle* by Messrs. Rayner and Co., registered patent agents, of 5, Chancery Lane, London, from whom all information relating to patents, trade-marks, and designs can be obtained gratuitously.

Messrs. Rayner and Co. will obtain printed copies of the published specifications, and will forward them, post free, for the sum of 1s. each.

ANSWERS TO CORRESPONDENTS.

DWARF SHRUBS TO FLOWER FROM JULY TO DECEMBER: *E. D.* The Heaths which would be in flower during the period named would include *Daboecia polifolia*, *Erica ciliaris*, *E. ciliaris Mawiana*, *E. Mackaili*, *E. Tetralix* and its varieties *alba*, *mollis* and *Williamsii*; *E. vagans* and the varieties *alba*, *grandiflora*, *St. Keverne* and *rubra*, and probably *E. carnea* and *E. c. alba*. Other shrubs which, no doubt, would be suitable for your purpose are *Ceanothus americanus*, *C. azureus*, *Clethra alnifolia*, *Escallonia montevidensis*, *E. Philippii*, *Hydrangea paniculata grandiflora*, *Indigofera Gerardiana*, *Daphne Mezereum grandiflora* and *D. Cneorum*.

ESTIMATE FOR MAKING LAWNS: *A. C.* It is impossible to suggest any very approximate costs of garden work without a personal knowledge of the nature of the ground and local conditions as regards labour. If you have reasonable doubts as to the fairness of any estimates submitted, it may probably be worth while, before coming to any decision, to call in a consultant who, after viewing the ground, would be able to advise you on the point; but as rough guides, we may say that we should consider a fair price for making and sowing the lawn with best grass seed and protecting the latter from birds would be, on a level site and ordinary soil, about £30. For the cricket pitch, as stated, probably the cost would be about £55. But it should be clearly understood that these figures must only be considered as rough estimates.

NAMES OF FRUIT: *J. S.* 1, Blenheim Pippin; 2, Gascoyne's Scarlet; 3, Barnack Beauty.—*C. T.* 1, Hambledon Deux Ans; 2, Bess Pool; 3, American Mother; 4, Reine des Caux; 5, Mannington's Pearmain; 6, Calville St. Sauveur; 7, Benoni; 8, Scarlet Nonpareil; 9, Duke of Devonshire; 10, Tyler's Kernel; 11, Fondante du Panisel; 12, Autumn Nels; 13, Glou Morceau.

NAMES OF PLANTS: *H. B. M.* *Cymbidium giganteum*.—*E. B.* *Schizostylis coccinea*.

MARKET BUNCHES OF FLOWERS: *H. L.* It is usual to place from twelve to eighteen stems of Sweet Peas in a market bunch, the number varying according to the amount of flowers on each stem. Nine to twelve stems go to form a bunch of early-flowering *Chrysanthemums*, while six to twelve stems of Stocks are placed in a bunch according to their size; side shoots are usually bunched in dozens, and main shoots in sixes. Twelve Asters constitute a market bunch.

RATING OF COMMERCIAL GLASSHOUSES: *H. L.* The rateable value of glasshouses is assessed by the owner, or whether they are removable as they learn that they have been constructed, just as with other buildings. There are no fixed rules to guide them in arriving at the value, except in such districts as Worthing, where the glasshouse industry is of considerable importance. It makes no difference whether the glasshouses are rented or used by the owner, or whether they are removable or not.

SUNK GARDEN. *B. A. L.*—We have no plans or illustrations of sunk gardens other than those which have appeared at various times in our pages.

WALL SHRUBS: *A. H.* In addition to the Roses and Ivies, the following is a list of plants suitable for clothing the wall. *Actinidia chinensis*, *Ceanothus Vetchianus*, *Clematis montana*, *C. montana rubens*, *C. Beauty of Worcester*, *C. Countess of Lovelace*, *C. Duchess of Edinburgh*, *C. Jackmanii superba*, *C. Lady Northcliffe*, *C. Marcel Moser*, *C. Nelly Moser*, *C. Ville de Lyon*, *Elaeagnus glabra variegata*, *Jasminum officinale*, *Lonicera Late Dutch*, *Polygonum Baldschuanicum*, *Wistaria sinensis*, *Vitis Cignetiae*, *V. Thunbergii* and *Berberis stenophylla*. All of the above may be obtained from a nurseryman dealing in trees and shrubs.

Communications Received. *V. B. W. A. M.*—*W. J. M.*—*H. L.*—*Y. G.*—*A. C. D. A.*—*Beginner*—*T. H.*—*M. R.*—*W. J. B.*—*A. C. B.*





THE

Gardeners' Chronicle

No. 1829.—SATURDAY, JANUARY 14, 1922.

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 38.3.

ACTUAL TEMPERATURE:—
Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, January 11, 10 a.m.; Bar, 30.4; temp, 43°. Weather—Sunny.

The Drought and Root Growth.

The most striking manifestation of the effect of the drought of last year was the all but total arrestation of the growth of the aerial parts of recently-planted shrubs and trees. Throughout

the spring and summer months such plants scarcely moved. Toward the end of the period of drought—or, at all events, in the latter part of the year when rain began to visit the earth, albeit in small quantities—such of these plants as had not been killed outright began to make some growth. In the majority, however, the amount of late growth made by the plants which we had under observation was but slight. It was therefore a surprise to us to discover when lifting numerous woody shrubs which had been planted in nursery beds during the autumn of 1920 or the spring of 1921, that the amount of root growth which they had made during the year of drought was in most cases amazingly great. It is true that the soil conditions were favourable to deep rooting, for the ground of the new nursery quarter was reclaimed pasture and the turf had been buried somewhat deeply during the digging. Hence supplies of moisture were conserved in the deeper layers of the soil, and it was doubtless in search of these stores that the roots went burrowing deeper and ever deeper. Nevertheless, we confess that we have never seen such root development as was made by these trees and shrubs. Cordon Apples and Pears on the Doucin stock, for example, the shoots of which had made next to no growth at all, had such masses of roots as would ordinarily be found not in one year but in three. *Stranvaesia undulata* *Pyracantha Lalandii*, *P. Gibbsii*,

Olearia Haastii and numerous other shrubs showed alike abnormal root development. It would, of course, be rash to assume what took place in this particular garden is typical; nevertheless it would appear not unlikely that where plants were not killed outright, they responded to the drought by throwing all their energies into root growth. The sun, dry air and limited water supply would, of course, make the growth of shoots all but impossible, and for once in a while we experienced in this country what is a normal occurrence in hot climates. Thus, as Mr. Balls has pointed out in his most interesting book on *The Cotton Plant in Egypt*, every day during the growing season when the Egyptian sun rises in a cloudless sky, all growth of the Cotton plant is arrested, to be resumed instantly each time a cloud passes over the face of the sun. Granted that this great root-growth was general during the drought of last year, we have one explanation of the otherwise puzzling fact that the leaves of trees hung much longer than is usual upon the branches. For it is reasonable to suppose that the large root development at last sufficed to provide adequate supplies of water to the shoots. It will be interesting to observe whether, as should be the case if these observations are correct, next season's growth is more vigorous than usual and whether fruit trees, for example, will not surprise us, not only by setting fruit freely, as to judge from their well-formed fruit buds they will, but also by an abnormal vegetative growth. It would be indeed curious if one of the consequences of the drought of 1921 proved to be a need for extensive root-pruning to check the undue vegetative growth of 1922.

Appointment at Swanley Horticultural College.

—Miss L. H. Joshua has been appointed in charge of the decorative department at Swanley Horticultural College. Miss Joshua is an old student of Kew, and for the past 2½ years has been engaged in Messrs. R. Wallace and Co's nursery, as propagator in the hardy plant department. Her new duties will include the management of the plant houses and flower garden, and she will act as a lecturer on these subjects. Miss Joshua has many friends in the horticultural world who will wish her every success in her new sphere.

Dutch Bulb Growers in England.—We learn that Messrs. De Graaff Bros., the well-known Dutch firm of bulb growers, have purchased about sixty acres of land near Spalding, in Lincolnshire, for the purpose of a bulb farm. This enterprise will be watched with great interest as it remains to be seen whether the Dutch growers will be as successful in England as in their native land.

Fruit, Flower and Vegetable Trades' Year Book.—The *Year Book** issued by *The Fruit Trades' Journal*, is in the form of a quarto diary, allowing one week per page, together with a large amount of information of especial interest to those engaged or intimately connected with the fruit, flower and vegetable trades. The various wholesale and retail trade associations are listed, as well as the names and addresses of their secretaries, and the principal floricultural societies are also included. The Florists' Calendar indicates the most popular flowers available during each month, while the Fruiterers' Calendar shows the average prices obtained for English and foreign fruit from January to November, 1921. Postal information, hints for sowing and planting the principal crops of vegetables cultivated for market; a spraying calendar, a fruiterers' ready-reckoner, tables of market weights and measures, a table of imports of fruits and references to the several London fruit, flower and vegetable markets are all included in this useful publication.

* *The Fruit, Flower and Vegetable Trades' Year Book and Diary*, 1922. Lockwood Press, 1, Mitre Court, Fleet Street, E.C.4. Price 2s. 6d., post free.

The Gardeners' Royal Benevolent Institution.

The eighty-second annual general meeting of the members and subscribers of this Institution will be held at "Simpson's," 101, Strand, London, on Thursday, January 26, 1922, at 2.45 p.m., for the purpose of receiving the report of the Committee and the accounts of the Institution (as audited) for the year 1921; electing officers for year 1922; and for the election of twenty annuitants on the funds. The chair will be taken by Sir Harry J. Veitch, V.M.H., Treasurer and Chairman of Committee, at 2.45 p.m. The poll will be open at 3 p.m. and close at 4 p.m.

Vegetation in the Island of Arran.—A correspondent in the *Scotsman* gives some interesting particulars of the climate of Arran, which enjoys an immunity from frost that is seldom experienced on the mainland. Arran is separated from the Ayrshire coast by a stretch of the Firth of Clyde, which at its narrowest point measures 15 or 16 miles across. Not more than 3 or 4 degrees of ground frost have been registered there, in recent years, and consequently vegetation only occasionally receives a check, so that plants which are commonly grown under glass succeed in the open in that favoured island. Gardens in the neighbourhood of Whiting Bay contain fine specimens of Bamboo, Eucalyptus, Myrtle, and a *Dracaena* 12 feet high. Pelargoniums planted in the borders in 1915 remain undisturbed and uninjured. On New Year's Day, 1921, hybrid tea Roses from out-of-doors were employed for the decoration of the dinner table. At Couper-Angus such tender subjects as Dahlias remain in the ground over the winter, and Lilium bulbs require no protection. In Arran Hall gardens, *Chianthus puniceus* blooms freely out-of-doors, whilst on the public highways hedges of Fuchsia and *Escallonia macrantha* are the admiration of visitors. Lilies do especially well in the island, and *L. auratum* grows to perfection at Ormidale, Brodrick, some of the spikes carrying thirty-five to forty-five blooms.

Disastrous Storm at the Arnold Arboretum.

Mr. Euan Cox writes: "Boston, U.S.A., and its neighbourhood have just weathered a storm which must be unique in any part of the globe. I write weathered, but it is a euphemism; for the damage can be counted in millions of dollars. It had all the appearance of an ordinary autumn gale with a wind speed of 45 miles an hour, with driving rain. What is unique about the storm is the fact that the moisture fell as rain and not as sleet or snow, for during the entire three days while it lasted there was from two to ten degrees of frost. This meant, that wherever the rain touched a solid surface it immediately turned to ice. It is difficult to imagine the magnitude of the disaster in an area of 50 miles square. Practically every tree of any size has been shorn of its branches. On the railway from Boston to Worcester, a distance of 38 miles, there is hardly a telegraph pole standing. Some have snapped sheer, but the majority have been torn clean out of the ground from the weight of ice hanging on the wires. It needed no stretch of imagination to imagine oneself once more on the Western Front. The woods might have suffered in the same way from an intense bombardment of high explosive. The telegraph wires are twisted and knotted like a wire entanglement. It is a scene of desolation. Within a radius of two miles from Worcester it is calculated that 50,000 trees have been so badly damaged that not even the trunks can be saved. The Arnold Arboretum has suffered severely. The long row of enormous Willows and the famous collection of Maples have practically disappeared. In a way, it is lucky that the large trees bore the brunt of the attack, for I hear that the collection of Mr. Wilson's shrubs has suffered comparatively little damage. This account can give no more than the broad outline of the damage, but it is hoped that a full report will be given later to show the extraordinary ways in which damage was done, and also to explain why rain should fall for three days with the temperature below freezing point. Perhaps some of the readers of *The Gardeners' Chronicle* could explain this phenomenon, for I have seen no explanation in the newspapers." The phenomenon

to which Mr. Cox draws attention is known as a silver thaw and is due to the temperature at a short distance above the ground being higher than that on the ground itself. Such abnormal conditions obtain when the ground and the lower air have been rendered excessively cold from some cause, such as a warm, moist current in advance of an approaching cyclone bringing clouds and rain. Silver thaws are sometimes seen in the south of England, and one occurred in London on January 22, 1867. The phenomenon is stated to be common on Ben Nevis in Scotland.

National Rose Society.—The forty-fifth Annual General Meeting of the National Rose Society will be held at Caxton Hall, Victoria Street, Westminster, on Tuesday, January 17, at 2.30 p.m. Members attending are invited to remain to tea at the conclusion of the business proceedings, and after tea the President, Mr. E. J. Holland, will exhibit a set of the latest lantern slides acquired by the Society.

The Late Mr. William Purdom.—Mr. William Purdom, whose death at Peking on November 7th, 1921, was announced in our issue of December 31, 1921, was a native of Heversham, Westmorland, and was forty-one years of age. We learn from the *Kew Bulletin* that he chose the profession of a gardener and gained experience at Brathay Hall Gardens, Messrs. Low and Sons' nurseries, Enfield, Messrs. J. Veitch and Sons' nursery, Coombe Wood, and at Kew Gardens, which he entered in August, 1902, and where he remained until December, 1903. His association with Mr. Reginald Farrer as travelling companion in his first exploration in China is recorded in Farrer's works, *Leaves of the World* and *The Rainbow Bridge*, and the esteem and affection with which Farrer regarded Purdom is expressed in his dedication of the first book to Purdom, whom he refers to as "an absolutely perfect friend and helper." In 1917 Purdom was appointed head of one of the five departments of forestry maintained by the Chinese Government, and during his term of office he established nurseries in various parts of Honan in furtherance of large schemes of re-forestation in the north of China.

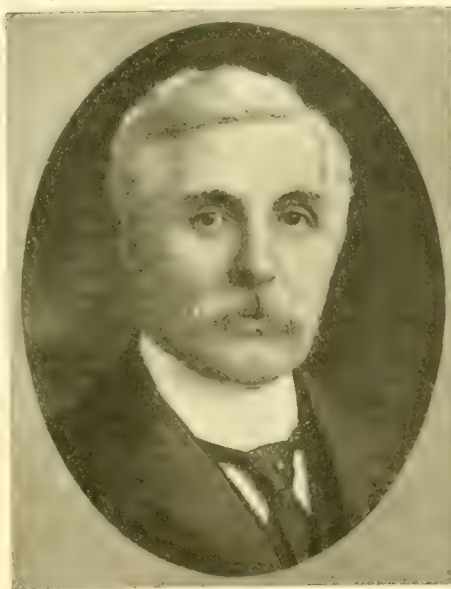
Legacy to a Gardener.—The late Mr. Thomas Embleton, of the Cedars, Methley, and Layton Manor, Yorkshire, bequeathed the sum of £1,500 to his gardener, Mr. John Lee. Mr. Embleton bequeathed substantial sums to several other servants, including £1,500 to his coachman, Mr. J. Bell; £1,500 to his estate foreman, Mr. Marshall Hardy; £2,500 to his nurse, Annie Robinson, and, to his servants not mentioned in his will, the sum of £30 in the case of males and £20 in the case of females for each year's service.

Dry Season at Shinfield in 1921.—The rainfall at the Reading University College Gardens, Shinfield, during 1921 was much below the average, and the total of 14.41 inches indicates the trying conditions under which Mr. A. J. Cobb and his staff carried out their duties, including the conduct of a large trial of Sweet Peas on behalf of the National Sweet Pea Society. The rainfall during the year was as follows: January, 2.24 inches; February, .38; March, 1.18; April, .55; May, 1.75; June, .37; July, .2; August, 1.4; September, 1.91; October, 1.07; November, 2.14; and December, 1.22 inches.

"Flowering Plants of South Africa."—The fifth part of this work, being issue No. 5, Vol. II., January, 1922, contains illustrations and descriptions of ten South African plants. The work is almost a replica of the *Botanical Magazine* save that the pages are a little larger, which is rather an advantage, for it permits of easy disposition and grouping of the various details of the flowers. Plate 41 is of *Aloe Wickensii*, which is described as one of the most beautiful and showy of the South African Aloes; at first glance the inflorescence might be mistaken for that of a *Kniphofia*. *Watsonia Galpinii*, plate 45, has the appearance of a good garden plant. The leaves are up to 35 cm. long and over 1 cm. broad; the inflorescence is

simple or branched, and bears reddish pink blossoms. *Kniphofia alooides*, plate 47, is an old garden plant, well known in this country as *Tritoma Uvaria* and also as *Kniphofia Uvaria*. It is stated that two varieties of the plant are found in the coastal districts of Natal, known as *nobilis* and *maxima*. It is the most robust and valuable species of the genus. A curious climbing *Crucifer*, *Heliophila scandens*, is illustrated in plate 48. The plant is said to be growing in the succulent house at Kew, where it flowers about mid-winter. *Holmskioldia speciosa*, plate 49, forms a large bush, ten to twenty feet high, and when in full bloom is one of the most conspicuous objects in the veld. The inflorescence is very pretty, the flowers having a large pink calyx and violet corolla; the blossoms are arranged in axillary cymes about 4 cm. long. Other plants illustrated are *Commelina benghalensis*, *Hesaea Zeyheri*, *Ceropegia tristis*, *Massonia latifolia*, and *Rhamphicarpa tubulosa*.

Mr. Alexander Dickson.—We congratulate Mr. Alex. Dickson, head of the firm of Messrs. Alex. Dickson and Sons, Ltd., of Belfast, New-towards, and Dublin, upon the honour which



MR. ALEXANDER DICKSON.

the French Government have conferred upon him in granting him the rank of Chevalier of the Order of the Mérite Agricole, for services rendered by him to horticulture in France. Although the head of a firm which does not confine its attention to Roses, it is not too much to state that Mr. Alex. Dickson has devoted the larger part of his life to the development of the new Roses for which his firm is famous throughout the world, and he has been very largely instrumental in beautifying our gardens with Roses of such colours as were hardly imagined to be possible in these flowers twenty-five years ago. Mr. Dickson has been a frequent visitor to France, sometimes at the request of the French Minister of Agriculture, and he has sat upon Government juries at Paris and Lyons on some seven occasions, and, of course, he has made frequent visits to the trials of Roses at Bagatelle. Evidence of the high position of his firm is shown by the fact that it holds a warrant from His Majesty King George V. and has held similar appointments under King Edward and Queen Victoria. Mr. A. Dickson has for many years been a member on the Council of the National Rose Society, and he is also a member of the Council of the Horticultural Trades' Association, while as a kind of recreation from ordinary business he finds time to represent his native town on the County Council of Down.

Carriage of Orchids by Passenger Train.—On behalf of Orchid growers, the Chamber of Horticulture recently approached the Railway Clearing House with reference to the excessive rates charged for the conveyance of Orchids by passenger train. To the representations then made, the railway authorities have made concessions which, in addition to affording relief from the previous special rates charged for these plants, will remove the absurd anomaly of denying Orchids in bud or flower the benefits of the owner's risk rate. On and after February 1, Orchids in less than truck loads, in soil, or in soil in pots, packed in substantial crates or wooden boxes, so constructed as to admit of other traffic being loaded on top thereof, will be conveyed by company's risk at the general parcels scale, and at owner's risk at the usual owner's risk scale. If not so packed, and the plants are one foot or less in height, a general parcels scale plus 50 per cent. will be charged (C.R.) and the general parcels scale (O.R.). If above one foot in height, the general parcels scale, plus 25 per cent. will apply (C.R.), and the ordinary owners' risk scale, plus 25 per cent. (O.R.). If packed other than in soil, or in soil in pots, the C.R. rate will be the general parcels scale, and the O.R. rate the ordinary owners' risk scale. In all these cases the company's risk rates include collection and delivery and the owner's risk rates include delivery where arrangements for these services are in operation. If Orchids are packed in owner's risk vans, maximum weight 50 cwt. per truck, the scale will be the same as for carriages. If packed in truck-loads in company's vans, the loaded-van scale plus 25 per cent., station to station, will be applied (C.R.), and the ordinary loaded van scale will apply O.R. One prominent firm of Orchid growers has informed the Chamber that these concessions are of considerable benefit, especially in connection with the dispatch of plants to exhibitions.

Appointments for the Ensuing Week.—Tuesday, January 17: Royal Horticultural Society's Committee meetings; Cardiff Gardeners' Society's meeting.—Wednesday, January 18: British Florists' Federation annual meeting and dinner; Hertford Horticultural Society's meeting.—Thursday, January 19: Manchester and North of England Orchid Society's meeting.—Friday, January 20: Eastbourne Horticultural Society's meeting.—Saturday, January 21: British Mycological Society's meeting at University College, London.

"The Gardeners' Chronicle" Seventy-five Years Ago.—The *Victoria regia*.—*Curtis's Botanical Magazine* for the present month is wholly occupied by a history of *Victoria regia*, the most noble of all aquatics, and of which living plants exist in the Royal Botanical Garden, at Kew. We need not say that Sir William Hooker has done justice to his subject. In addition to a sketch of the royal plant reposing on the surface of the quiet waters in which it loves to dwell, we are presented with many details of its structure, never before published. The living plants to which we have alluded were raised from Bolivian seeds, brought home by Mr. Bridges, one of the most indefatigable and successful investigators of the Natural History of South America. We must refer to this interesting monograph for full information respecting the plant, our limited space not permitting us to extract more than the following memorandum supplied by Mr. Bridges: "During my stay at the Indian town of Santa Anna, in the province of Moxos, Republic of Bolivia, during the months of June and July, 1845, I made daily shooting excursions in the vicinity. In one of these I had the good fortune (whilst riding along the woody banks of the river Yacuma, one of the tributary rivers of the Mamoré) to come suddenly on a beautiful pond, or rather small lake, embosomed in the forest, where, to my delight and astonishment, I discovered, for the first time, 'the Queen of Aquatics,' the *Victoria regia*! There were at least fifty flowers in view, and Belzoni could not have felt more rapture at his Egyptian discoveries than I did in beholding the beautiful and novel sight before me, such as it has fallen to the lot of few Englishmen to witness." *Gard. Chron.*, Jan. 9, 1847.

NOTICES OF BOOKS.

Notes on Edible Plants.

FROM a memoir of the compiler of these notes,* which follows the brief preface by Dr. Hedrick, we learn that Dr. E. Lewis Sturtevant was born in Boston, Massachusetts, on January 23, 1842. His school-days finished, he entered Bowdoin College in 1859, and left in 1861 to enlist in the Union Army, which was then engaged in civil strife. Subsequent to his army career, he studied medicine, and later he became a successful farmer at South Framingham, Massachusetts, where he carried out important breeding and cultural experiments, and published the results of his researches in the periodical literature of his time. In 1882 he was appointed first Director of the Experiment Station at Geneva, a post he held until 1887, when he was retired. Taking as his motto, "discover, verify and disseminate," Sturtevant was one of the pioneer builders of the Agricultural Experiment Stations in the United States of America, whose researches and publications have now a world-wide reputation. He died on July 30, 1898, at Waushakum Farm, where so many of his early experiments had been made.

After remaining untouched for twenty years, the notes left by Sturtevant were edited and arranged for publication by Dr. U. P. Hedrick, Horticulturist at the Geneva Station. They comprise the work under notice, a sumptuous volume of nearly 700 pages, containing useful historical information relating to the food-plants capable of being utilised for human sustenance. Probably few besides students of economic botany realise that nearly 2,900 species of plants, exclusive of Fungi, are in use throughout the world as human food, most of which are cultivated for that purpose.

Numerous sources of information have been drawn upon for the notes, as a glance at the list of authors and titles appended to the volume shows. The plan of arrangement adopted is to give the botanical names of the plants in alphabetical order, thereby securing easy reference. The common names and synonyms are given in indices at the end. The first entry, a short one, may be quoted as an illustration of the form the notes take—

Aberia caffra Harv. and Sond. Bixinae.
Kai Apple, Kau Apple, Kei Apple.

South Africa. The fruits are of a golden yellow color, about the size of a small apple. They are used by the natives for making a preserve, and are so exceedingly acid when fresh that the Dutch settlers prepare them for their table, as a pickle, without vinegar.†

It will be seen that the work is of the nature of a dictionary of edible plants, and in most instances it gives authorities and references to original sources of information. It is rather remarkable in this connection that Watt's *Dictionary of Economic Products of India*, the standard work of reference for information regarding the uses of plants found in India, and the East generally, is omitted from the list of works to which reference is made.

Although now conveniently arranged for reference in one volume, much of the information has been published previously, but it is claimed for the work that new knowledge may be found in the following directions: (1) The original home of many esculents is given for the first time. (2) New land-marks in the histories of edible plants are pointed out. (3) An effort has been made to mention all cultivated esculents. (4) Though much new information is given regarding the history of food plants of the Old World, it is especially full and accurate in the discussion of esculents of the New World. (5) It presents much new information on the varieties that have been

produced in plants by cultivation. (6) It adds much to geographical botany. (7) It contributes much data for the study of acclimatisation.

The home of the Cacao plant (*Theobroma Cacao*) is South America, and the history and uses of the plant in that country are mentioned, but the note gives no information regarding the acclimatisation of the plant in the Gold Coast, which is now the leading Cacao-exporting country. The remarkable development of the industry in the Gold Coast is illustrated by the fact that the export has grown from 80 lb., of the value of £4, in 1891 to an export of 176,000 tons, valued at £8,278,000, in 1919. It is to be regretted,

A NEW SWEET PEA.

Among the several novelties in Sweet Peas which arrested the attention of the Floral Committee of the National Sweet Pea Society at the trials held at Reading last year, the one which was subsequently to bear the name of Mascotts Ingman received sufficient votes to secure it an Award of Merit. But another variety, which was eventually found to carry the name of Renown, was considered to be identical with the former, and the Committee agreed that the award should be conditional upon both senders agreeing to distribute the variety under the same name. Messrs. Ireland

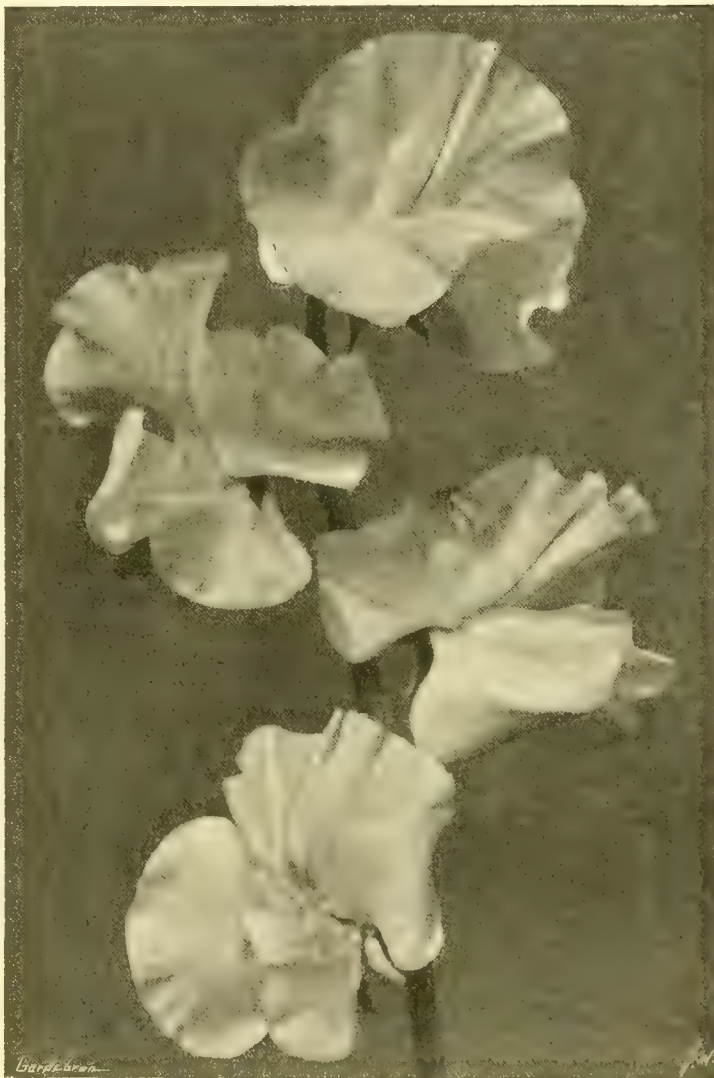


FIG. 7.—SWEET PEA MASCOTTS INGMAN; CONSIDERED IDENTICAL WITH RENOWN.

therefore, that the notes were not brought more up to date before they were published, as this would have greatly increased their present usefulness, but this defect may, we hope, be remedied in a future edition.

It will be evident from what has been said that the book presents in a concise and convenient form a mass of useful information regarding the esculent plants of the world, and as a work of reference for the gardener, the colonist, the student of economic botany, and all interested in plants, it should prove of great value. The type, printing and paper are all excellent, and the generous margins to the pages would admit of lengthy additional manuscript notes. In these days of costly book production it is a pleasure to see and handle such a work.

and Hitchcock, of Mark's Tey, are responsible for Mascotts Ingman, which is a very fine carmine variety (Fig. 7), while Renown is one of Messrs. Dobbie and Co.'s novelties. Unfortunately, these firms could not agree to distribute the variety under one name, consequently, to quote from the report of the Floral Committee, "as neither firm could see their way clear to alter the names already given, the Award of Merit is struck off." It will be readily understood that failure to secure the award under these conditions does not affect the merit of the variety, which has flowers of fine, rich carmine colour, of large size and of first-rate form. The flowers illustrated in Fig. 7 represent a spike exhibited by Messrs. Ireland and Hitchcock under the name of Mascotts Ingman during the past season.

* *Sturtevant's Notes on Edible Plants.* Edited by T. P. Hedrick. Report of the New York Experiment Station for the year 1919, 27th Annual Report, Vol. 2, pt. II. (Albany U.S.A., J. B. Lyon and Co.), 1919, pp. 686, with portrait.

† Jackson, J. R., *Treas. Bot.* 2: 1255. 1876.

The Week's Work.

THE HARDY FRUIT GARDEN.

By H. MARKHAM, Gardener to the EARL OF STRAFFORD, Wrotham Park, Barnet.

Damsons.—These trees, when suitably planted, form a capital screen to the more tender kinds of fruits. There are many good varieties to select from, which will yield excellent crops of fruit, where other kinds may not succeed. Bradley's King, Prune Damson, Farleigh Prolific, and the Merryweather are varieties to be recommended.

Morello Cherries.—The pruning and training of Morello Cherries should be done as soon as the leaves have fallen, so that the work is completed before very cold weather sets in. If, however, the work has not yet been done, it should be carried out in favourable weather. It is not necessary to remove all the shoots and branches from the walls annually, but the trees should be carefully gone over, and the old shreds examined with a view to removing any that are compressing the bark. Train in sturdy, fruitful shoots at intervals all over the trees, but guard against crowding the wall with useless wood. Young Morello Cherry trees should, if not equally balanced in growth, be removed from the wall and the shoots regulated. The main branches should be trained at equal distances and suitable angles to build up an evenly balanced head. Allow room in the ties for the shoots to swell, and take care that no old twine ties are overlooked, for these would cut into the bark.

General Remarks.—Keep a watch on the doings of birds, especially bullfinches. Syringing the trees with soap-suds or Quassia extract, and thoroughly dusting them with lime and wood ashes, will sometimes prevent birds from destroying fruit buds. Feeding the roots should not be overlooked, especially on light, shallow land; soakings of liquid farmyard manure, not too strong, will prove very helpful; or a good mulching of decayed manure may be given in time for the rain to wash its fertilising properties down to the roots.

PLANTS UNDER GLASS

By T. PATEMAN, Gardener to Sir C. NALL-CAIN, Bart., The Nod, Codicote, Welwyn, Hertfordshire.

Souvenir de la Malmaison Carnations.—Perhaps the best results are obtained with these charming flowers when the plants are kept in a somewhat dormant state during the winter, and this may be done by keeping them on the dry side and in a comparatively cool house, admitting plenty of fresh air whenever the outside conditions are favourable for ventilating. Very little fire heat is needed, only sufficient should be used to keep the atmosphere from becoming too damp or to exclude frost.

Chrysanthemums.—Cuttings of Chrysanthemums that were inserted in early December, with a view to producing large flowers, should be removed from their propagating quarters as soon as they have rooted. Place them in a cool house or frame as near the roof-glass as possible to prevent them becoming drawn. They may remain in this position for a week or ten days, when they should be placed singly in small 60-sized pots; if three or four cuttings have been rooted in a small pot it is not advisable to allow them to remain in the receptacle until the roots have become matted together. The soil for this potting may consist of three parts good loam and one part leaf-mould mixed with a little bone meal and just sufficient silver sand and burnt garden refuse to keep the compost porous. Cuttings of the single and decorative varieties may now be inserted. These will strike readily in a temperature of 45° to 50°; while it is not advisable to propagate these Chrysanthemums in a high temperature, a lower temperature than 45° to 50° is not to be recommended. After the cuttings have been procured many of the old stools may be thrown away, retaining

only sufficient plants to ensure a few more cuttings if the others fail or it is desired to propagate again in early April to produce small plants for growing in 6-in. pots for decorating purposes.

Winter Flowering Begonias.—Winter flowering Begonias of the Mrs. Heal, Optima, and Exquisite type will, in most cases, have passed out of flower by this date. These plants need careful attention with regard to watering. It is not wise to withhold water altogether, but just sufficient should be given to keep the plants from drying off completely. The plants should be rested in a temperature of 50° to 55°. Begonias of the Gloire de Lorraine type that have passed out of flower should be cut back and watered sparingly for a few weeks, with a view to starting them into new growth to obtain cuttings for next season's stock.



FIG. 8.—GLADIOLUS CAMEO (SEE P. 17).

THE KITCHEN GARDEN.

By JAMES E. HATHAWAY, Gardener to JOHN BRENNAND, Esq., Baldersby Park, Thirsk, Yorkshire.

Peas.—Peas raised from a sowing made in November should be carefully watched and protected from birds and slugs. Wire netting, one foot wide, arched over the plants and pegged down on both sides of the rows, provides the best protection from birds, but if wire is not available, small Spruce branches stuck on either side of the rows will help to keep birds away. A dressing of soot and wood ash will act as a deterrent to slugs. A further sowing should be made in a sheltered situation when the ground is in a favourable condition. Peas should also be sown in pots, boxes, or turves, the last for preference. The turves should be cut about 9 in. wide and about 4 in. thick and placed turf side downwards on boards about 4 ft. long. Afterwards scoop out about an inch of the loam and substitute a mixture of loam, leaf-soil, sand and wood ash, sifted through a half-inch sieve. Carter's Eight Weeks and Sutton's

Pioneer are suitable varieties for sowing now and there are many other sorts which may be used. After sowing, germinate the seeds in a cool house or frame.

The Seed Order.—The greatest care should be taken in making the selection of seeds for the coming season. If notes were taken during the past season of varieties which did well, reference to them will help to simplify matters. It is not always an easy matter to select the most suitable varieties for particular districts, for those that may succeed in one part may not do so well in others. If extra fine vegetables are required, such as for exhibitions, do not rely on old seeds.

Cucumbers.—A sowing of Cucumbers should now be made in 60-sized pots, placing one seed in each receptacle. Germinate the seeds on a slight hot-bed in the Cucumber house; the seedlings will appear very quickly, and need plenty of light and warmth; a temperature of 70° is suitable, but in very severe weather they will take no harm if it drops to 65°. Remove all decaying foliage from winter fruiting Cucumbers. Keep the shoots thinned.

Tomatoes.—A sowing of Tomato seed should be made to raise plants for early fruiting. Sow thinly in well-drained 6-inch pots, filled with good, sifted soil composed of two parts loam, one part leaf-soil, one part spent horse droppings, and enough sand to render it porous. Place the seed pans in a Cucumber house, and as soon as the seedlings appear stand them near to the roof-glass. As soon as the plants are big enough to handle pot them singly in thumb pots.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

Figs.—Pot Figs in houses that were closed for forcing last month may have the fermenting material replenished. This may not be absolutely necessary, but it plays a prominent part in the successful cultivation of these early fruits, not only in affording warmth, but also in maintaining suitable atmospheric conditions, and helps in preventing early attacks of red spider. A steady bottom heat of about 75°, with a night temperature of 60° to 65° on mild nights, and 70° to 80° by day, with a very small amount of fresh air admitted on all favourable occasions, will be found suitable conditions for Fig trees started early last month. The second house, containing permanent trees, may now be closed. This is, in many cases, the earliest house, while late houses should be kept as cool as possible. As these trees are grown in restricted borders, it is often possible to place fermenting materials over the roots. This will not only help to maintain the requisite temperature, but give off the necessary atmospheric moisture for starting the trees.

Strawberries.—The present is a suitable time to house the first batch of Strawberries, as much care is necessary to be successful with plants started last month. Place the plants on a bed of fermenting leaves, as the gentle warmth will stimulate the roots before the crowns make much progress. Clear the pots of weeds and make the soil firm when it is moderately dry. Sufficient moisture will be obtained from the leaves for the first few weeks, and water should only be given the roots after careful examination. The same remarks apply to plants stood on shelves in the Strawberry house proper, during their early stages of forcing. A night temperature of 40° to 45° will be sufficient for the first few weeks.

Propagating Vine Eyes.—Where young vines are required for growing in pots or planting out as "green" vines now is a suitable time to raise them from "eyes." The young vines will then be in readiness for potting or planting out any time from March to June. The "eyes" may be inserted in small pots or in squares of turf and placed on the bed in a Melon or Cucumber house where plenty of bottom heat and moisture are available.

THE FLOWER GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

Frost Protection.—After the very mild season prior to the turn of the year, there is great probability of the old saw, "As the days lengthen, so the cold strengthens," being realised, and steps should be taken to protect any subjects that are likely to be adversely affected on the borders and shrubberies. One of the most efficient means, for such plants as *Kniphofias* and *Montbretias* is a good layer of cinder ash placed around and over the plant where this is possible, whilst dwarf shrubs likely to be adversely affected should be enclosed in "wigwams" formed of Spruce boughs, or similar growths thrust into the soil around the plant, and tied together at the top; stems of taller subjects may be protected by wrapping hay bands around them from the ground level.

The Rockery and Alpines.—Many subjects dislike overhead damp, and such as *Androsaces*, *Marrubiums*, *Asperulas*, and other woolly-leaved subjects repay for overhead covering during the winter season; a piece of glass of sufficient size to cover the plant from above, and fixed into position in some way or other, will easily accomplish this. At this season especially close watch must be kept against slugs, which are fond of *Dianthi*, *Campanulas*, *Silenes*, *Omphalodes*, and rare *Saxifragas*, whilst the short-tailed vole is another depredator in similar directions. Measures should be taken against both as soon as discovered. Look over the spring bedding occasionally, and stir the soil around the plants; also, after a spell of frost, see that they have not broken loose from the soil, a remark that also applies to any Alpine plants that may have been planted in late autumn.

Plants in Pots.—Where Alpine and other hardy plants are being grown in pots, the soil should be stirred frequently, and watch kept for slugs. Alpines in pots and pans should not be coddled too much, for they can stand many degrees of frost, but where pots are a consideration, the frames may be covered during severe weather.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the DUKE OF MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Ventilating.—Owing to the amount of fire heat required to maintain the necessary warmth, especially in the hotter divisions, it is quite easy for any house to acquire a stuffy condition, unless fresh air is admitted daily. At this season discretion must be used in admitting air, but it must be done by some means every day, as a dry, stagnant atmosphere is most injurious to the plants. The observant cultivator will soon find the difference between a badly ventilated and a judiciously ventilated house, not only by his own personal comfort, but in the health and vigour of his plants. Houses vary considerably in their requirements, according to the plants grown in them, their position and proximity to the heating apparatus. Orchids need fresh air, but should not be exposed to cold draughts. To those who do not succeed with Orchids exactly as they would like, I urge a closer study of the atmospheric conditions of the houses.

Dendrobium.—The flower buds of many of the deciduous and semi-deciduous varieties of *Dendrobium* are developing, and the roots will require more water than they have received since the past season's growth was completed, but the plants should be allowed to become dry before being watered. When the outside temperature does not fall below 40°, maintain a minimum temperature of about 60°, but during colder weather the temperature of the house may be allowed to drop slightly without harm accruing, provided a dry atmosphere is maintained. Any check given to these plants during the development of the flowers, either from an excess or deficiency of water, or from too low a tempera-

ture, will reduce the size and quality of the flowers to a considerable extent. When the flowering season is over the plants should be kept growing very slowly until the days get longer and the weather conditions are more conducive to the plants making satisfactory growth. The flowering period may be prolonged by placing some of the more forward specimens in gentle warmth. The change from the cool resting quarters to that of a warm house should be gradual, as should any forcing of the plants be attempted there is the danger

varieties last season, however, promised better results; the figures represent the dates of flowering. Cameo (4.9) (Fig. 8), deep coral, shading to deep salmon in the throat, lower petals golden yellow. Rose Ash (6.9), old rose, blended ashes of roses, and Silver Moon (28.8), milk white, all carry their flowers well. (The latter, like most of the whites, becomes slashed with pink with age.) Fallen Leaf (12.9) and Ragten (30.8), although flowers of an unusual colouring fail somewhat in this respect. Perhaps I ought not to close these notes without mention



FIG. 9.—GLADIOLUS DUNLAPS.

of them making premature growth, instead of flowering. Plants which were forced in previous years readily respond to this treatment, and some varieties respond readily to gentle forcing, but this should only be attempted with strong, well-rooted, vigorous plants, which have been well ripened and matured.

THE GLADIOLUS IN AMERICA.

JACK LONDON, referred to in my notes on p. 157, Vol. LXX., was raised in California, and until last year represented the only variety from that land of sunshine which grew with any degree of success with me. The flowers of the majority of the varieties I have tried have been too heavy for the spike. Several

of a new race of *Kunderii* *Gladiolus*, a cross between a *Kunderii* variety and the species *Quartianus*. They are said to come into bloom about one month later than other flowering kinds planted at the same time. I grew Indian Summer a year or two ago and it did not flower until the first week in October, although planted in March. It produced a fine spike. In 1921 I planted four other varieties at the same time (9.4) as Fire Ribbon. The latter flowered on 17.7, Dunlaps (Fig. 9) on 4.9, Arcadia on 10.9, Arcola on 12.9, and the fourth, Storm King, much after that date. The three that bloomed first are quite distinct, and Arcola has a feature which I have never noticed in any other *Gladiolus*. The flowers that have not fully developed during the day, partially close at night and open out again in the following morning. G. C.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 5, Tavistock Street, Covent Garden, W.C.2.

Editors and Publisher. Our correspondents would oblige by delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication or referring to the Literary department, and all plants to be named, should be directed to the Editors. The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.

THIRTEEN GOOD BORDER PLANTS.

OLD things need not be therefore true, O, brother men, nor yet the new.

Thus spake A. H. Clough from his viewpoint of human circumstance, and the amateur gardener, reviewing the good and ill of the memorable summer of 1921, may thus paraphrase the couplet to fit his own case—

Many old plants are very good;
Some new ones don't please as they should.

It may be of some use to those who have blanks to fill in their borders, and care to do so with herbs that are not met with in every garden, if leaving out Lilies and Roses, I jot down some notes on things that have contributed to the gaiety of the past season. I shall restrict the list to a baker's dozen, well knowing how prone one is to prose about his pastime.

PAEONIA CAMBESSEDESII, the gift of an Irish lady who collected it in the Balearic Islands. In my opinion it is the loveliest of the genus and the earliest to flower. Before the New Year it had pushed up shoots a couple of inches long, intensely scarlet, and, as experience in former winters goes to prove, immune to any ordinary degree of cold. These shoots will lengthen out to the height of a foot, and in April, when clad with leaves with a silvery lustre on the upper side, rich red on the lower, will bear cup-shaped blossoms of tender rose, enclosing a bunch of golden anthers whence protrude the scarlet stigmata. The habit of this plant is neat and compact, and it relishes lime in the soil.

GEUM BORISII.—I bless the day when I first met this—the choicest of its kind—at the R.H.S. show. It is quite free from the sprawling habit which mars the merit of the varieties Mrs. Bradshaw, Gibson's Scarlet, Heldreichii, etc. It carries its flowers, the colour of red lead, with golden anthers, erect on wiry stems, and is lavish of them throughout summer and autumn. It began to flower on April 30 last, and is still starred with a few blooms on this New Year's Day.

DRACOCEPHALUM FORRESTII.—A recent introduction from Western China, with bright green Heath-like foliage and rich purplish-blue spikes of blossom continuously produced. It grows about one foot high and is well suited for the front of a border.

GLADIOLUS TRISTIS.—This plant is not included in the *Kew Hand List*, but it has been established in this country for several years, and deserves to be more generally grown. Had I been asked to name this species I should have called it *gracilis*; the epithet *tristis* is far from appropriate to the delicate sulphur hue of the vase-shaped blossoms. It sends up its rush-like leaves in autumn, which remain green all the winter, till it flowers in June. This plant prefers a sunny exposure.

INTULA ROYLEANA.—A Himalayan species, the handsomest of a comely family. Grows two feet high and is of the easiest culture.

LOBELIA CAVANILLESII.—A Chilean plant, bearing plenty of gay scarlet flowers lined with yellow, in July. Perhaps tender in cold districts, but revels under a south wall.

NERINE BOWDENII.—Exquisite is the right epithet for this plant, which is not usually named in lists of hardy subjects, but which seems quite happy here under similar conditions to those that agree with *Amaryllis Belladonna*.

SALVIA HIANIS.—The blue and white blossoms of this Himalayan species are so charming as to warrant its place in the select number; but here, at least, it is somewhat niggardly in producing them. Probably in sunnier districts it would be more liberal in display.

PHYGELIUS CAFFENSIS, the Cape Figwort.—I never realised the full merit of this plant until several years ago I received from the Edinburgh Botanic Garden one that bore scarlet blossoms. That which had been in the garden here for half a century produced flowers of dull brick-red. A free and showy herb; but to get the best of it let it be trained against a south wall. It is hardy in the open border in the south and west, but straggles over too much space to be effective, and smothers weaker neighbours.

CRASPEDIA UNIFLORA.—This New Zealand Composite also I owe to my good friends in Edinburgh. In 1920 I received a plant with a single flower-head thereon. Seed ripened and was sown, and the numerous offspring flowered freely in 1921. It is a very neat plant, nine inches or a foot high, producing many solitary, globular, rayless yellow heads.

SAXIFRAGA AIZOON ROSEA.—This is one of the very best of the encrusted section. It makes a pretty edging, and thrives better in the open border than on the dry retaining wall where I first grew it. The plant increases fast.

ROSCOEIA CAPITATA.—A purple Ginger-wort from the Himalayas which I got from Bees', Ltd. It is a rich-coloured counterpart of the sulphur-hued *R. cautioides*, eighteen inches high, but flowering a month later. Another species or variety obtained from Bees' under the unsatisfactory name of August Beauty, closely resembles *R. cautioides* in form, height and colour, but does not flower till August. All species of *Roscoeia* require careful labelling, because none of them show above ground till a few days before they come into flower. They spread satisfactorily by underground runners, so the ground should not be disturbed round the parent plant. A very desirable family.

POTERIUM OBUSUM.—An aristocratic kinsman of our native Salad Burnet, and a notable addition to our border in July and August. It grows three feet high, and its elegant foliage flames, blushes or pales into attractive tints in the autumn. *Herbert Maxwell, Monroith, January 1, 1922.*

THE GREAT DROUGHT OF 1921 AND ITS EFFECT ON GARDEN PLANTS.

(Continued from page 9.)

HERTFORDSHIRE.

THE drought of 1921 punished this garden severely from the beginning of June until the welcome fall of two inches of rain on the 12th of September. The soil is ill adapted to withstand a period of more than a week without rain in the summer months. It is for the most part very shallow, and the subsoil, a coarse and hungry gravel, makes for rapid drainage. Old trees have filled most of it with such a network of roots that they take first toll of any moisture in the ground, therefore in such a season as we experienced it was inevitable that the damage should be great, that the benefit of extra sunshine and dryness of atmosphere should be noticeable in certain plants, and also that others should add to our knowledge by behaving in an unexpected manner.

In the first class, namely, those one would expect to suffer first and most must be placed almost all shallow rooting plants and those that demand a great amount of moisture in the atmosphere.

Ferns and Mossy Saxifrages showed signs of distress by the end of May. Many of both are dead, most of those still alive are ruined for a season or two. Even in the most favoured nooks *Polystichum* and *Hart's Tongue* fronds were short—mostly scorched at the tips. In situations that drained out more the season's growths was no more than an inch or two of living green. An old plant of *Adiantum*

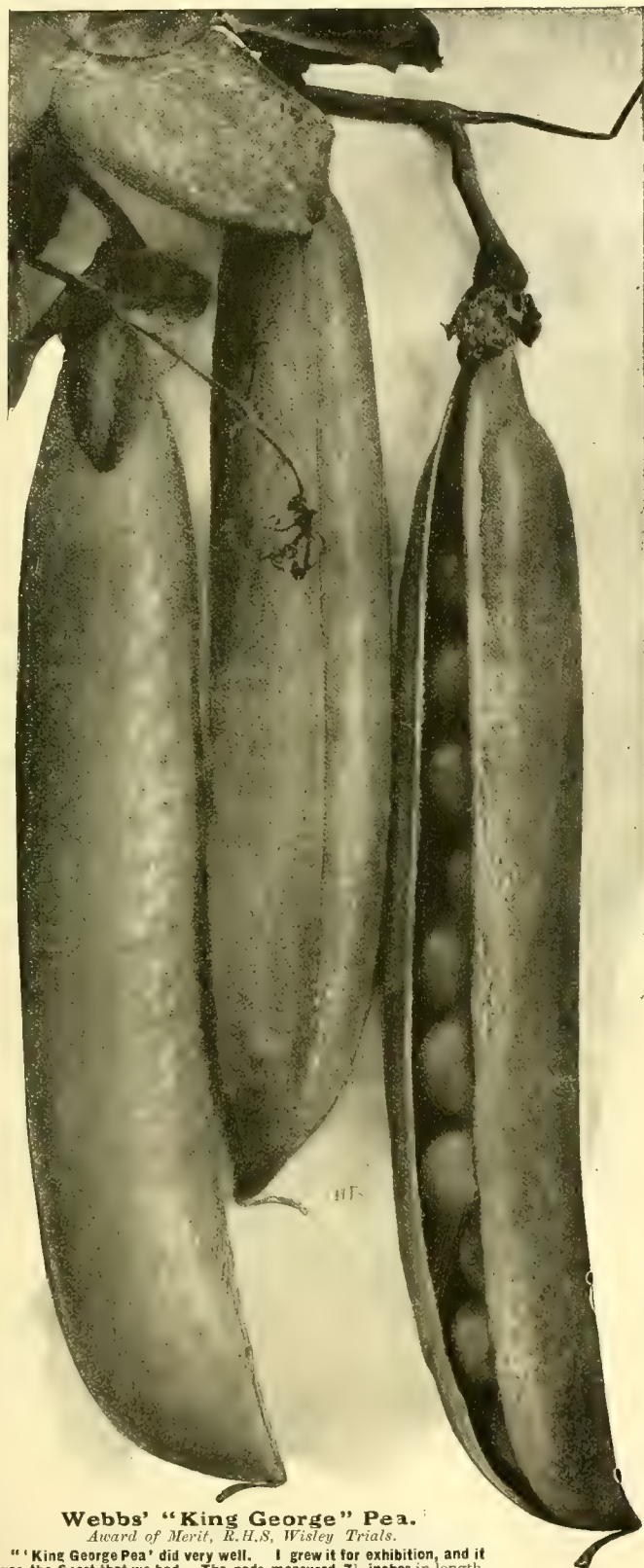
pedatum among *Primula Bulleyana* was scorched up in mid-July, but a younger one planted partly under the north side of a fair-sized boulder, in imitation of the successful clumps at Wisley, has remained green.

Asarum europaeum, normally an evergreen, lost every leaf. They dried up to a tea-leaf consistency, broke to pieces, and were blown away by the persistent N.E. winds. Deciduous species such as *A. canadense* and *A. caudatum* suffered almost as badly. At one time the rhizomes appeared dead, but recovered and filled out with sap after rain fell. *Epimediums*, especially those with thin and deciduous leaves, such as *E. alpinum* and *E. Muschianum*, were badly scorched. *Rodgersia podophylla*, *R. tabularis*, *R. aesculifolia* and *R. pinnata* lost the undersized leaves they had managed to make. On the contrary *Saxifraga peltata* showed its Californian origin by developing and lasting as well as usual. *Primulas* such as *P. japonica*, *P. Bulleyana* and its hybrids; *P. pulcherrima*, *P. chionantha*, *P. Beesiana* and its hybrids, and other moisture lovers, even though well watered failed to make satisfactory roots after flowering, and have mostly died. *P. Juliana* and its hybrids, though losing their leaves, seem to have been saved by the storage in the fleshy rhizomes.

Heaths suffered severely. Several old stretches of *Erica carnea* and *E. darleyensis* being killed. *E. vagans* and *E. stricta* stood the best of the family. *Rhododendrons* and *Azaleas* are sad sights. Many late flowering varieties failed to open their flower buds. Young growths were either scorched up altogether, or the edges of the very undersized leaves burnt brown; only the earliest flowering varieties formed any flower buds for the coming season. *Zingiber Mioga*, the hardy Ginger from Japan, made growths of four inches instead of a yard high, and failed to flower. *Anemone vitifolia*, Farrer's pink flowered variety, never opened a bud; all were scorched brown. *Bamboos* suffered terribly. *B. palmata*, even where old growths had been thinned out and some good soakings supplied to the vigorous young shoots, became a buff coloured eyesore. A few young shoots replaced the dead ones since the September rain, and look as though they will withstand the frosts. *Arundinaria anceps* lost every green leaf, and the young canes started too late to ripen. *A. nitida*, though looking brown and ugly for months, has clothed itself in greenery, and looks none the worse; even two large clumps moved in May have not suffered seriously. It was too dry for *Alstroemerias* even. The stems were short, and the flowers small and soon over. *Anemone japonica*, too, when it flowered a month later than usual, looked more like *A. sylvestris* than its tall self. *Eucryphia pinnatifolia*, such a wonderful picture for several weeks in 1920, was in beauty for but a few days in 1921, and the flowers that first opened were small, and later ones were scorched and browned.

Early *Chrysanthemums* were markedly delayed in their period of flowering, but owing to the glorious weather of October they have seldom been finer. *Amicia Zygomeris* grew well, but flowered later than usual, as also did *Parochetus communis*, where established for stock in a cold frame as well as where newly planted in what in most years is a moist bed. In contrast with the retarded flowering of *Anemone japonica* and late appearance of *Bamboo* shoots mentioned above, the earliness of flowers from certain bulbous plants or those with storage corms such as *Cyclamen* and *Colchicum* was very noticeable. *Merendera Bulbocodium* appeared early in July, a fortnight sooner than in most seasons. *Leucojum autumnale* was not far behind, and *Colchicum autumnale* in a damp meadow broke all previous records by flowering a week before *C. variegatum* and *C. Bornmuelleri* usually the two earliest. *C. byzantinum* followed after *C. autumnale*, before the end of July; by that time *Cyclamen neapolitanum* made a good show under a Cedar.

After a wet summer it has frequently happened that *Amaryllis Belladonna* has sent



Webbs' "King George" Pea.

Award of Merit, R.H.S. Wisley Trials.

"'King George' Pea' did very well. I grew it for exhibition, and it was the finest that we had. The pods measured 7½ inches in length and were well filled. It is a grand variety for exhibition."—
Mr. A. R. SEARLE, Head Gardener to THE MARQUIS OF NORTHAMPTON.

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First Early

	Per Pint	Per Quart
Webbs' "New Surprise," 15 to 18 in.	2/3	4/-
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Second Early

	Per Pint	Per Quart
Webbs' "Stourbridge Marrow," 5 ft.	2/6	4/6
Webbs' "Rival Marrowfat," 3½ ft.	2/-	3/6
Webbs' "Defiance Marrowfat," 4 ft.	2/6	4/6

Main Crop

	Per Pint	Per Quart
Webbs' New "King George," 5 ft. In sealed packets only, at 1/6 & 2/6 each		
Webbs' "Senator," 2½ to 3 ft. (The most Prolific Pea ever raised.)	2/3	4/-
Webbs' "Reliance" Marrowfat, 5 ft.	2/3	4/-

Late Main Crop

	Per Pint	Per Quart
Webbs' "New Masterpiece," 4 ft.	2/3	4/-
Webbs' "Distinction," 3½ to 4 ft.	2/6	4/6
Webbs' "Selected Gladstone," 3½ ft.	2/3	4/-

"'Senator' Pea carried a splendid crop of pods and hanging on each side so thick that one could hardly see any leaves, pods produced in pairs, simply grand as it fills with the pod"—Mr. A. W. TAYLOR, Head Gardener to LORD INCHCAPE, G.C.M.G., K.C.I.E., K.C.S.I.

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THE DATES OF MEETINGS HEREIN GIVEN, SUPPLIED BY THE SECRETARIES OF THE RESPECTIVE SOCIETIES, ARE AS COMPLETE AS CIRCUMSTANCES
During the operation of the Summer Time Act the times given

JANUARY.

1	S	Kew Gardens re-organised, 1841.
2	M	"Gardeners' Chronicle" first issued, 1841.
3	Tu	Cardiff Gard. Soc. meet.
4	W	Roy. Agricultural Soc. of England Council meet.; Nat. Viola & Pansy Soc. meeting.
5	Th	Wargrave & Dis. Gard. Soc. meet.
6	F	Moon, First Quarter, 10.24 a.m.
7	S	
8	S	1st Sunday after Epiphany.
9	M	United Hort. Ben. & Prov. Soc. meet.; Fire Insurance due.
10	Tu	Penny Postage, 1840.
11	W	Roy. Caledonian Hort. Soc. ann. meet.; Sheffield Chrys. Soc. meet.; East Anglian Hort. Soc. meet.
12	Th	Bristol & Dis. Gard. Assoc. meet.
13	F	Paisley Florists' Soc. meet.; Roy. Hort. & Arboricultural Soc. of Ireland Council meet.; Full Moon, 2.37 p.m.
14	S	Ringwood Soc. meet.
15	S	2nd Sunday after Epiphany.
16	M	(15) British Museum opened, 1759.
17	Tu	Roy. Hort. Soc. Coms. meet.
18	W	Brit. Florists' Fed. Ann. meet.; Hertford Hort. Soc. meet.
19	Th	Wargrave & Dis. Gard. Soc. meet.; Manchester N. of England Orch. Soc. meet.; Linnean Soc. meet at 5 p.m.
20	F	Eastbourne Hort. Soc. meet.
21	S	British Mycological Soc. meet.
22	S	3rd Sunday after Epiphany.
23	M	
24	Tu	Battle Dogger Bank, 1915.
25	W	Irish Gard. Assoc. & Ben. Soc. meet.
26	Th	Gardeners' Roy. Ben. Inst. Ann. meet. & election at Simpson's Restaurant; Bristol & Dis. Gard. Assoc. meet.
27	F	Assoc. of Economic Biologists meet.
28	S	Nat. Auricula Soc. ann. meet.
29	S	4th Sunday after Epiphany.
30	M	
31	Tu	Roy. Hort. Soc. Coms. meet.; Bath & W. & S. Counties Soc. Council meet.

FEBRUARY.

1	W	Roy. Agricultural Soc. of England Council meet.; Nat. Viola & Pansy Soc. meet.; Pheasant & Partridge shooting ends.
2	Th	Wargrave & Dis. Gard. Soc. meet.; Manchester & N. of England Orchid Soc. meet.; Linnean Soc. meet.
3	F	
4	S	
5	S	5th Sunday after Epiphany. John Lindley b. 1799; Moon, First Quarter, 4.52 a.m.
6	M	Nat. Chrys. Soc. Ann. meet. at R.H.S. Hall.
7	Tu	Roy. Caledonian Hort. Soc. meet.
8	W	East Anglian Hort. Soc. meet.; Sheffield Chrys. Soc. meet.
9	Th	Roy. Gard. Orphan Fund Ann. meet. & election.
10	F	Paisley Florists' Soc. meet.; Roy. Hort. & Arboricultural Soc. of Ireland Council meet.
11	S	Ringwood Soc. meet.
12	S	Septuagesima. Full Moon, 1.18 a.m.
13	M	United Hort. Ben. & Prov. Soc. meet.
14	Tu	Roy. Hort. Soc. Coms. meet. and ann. gen. meet. at 3 p.m.
15	W	Hertford Hort. Soc. meet.
16	Th	Wargrave & Dis. Gard. meet.; Manchester & N. of England Orchid Soc. meet.; Linnean Soc. meet.
17	F	Eastbourne Hort. Soc. meet.
18	S	
19	S	
20	M	
21	Tu	Verdun, 1916.
22	W	Irish Gard. Assoc. & Ben. Soc. meet.
23	Th	Roy. Botanic Soc. meet.; Bristol & Dis. Gard. Assoc. meet.
24	F	Assoc. of Economic Biologists meet.
25	S	
26	S	Quinquagesima. New Moon, 6.48 p.m.
27	M	
28	Tu	Shrove Tuesday. Roy. Hort. Soc. Coms. meet.

MARCH.

1	W	Ash Wednesday. Roy. Agricultural Soc. of England Council meet.; Nat. Viola & Pansy Soc. meet.
2	Th	Wargrave & Dis. Gard. Soc. meet.; Manchester & N. of England Orchid Soc. meet.; Linnean Soc. meet.
3	F	
4	S	
5	S	1st Sunday in Lent.
6	M	Moon, First Quarter, 7.22 a.m.
7	Tu	Roy. Caledonian Hort. Soc. meet.
8	W	East Anglian Hort. Soc. meet.; Sheffield Chrys. Soc. meet.
9	Th	Bristol & Dis. Gard. Assoc. meet.
10	F	Paisley Florists' Soc. meet.; Roy. Hort. & Arboricultural Soc. of Ireland Council meet.
11	S	Ringwood Soc. meet.
12	S	2nd Sunday in Lent.
13	M	U. Hort. Ben. & Prov. Soc. ann. meet.
14	Tu	Roy. Hort. Soc. Coms. meet.
15	W	Hertford Hort. Soc. meet.
16	Th	Wargrave & Dis. Gard. Soc. meet.; Manchester & N. of England Orchid Soc. meet.; Linnean Soc. meet.
17	F	Roy. Hort. Soc. of Perthshire Spring show; Eastbourne Hort. Soc. meet.
18	S	British Mycological Soc. meet.
19	S	3rd Sunday in Lent.
20	M	Moon, Last Quarter, 8.43 a.m.
21	Tu	British Carnation Soc. show.
22	W	Wimbledon & Dis. Gard. Soc. meet.
23	Th	Roy. Botanic Soc. meet.
24	F	Paisley Florists' Soc. meet.
25	S	Lady Day.
26	S	4th Sunday in Lent.
27	M	
28	Tu	Roy. Hort. Soc. Coms. meet (2 days); Bath & W. & Southern Counties Soc. Council meet.
29	W	Irish Gard. Assoc. & Ben. Soc. meet.
30	Th	Bristol & Dis. Gard. Assoc. meet.; Ware & Dis. Gard. Soc. meet.; Steelport Hort. Soc. Ann. meet.
31	F	Assoc. of Economic Biologists meet.

JULY.

1	S	Moon, First Quarter, 10.52 p.m.
2	S	3rd Sunday after Trinity.
3	M	
4	Tu	Roy. Caledonian Hort. Soc. meet.; Roy. Agricultural Soc. of England show at Cambridge (5 days).
5	W	Nat. Viola & Pansy Soc. meet. & Ex.; Colchester Rose show; Cambridgeshire Hort. Soc. Ann. Ex. (2 days).
6	Th	
7	F	
8	S	Ringwood Soc. meet.
9	S	4th Sunday after Trinity. Full Moon, 3.7 a.m.
10	M	United Hort. Ben. & Prov. Soc. meet.
11	Tu	Roy. Hort. Soc. Coms. meet.; Nat. Carnation & Picotee Soc. Ann. Ex.; Saltaire, Shipley & Dis. Rose Soc. Ann. Ex. (2 days).
12	W	Nat. Sweet Pea Soc. at Eastbourne (2 days); Sheffield Chrys. Soc. meet.
13	Th	Bristol & Dis. Gard. Assoc. meet.
14	F	Paisley Florists' Soc. meet.
15	S	Elstree & Dis. Hort. show.
16	S	5th Sunday after Trinity.
17	M	Moon, Last Quarter, 5.11 a.m.
18	Tu	Durham, Northumberland and Newcastle-on-Tyne Botanical & Hort. Soc. Ann. Ex. (3 days).
19	W	Peace Day Celebration, 1919.
20	Th	Walsall Hort. Soc. Ex. (3 days).
21	F	Birmingham Hort. Soc. Ex. (2 days).
22	S	Caterham Hort. Soc. Ex.
23	S	6th Sunday after Trinity.
24	M	New Moon, 0.47 p.m.
25	Tu	St. James. Roy. Hort. Soc. Coms. meet.
26	W	Cardiff County Flower show (2 days).
27	Th	Roy. Botanic Soc. meet.; Bristol & Dis. Gard. Assoc. meet.
28	F	Mid. Car. & Picotee Soc. Ex. (2 days).
29	S	Nat. Viola & Pansy Soc. Ex. at Botanical Gdns., Birmingham.
30	S	7th Sunday after Trinity.
31	M	Moon, First Quarter, 4.22 a.m.

AUGUST.

1	Tu	Roy. Caledonian Hort. Soc. meet.
2	W	Nat. Viola & Pansy Soc. Ex.
3	Th	Taunton Deane Hort. Soc. Ann. Ex.
4	F	Bradford Hospital and Convalescent Fund show (2 days).
5	S	Auchencraigh Hort. Soc. Ann. Ex.
6	S	8th Sunday after Trinity.
7	M	Drayton Hort. Soc. Ann. Ex.; Chippenham & Dis. Hort. Soc. Ann. Ex.; Lichfield Hort. Soc. Ann. Ex.
8	Tu	Leicester Abbey Park Flower show (2 days).
9	W	East Anglian Hort. Soc. meet.; Roy. Hort. Soc. Coms. meet.
10	Th	Yorkshire County Show, Huddersfield; Cheshire County show, Stockport.
11	F	Paisley Florists' Soc. meet.
12	S	Ringwood Soc. meet.
13	S	9th Sunday after Trinity.
14	M	United Hort. Ben. & Prov. Soc. meet.
15	Tu	Clay Cross Hort. Soc. Ex.
16	W	Derbyshire Agric. & Hort. Soc. Ann. Ex. (2 days).
17	Th	Bembridge Hort. Soc. Ex.
18	F	Roy. Hort. Soc. of Perthshire Ex. (2 days); Eastbourne Hort. Soc. meet.
19	S	London & N.W.R. Hort. Soc. Ann. Ex. at Belle Vue, Manchester;
20	S	10th Sunday after Trinity.
21	M	
22	Tu	Roy. Hort. Soc. Coms. meet.
23	W	Helensburgh & Gareloch Hort. Soc. Ann. Ex.; Highland Hort. Soc. Ann. Ex.
24	Th	Aberdeen Flower show (3 days).
25	F	Dunfermline Hort. Ex. (2 days).
26	S	Dumfries & Dis. Hort. Soc. Ex.
27	S	11th Sunday after Trinity.
28	M	
29	Tu	Moon, First Quarter, 11.55 a.m.
30	W	Glas. & W. of Scotland Hort. Soc. International Ex. (4 days).
31	Th	Sandy & Dis. Hort. Soc. Ann. Ex.

SEPTEMBER.

1	F	German Retreat, 1918.
2	S	
3	S	12th Sunday after Trinity.
4	M	
5	Tu	Roy. Hort. Soc. Coms. meet.; Roy. Caledonian Hort. Soc. meet.
6	W	Roy. Agricultural Soc. of England Council meet.; Nat. Dahlia Soc. show, R.H.S. Hall; Nat. Viola & Pansy Soc. meet. and Ex.; Roy. Lancs. Agricultural Soc. Ann. Ex. at Preston (4 days); Full Moon, 7.47 a.m.
7	Th	
8	F	Paisley Florists' Soc. meet.
9	S	Ringwood Soc. meet.
10	S	13th Sunday after Trinity.
11	M	United Hort. Ben. & Prov. Soc. meet.
12	Tu	Auchencraigh Hort. Soc. ann. meet.
13	W	East Anglian Hort. Soc. meet.; Sheffield Chrys. Soc. meet.; Roy. Caledonian Hort. Soc. Ex. (2 days).
14	Th	Bristol & Dis. Gard. Assoc. meet.
15	F	British Mycological Aut. Foray.
16	S	
17	S	14th Sunday after Trinity.
18	M	Nat. Chrys. Soc. Floral & Ex. Com. meet.
19	Tu	Roy. Hort. Soc. Coms. meet.
20	W	Hertford Hort. Soc. meet.
21	Th	Nat. Rose Soc. Autumn show; New Moon, 4.38 a.m.
22	F	
23	S	Paisley Florists' Soc. show.
24	S	15th Sunday after Trinity.
25	M	
26	Tu	
27	W	Irish Gard. Assoc. & Ben. Soc. meet.; Moon, First Quarter, 10.40 p.m.
28	Th	Roy. Botanic Soc. meet.; Bristol & Dis. Gard. Assoc. meet.; Wargrave & Dis. Gard. Soc. meet.
29	F	Michalmas Day.
30	S	

Almanac, 1922.

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WILL ALLOW, BUT SOME APPOINTMENTS ARE NOT MADE AT THE TIME OF PUBLICATION, AND OTHERS ARE LIABLE TO ALTERATION.
for Astronomical and other notes must be altered accordingly.

APRIL.

1	S	Paisley Florists' Soc. show.
2	S	5th Sunday in Lent.
3	M	
4	Tu	Roy. Caledonian Hort. Soc. meet.
5	W	Roy. Agricultural Soc. of England Council meet.; Nat. Viola & Pansy Soc. meet.; Roy. Hort. & Arboricultural Soc. of Ireland Spring Ex. (2 days); Huntingdon Daff. show (prov.)
6	Th	Manchester & N. of England Orchid Soc. meet.; Linnean Soc. meet.
7	F	Paisley Florists' Soc. meet.
8	S	Ringwood Soc. meet.
9	S	<i>Palm Sunday.</i>
10	M	United Hort. Ben. & Prov. Soc. meet.
11	Tu	Roy. Hort. Soc. Coms. meet. (2 days); Full Moon, 8.44 p.m.
12	W	East Anglian Hort. Soc. meet.; Sheffield Chrys. Soc. meet.
13	Th	Bristol & Dis. Gard. Assoc. meet.
14	F	<i>Good Friday.</i>
15	S	Dr. Maxwell Masters b., 1833.
16	S	<i>Easter Day. Aisne 1917.</i>
17	M	<i>Bank Holiday.</i>
18	Tu	
19	W	Hertford Hort. Soc. meet.; Moon, Last Quarter, 0.54 a.m.
20	Th	Manchester & N. of England Orchid Soc. meet.; Midland Daffodil Soc. Ann. Ex. (2 days) (provisional).
21	F	Paisley Florists' Soc. meet.; Eastbourne Hort. Soc. meet.
22	S	
23	S	<i>Low Sunday. St. George.</i>
24	M	
25	Tu	Roy. Hort. Soc. Coms. meet. (2 days); Bath & W. & Southern Counties' Soc. Council meet.
26	W	Irish Gard. Assoc. & Ben. Soc. meet.
27	Th	Roy. Botanic Soc. meet.; Bristol & Dis. Gard. Assoc. meet.; New Moon, 5.4 a.m.
28	F	
29	S	
30	S	<i>2nd Sunday after Easter.</i>

MAY.

1	M	<i>St. Philip and St. James.</i>
2	Tu	Roy. Caledonian Hort. Soc. meet.
3	W	Roy. Agricultural Soc. of England Council meet.; Nat. Viola & Pansy Soc. meet. and Ex.
4	Th	Linnean Soc. meet.; Moon, First Quarter, 0.56 p.m.
5	F	Paisley Florists' Soc. meet.
6	S	Acc. of King George V., 1910.
7	S	<i>3rd Sunday after Easter.</i>
8	M	United Hort. Ben. & Prov. Soc. meet.
9	Tu	Roy. Hort. Soc. Coms. meet. (2 days).
10	W	East Anglian Hort. Soc. meet.; Sheffield Chrys. Soc. meet.
11	Th	Bristol & Dis. Gard. Assoc. meet.; Manchester & N. of England Orchid Soc. Ann. Ex.; Full Moon, 6.6 a.m.
12	F	Roy. Hort. & Arboricultural Soc. of Ireland Council meet.
13	S	Ringwood Soc. meet.
14	S	<i>4th Sunday after Easter.</i>
15	M	
16	Tu	
17	W	Hertford Hort. Soc. meet.
18	Th	Moon, Last Quarter, 6.17 p.m.
19	F	Paisley Florists' Soc. meet.; Assoc. of Economic Biologists meet.; Eastbourne Hort. Soc. meet.
20	S	
21	S	<i>Rogation Sunday.</i>
22	M	Opening of International Ex., 1866.
23	Tu	Roy. Hort. Soc. Chelsea Show (3 days)
24	W	Kew Guild ann. meet. & dinner; Linnean Soc. Anniversary meet. at 3 p.m.
25	Th	Roy. Botanic Soc. meet.; Bristol & Dis. Gard. Assoc. meet.
26	F	New Moon, 6.4 p.m.
27	S	
28	S	<i>Sunday after Ascension.</i>
29	M	
30	Tu	Dr. Maxwell Masters d., 1907.
31	W	Irish Gard. Assoc. & Ben. Soc. meet.

JUNE.

1	Th	Linnean Soc. meet., Bath & W. & Southern Counties Soc. Ann. Ex. at Plymouth (5 days).
2	F	British Mycological Soc. Spring Foray
3	S	King George V. b., 1865
4	S	<i>Whit Sunday.</i>
5	M	<i>Bank Holiday.</i>
6	Tu	Roy. Caledonian Hort. Soc. meet.
7	W	Roy. Agricultural Soc. of England Council meet.; Roy. Hort. Soc. Coms. meet. (2 days); Nat. Viola & Pansy Soc. meet. and Ex.
8	Th	Bristol & Dis. Gard. Assoc. meet.
9	F	Roy. Hort. & Arboricultural Soc. of Ireland Council meet.; Full Moon, 3.58 p.m.
10	S	Ringwood Soc. meet.
11	S	<i>Trinity Sunday.</i>
12	M	United Hort. Ben. & Prov. Soc. meet.
13	Tu	
14	W	East Anglian Hort. Soc. meet.; Sheffield Chrys. Soc. meet.; Yorkshire Gala (3 days).
15	Th	<i>Corpus Christi.</i> Linnean Soc. meet.
16	F	Paisley Florists' Soc. meet.; Eastbourne Hort. Soc. meet.
17	S	British Mycological Soc. Foray.
18	S	<i>1st Sunday after Trinity.</i>
19	M	
20	Tu	
21	W	Southampton Roy. Hort. Soc. Rose show; Hertford Hort. Soc. meet.
22	Th	Roy. Botanic Soc. meet.
23	F	Prince of Wales b., 1894.
24	S	Windsor Rose Society Ex.
25	S	<i>2nd Sunday after Trinity.</i> New Moon, 4.20 a.m.
26	M	
27	Tu	Roy. Hort. Soc. Coms. meet. (2 days).
28	W	Irish Gard. Assoc. & Ben. Soc. meet.
29	Th	Nat. Rose Soc. Show, Regent's Park; Bristol & Dis. Gard. Assoc. meet.
30	F	Paisley Florists' Soc. meet.; Assoc. of Economic Biologists meet.

OCTOBER.

1	S	<i>16th Sunday after Trinity.</i>
2	M	
3	Tu	Roy. Hort. Soc. show at Holland Park Rink (4 days); Nat. Chrys. Soc. Floral Com. meet. at Holland Park Rink.
4	W	Helensburgh & Gareloch Hort. Soc. ann. meet.; Nat. Viola & Pansy Soc. meet.
5	Th	
6	F	Paisley Florists' Soc. meet.
7	S	British Mycological Soc. Aut. Foray.
8	S	<i>17th Sunday after Trinity.</i>
9	M	United Hort. Ben. & Prov. Soc. meet.
10	Tu	
11	W	East Anglian Hort. Soc. meet.; Sheffield Chrys. Soc. meet.
12	Th	Bristol & Dis. Gard. Assoc. meet.; Wargrave & Dis. Gard. Soc. meet.
13	F	Roy. Hort. & Arboricultural Soc. of Ireland Council meet.
14	S	British Mycological Soc. Foray.
15	S	<i>18th Sunday after Trinity.</i>
16	M	Nat. Chrys. Soc. Floral & Ex. Com. meet.
17	Tu	Roy. Hort. Soc. Coms. meet.
18	W	<i>St. Luke.</i> Hertford Hort. Soc. meet.
19	Th	
20	F	Paisley Florists' Soc. meet.; New Moon, 1.40 p.m.
21	S	British Mycological Soc. Foray.
22	S	<i>19th Sunday after Trinity.</i>
23	M	
24	Tu	Southampton Chrys. Show (2 days).
25	W	Irish Gard. Assoc. & Ben. Soc. meet.
26	Th	Bristol & Dis. Gard. Assoc. meet.; Wargrave & Dis. Gard. Soc. meet.; Hertford Hort. Soc. Ann. Ex.
27	F	Moon; First Quarter, 1.26 p.m.
28	S	<i>St. Simon and St. Jude.</i>
29	S	<i>20th Sunday after Trinity.</i>
30	M	Nat. Chrys. Soc. Floral Com. meet.
31	Tu	Roy. Hort. Soc. Coms. meet.

NOVEMBER.

1	W	Croydon Chrys. Soc. Ex.
2	Th	
3	F	Paisley Florists' Soc. meet.
4	S	Full Moon, 6.37 p.m.
5	S	<i>21st Sunday after Trinity.</i>
6	M	
7	Tu	Birmingham Chrys. Soc. (3 days); St. Neots Chrys. Soc. show; Surliton and Kingston Chrys. show.
8	W	Eastbourne Hort. Soc. Ex. (2 days).
9	Th	Hitchin Chrys. Soc. ann. show; Wargrave & Dis. Soc. meet.; Gloucestershire Root, Fruit & Grain Soc. Ann. Ex.; Grange-over-Sands Hort. & Chrys. Soc. Ann. Ex.
10	F	Sheffield Chrys. Show (2 days).
11	S	Armistice Day, 1918; Ringwood Soc. meet.
12	S	<i>22nd Sunday after Trinity.</i> Moon, Last Quarter, 7.53 a.m.
13	M	United Hort. Ben. & Prov. Soc. meet.
14	Tu	Roy. Hort. Soc. Coms. meet.
15	W	Hertford Hort. Soc. meet.
16	Th	Nat. Chrys. Soc. Ann. Ex. at R.H.S. Hall (2 days).
17	F	Bolton Hort. Soc. Ex. (2 days); Eastbourne Hort. Soc. meet.; Dunfermline Hort. Soc. Chrys. Show (2 days).
18	S	British Mycological Soc. meet.
19	S	<i>23rd Sunday after Trinity.</i> New Moon, 0.6 a.m.]
20	M	
21	Tu	
22	W	
23	Th	Wargrave & Dis. Gard. meet.
24	F	<i>Old Martinmas.</i>
25	S	
26	S	<i>24th Sunday after Trinity.</i> Moon, First Quarter, 8.15 a.m.
27	M	Nat. Chrys. Soc. Floral & Ex. Com. meet.
28	Tu	Roy. Hort. Soc. Coms. meet.
29	W	Brit. Carnation Soc. show at R.H.S. Hall.
30	Th	London & N.W.R. Hort. Soc. ann. meet.

DECEMBER.

1	F	Paisley Florists' Soc. meet.
2	S	
3	S	<i>1st Sunday in Advent.</i>
4	M	Full Moon, 11.24 a.m.
5	Tu	Roy. Caledonian Hort. Soc. meet.
6	W	Roy. Agricultural Soc. of England Council meet.; Nat. Viola & Pansy Soc. meet.
7	Th	Wargrave & Dis. Gard. Soc. meet.
8	F	Roy. Hort. & Arboricultural Soc. of Ireland Council meet.
9	S	Ringwood Soc. meet.
10	S	<i>2nd Sunday in Advent.</i> Grouse and Black Game shooting ends; Sir Joseph D. Hooker d., 1911.
11	M	United Hort. Ben. & Prov. Soc. meet.; Nat. Chrys. Soc. Floral Com. meet.; Moon, Last Quarter, 4.41 p.m.
12	Tu	Roy. Hort. Soc. Coms. meet.
13	W	East Anglian Hort. Soc. meet.; Sheffield Chrys. Soc. meet.
14	Th	Bristol & Dis. Gard. Assoc. meet.
15	F	Paisley Florists' Soc. meet.; Eastbourne Hort. Soc. meet.
16	S	
17	S	<i>3rd Sunday in Advent.</i>
18	M	New Moon, 0.20 p.m.
19	Tu	
20	W	Hertford Hort. Soc. meet.
21	Th	Wargrave & Dis. Gard. Soc. meet.
22	F	Sir Trevor Lawrence d., 1913; Winter Solstice.
23	S	Dunfermline Hort. Soc. ann. meet.
24	S	<i>4th Sunday in Advent.</i>
25	M	<i>Christmas Day.</i>
26	Tu	<i>Boxing Day.</i> Moon, First Quarter, 5.53 a.m.
27	W	Irish Gard. Assoc. & Ben. Soc. meet.
28	Th	Roy. Botanic Soc. meet.; Bristol & Dis. Gard. Assoc. meet.
29	F	Paisley Florists' Soc. meet.
30	S	Sir Trevor Lawrence b., 1831.
31	S	<i>1st Sunday after Christmas.</i>

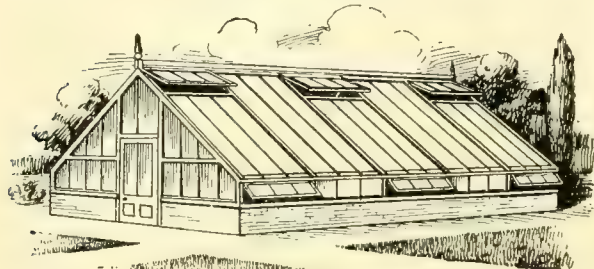
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The Rhododendron Walk in "The Old Gardens," Tunbridge Wells.

(From a photograph taken in late May, 1921.)

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up its flower spikes so late in November that they failed to open. This season they appeared early in August, and continued in succession until the end of September, many clumps blooming freely that had never done so before. *A. Parkesi* (the Kew Belladonna) blossomed in the open here for the first time in ten years. *Zephyranthes candida* in the var. major were in time to ripen seeds in October, and young plants from those of the latter were two inches high at the end of November. *Sternbergia lutea* var. *angustifolia* was an astonishing sight. A long edging of it in an Iris border was a solid band of yellow, as gay as yellow Crocuses in spring. *Lilium Henryi* gained a fresh value by growing as tall as usual and flowering well, but unlike its behaviour in 1911, when it seeded abundantly, only six pods were formed and ripened. *Lilium testaceum* ripened seed, as did also the old garden form of *L. candidum*.

Crocuses were delayed, and save for one clump of *C. cancellatus*, which bore a few flowers in August, none appeared before the

its admirers and practical jokes for many small boys for two months. Hitherto there have been but three or four ripe fruits at a time; last season it was hard to gather the first half dozen any day without being shot by an equal number of the yellowish-green Gherkins ready to discharge their juice and pips. Here, as in all other gardens I visited during the year, I learnt two facts new to me. No established Rose of any species or variety suffered in the vigour of its young growth, but apparently rejoiced in the drought. Blue forms of Conifers were uninjured alongside green forms that are to all appearance dead. This is very marked with forms of Lawson's Cypress, and it would seem that the waxy coating that gives these their glaucous appearance is able to check transpiration sufficiently to save their lives under conditions that prove fatal to green varieties.

Another lesson was the vindication of the Arab proverb, "Dig for a hundred days, irrigate for one." Deeply trenched ground where trees were felled last winter, though planted rather

mollis is just beginning to flower, and Hellebores are to be seen on the banks of the ditches. Whereas in some other gardens there was an unprecedented flowering of *Iris unguicularis* (stylosa) in the autumn of 1921, there are at present at Wisley very few blooms showing. A good baking is conducive to the free flowering of this plant, but it is possible that as the position occupied at Wisley is exceptionally dry, it found the past summer too severe and is consequently backward.

Primula Winteri (see Fig. 10) is flowering freely at the top of the rock garden, in spite of the attacks of mice, four of which have been caught in traps close by. This beautiful plant does well at Wisley because its roots obtain a plentiful supply of water, and the crowns are protected from wet by overhanging rocks. The flowers are all thrum-eyed and set no seed; this might be rectified if some pin-eyed forms were introduced. Propagation can be effected, however, by separating and replanting the new crowns formed.

Protection from wet by means of glass sheets

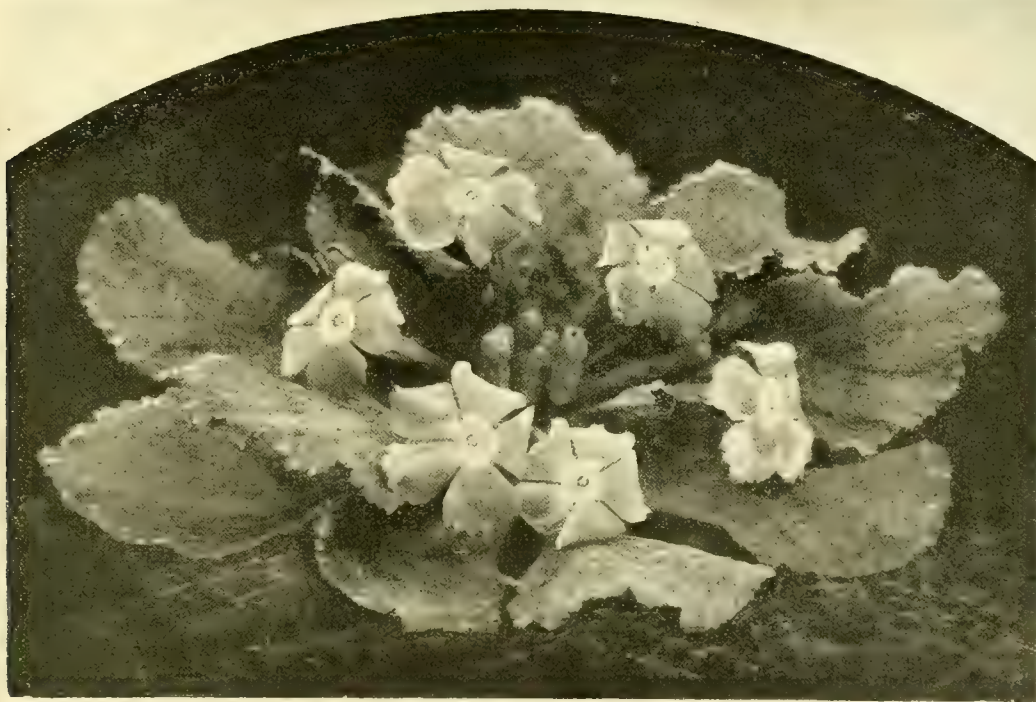


FIG. 10. PRIMULA WINTERI: FLOWERS PALE PURPLE.

September rain fell. Even then *C. zonatus* and *C. speciosus* made no show for fully a week, but when they did appear, favoured by the continuance of sunny days, they were finer than usual, the latter forming a sea of blue in certain borders where it has colonised freely and stretches many yards wide.

All Californian plants were better than usual, and notably so *Romneyas* and *Zauschneria californica* var. *mexicana*, always satisfactory here, but this year a flare of scarlet from July till the November frosts. *Solanum Torreyi*, with its flat heads of immense Potato-like flowers almost as fine as those of *S. Wendlandii* is another drought lover, and was in great beauty for many weeks. *Oxalis purpurata* (Bowley) was a lovely sight mingled with *Verbena venosa*, where both have lived for some dozen or more seasons in a south border. *Nerine Bowdeni* was in good form under a wall, and some spikes cut in early October have ripened apparently good seed in water with a pinch of sugar added to it. *Ecballium Elaterium*, the Squirted Cucumber, had an unusually large crop of its explosive fruits, providing daily amusement for

late in the spring, helped *Berberis* of many species, some really too old for moving, not only to live but to make fair growth. In it, too, some small portions pulled off an old clump of *Polygonum cymosum* grew into a mass seven feet high, covered with white flowers, whereas the parent clump wilted badly and failed to flower ornamentally until after the rain fell. *E. A. Bowles*, Myddelton House, Waltham Cross.

(To be continued.)

NOTES FROM WISLEY.

AUTHENTIC accounts of Primroses picked in Scotland so long ago as three weeks encouraged expectations of finding a very early show of spring flowers at Wisley. It is a little surprising, therefore, to find so few signs of bloom in early January. But the gardens do not lack interesting features, for many of the berried shrubs are still beautiful. Some of the *Pyra-canthas* have had their fruits spoiled by frost, especially those with berries unripened, such as *Pyra-cantha angustifolia*.

The insufficiently appreciated *Hamamelis*

has been given to such plants as *Androsace primuloides*, *A. Chumbyi*, *Lewisia Cotyledon* and *Campanula mirabilis*, which are apt to rot if water is continually dripping on them. The only plant in flower in the alpine house is *Saxifraga burseriana tridentina*, which alone is worth a visit. The bog garden in the lower part of the rock garden has been dug out and the *Mimulus* removed, as it was becoming too assertive.

Phloxes will be much in evidence at Wisley this year, since, in addition to the trial of 350 varieties, a large border is devoted to them. This border has been established for a year, and is now being dressed with leaf-mould and material from the ditch-bottoms, which is now easily obtained owing to the absence of water. This border also contains varieties of *Chrysanthemum maximum* and some good *Tradescantias*.

The drought of 1921 has been too severe for many plants of *Primula japonica* and *P. pulverulenta* which carpeted the wood last year, but the *Azaleas* and *Rhododendrons* should make a good show this season, and *Lilium giganteum* should not disappoint visitors during 1922. *E. G. White.*

ORCHID NOTES AND GLEANINGS.

ORCHIDS OF 1921.

(Concluded from p. 3.)
NURSERYMEN.

MESSRS. J. and A. McBean, Cooksbridge, have been deservedly successful, their exhibits always showing excellence and good taste. The firm started the year at the first meeting in January by securing a First-Class Certificate for the handsome *Odontioda Hypatia*, McBean's variety, and an Award of Merit for *Odontioda Madeline* McBean's variety. Other awards obtained during the year were *Cattleya Enid* alba var. Kathleen, and *Laelio-Cattleya Eunice* alba var. Constance, both fine white varieties, receiving Awards of Merit on February 22; and F.C.C. for *Odontoglossum crispum* R. Felton; *O. Diamond* var. Perfection; *O. Rosina* var. Invincible; the famous *O. crispum* Solon Carminetta, and the richly-coloured *Odontioda Joiceyi* splendens. The remaining eight Awards of Merit were for *Odontoglossum Radiant* McBean's variety, *O. crispum* Ada Evans; *O. St. George* var. Vulpus, *Odontioda Enchantress*, *Oda. Cilleham* var. Ada Evans, *Cymbidium Excelsior*, *Cattleya Falco*, and the clear yellow *Laelio-Cattleya Allananda*, the best of its class.

Messrs. Charlesworth and Co., Haywards Heath, were well represented at nearly every meeting of the Royal Horticultural Society during the year, showing the most novelties.

Large-flowered *Sophro-Laelio-Cattleyas* were always a speciality, and in 1921 their First-Class Certificate plants included those of the best, viz., S.-L.-C. Joseph Charlesworth, S.-L.-C. Prince Hirohito, and S.-L.-C. His Majesty, all large and of indescribably rich shades of colour; and *Odontoglossum Britannia*. The Awards of Merit were for *Odontonia Ceres*, *O. Melia*, *O. Thais*, new departures which have yet to be shown in the mature stage. Others receiving awards were *Charlesworthiana nobilis*, a curious cross of *Oncidium macranthum*; *Brasso-Cattleya Sofrano* var. Prince of Orange; *Laelio-Cattleya Athene*, and *Oncidium Papilio* Charlesworthii, the very distinct representative of the only species to secure recognition, the entries for species before the R.H.S. Orchid Committee being unfortunately very few.

Messrs. Armstrong and Brown, Orchidhurst, Tunbridge Wells, have been amongst the largest exhibitors of distinct strains of those favourite hybrids, *Odontioda* and *Odontoglossum*, the range in colour being very remarkable. Among their First-Class Certificate plants were the large scarlet *Odontioda Marion* Worsley, shown at Chelsea; the deep red *O. Dauntless* Orchidhurst variety; the ruby-red *O. Magna rubra*, shown at Chelsea; and the superb white and yellow *Odontoglossum Armstrongii*. Awards of Merit were for *Odontoglossum crispum*: Victor Newton, *O. eximium* var. Rex, and *Dendrobium nobile* Sir F. W. Moore, a great advance on the famous *Dendrobium nobile nobilis* from which it was raised.

Messrs. Stuart Low and Co., Jarvisbrook, Sussex, made good displays during the past year, *Sophronitis* crosses being prominent, and several of their fine novelties flowering for the first time were recorded. Awards were secured for *Sophro-Cattleya Dorea*, Low's variety, one of the best large scarlet forms; *Brasso-Cattleya Admiral Jellicoe* var. Rosita, large and rich purplish mauve, and the rich yellow *Dendrobium Butterfly* Low's var.

Messrs. Flory and Black, Slough, have shown many novelties and secured awards for several, the best of which are *Cattleya Prince Shimadzu*, *Laelio-Cattleya Vivid* and *Odontoglossum Trident*.

Great improvement in high colours in *Brassavola* hybrids has been shown during the year, the *Brasso-Laelio-Cattleya Jupiter* var. *Majestica*, for which Messrs. Hassall and Co., Southgate, obtained a First-Class Certificate last June, being one of the best. Unmistakable evidence of the activity of the hybridists is given in our list of new hybrid Orchids, periodically published during the past year, three hundred and twenty novelties having been recorded in brief, besides descriptive notes of the best.

The following Orchids were illustrated in *The Gardener's Chronicle* in 1921:—*Brasso-Laelio-Cattleya Imogen*, November 5, p. 233; *Cymbidium Dragonfly*, February 26, p. 101; *Cypripedium Dixon* Thorpe, June 11, p. 285; *C. Penelope*, coloured supplement, January 1; *Dendrobium Model*, The Dell variety, March 5, p. 116; *Laelio-Cattleya Allamanda*, September 3, p. 121; *L.-C. Golden Glow*, August 20, p. 99; *L.-C. Orange Blossom*, April 23, p. 201; *Miltonia Venus* var. *Escinator*, May 14, p. 235; *Odontioda Joiceyi splendens*, May 21, p. 245; *O. W. R. Fasey*, April 16, p. 183; *Odontoglossum Armstrongii*, October 29, p. 221; *O. crispum* Solon Carminetta, June 25, p. 309; *O. Desdemona* H., May 14, p. 234; *O. Pescatorei* Lady Holford, December 10, p. 295; *Sophro-Laelio-Cattleya Falcon*, February 19, p. 91; *S.-L.-C. Prince Hirohito*, May 28, p. 259; *S.-L.-C. Rex* Orchidhurst variety, November 19, p. 259.

ODONTOGLOSSUM ITHONE VAR. PAPILLON.

A flower of this handsome new cross between *O. Aglaon* (eximium × *Vuyllstekeae*) and *O. Dusky Monarch* (unrecorded) is sent by Ernest R. Ashton, Esq., Broadlands, Camden Park, Tunbridge Wells (gr. Mr. Kent). It is a fine flower in every respect, the ground colour, white, heavily blotched with reddish-purple. A very remarkable feature in the flower is that each segment bears in the middle two ovate-oblong, whitish opaque patches, like some of the markings on a tropical butterfly. The labellum has a large purple blotch, the front and margin being white.

Mr. Ashton also sends flowers of *O. xanthos* var. Mrs. F. M. Ogilvie, snow white with some pale yellow markings; *O. Black Prince*; *O. Mrs. Harold King*, and *O. Camden* (Lambardeanum × regale), a new cross of large size, white, finely blotched with bright mauve.

ODONTIODA LOUISA.

A flower of this new hybrid raised between *Odontoglossum Louise* (*Ossulstonii* × *Pescatorei*) and *Odontioda Chantecler* (*Oda Cooksoniae* × *C. Noezliana*), raised by Messrs. Charlesworth and Co., is sent by Pantia Ralli, Esq., Ashted Park, Surrey (Orchid grower Mr. Farnes). It is a very beautiful hybrid of model form and closely adhering to *Odontoglossum* in size and shape, the *O. Pescatorei* in all its parents predominating in its almost circular flower with equally broad sepals and petals, and finely expanded lip.

The ground colour of this fine hybrid is white, but the greater part of the surface is taken up by large confluent blotches of ruby-purple colour, the white showing on the margins and bases of the petals. The lip has one large purple blotch in front of the prominent yellow crest, and some smaller blotches inside the white margin. There is little evidence of *Odontioda Noezliana* except a slight vermilion shade in the purple blotching.

NEW HYBRIDS.

(Continued from page 270, Vol. LXX.)

Name.	Parentage.	Exhibitor.
Brasso-Laelio-Cattleya Doris...	B.-C. Digbyano-Mossiae × L.-C. Fascinator ...	Charlesworth.
Brasso-Laelio-Cattleya Latela ...	L.-C. Fascinator × B.-L. Sue-sa ...	Charlesworth.
Brasso-Laelio-Cattleya Miss. Alwyn Harrison ...	B.-C. Mrs. J. Leemann × L.-C. Rubens ...	A. Harrison.
Brasso-Laelio-Cattleya Venus ...	B.-C. Mrs. J. Leemann × L.-C. Britannia ...	Sanders.
Cattleya Mamie ...	Maggie Laphae alba × Drapsiana primulina ...	Pantia Ralli, Esq.
Cattleya Miss Phyllis Marshall ...	Claukiae × labiata ...	F. J. Hanbury, Esq.
Cattleya Snowclad ...	Mulleri × intertexta Juliettae ...	Sanders.
Cattleya Troilus ...	Clotho × Luegae ...	A. Hanmer, Esq.
Cymbidium Hebe ...	eythrostylum × Pauwelsii ...	Sanders.
Cypripedium Asion ...	Queen Alexandra × aureum Oedippe ...	Charlesworth.
Cypripedium Fasil ...	Majestium × Lceanum Hercules ...	Rev. J. Crombleholme.
Cypripedium Capanagna ...	Caronal Mercier × Nubia ...	Rev. J. Crombleholme.
Cypripedium Carolina ...	Carola × Dowleri Hindeanum ...	Rev. J. Crombleholme.
Cypripedium Dulciora ...	Helen II. × Wellesleyae ...	Rev. J. Crombleholme.
Cypripedium Evulston ...	Lord Ossulston × Eve ...	P. Smith, Esq.
Cypripedium Fairville ...	Fairricanum × Earl Tankerville ...	P. Smith, Esq.
Cypripedium Glasuca ...	aureum × Carola ...	Rev. J. Crombleholme.
Cypripedium Margold ...	villosum auriferum × Wrigleyi ...	Rev. J. Crombleholme.
Cypripedium Melicis ...	aureum auriferum × J. Howes ...	Rev. J. Crombleholme.
Cypripedium M. hican ...	Calypso var. Flamingo × Mrs. Mostyn ...	Rev. J. Crombleholme.
Cypripedium Osprey ...	Lucifer × Car. clacus ...	Sir Geo. Holford.
Cypripedium Papilio ...	aureum × Spicerianum ...	Rev. J. Crombleholme.
Cypripedium Primrose ...	Actacus Drevetti's var. Lotus ...	F. J. Hanbury, Esq.
Cypripedium Seadower ...	Leonae × Princess P. Iriza ...	Rev. J. Crombleholme.
Cypripedium Sincerity ...	Lord Wolmer × Reginald Young ...	Sanders.
Laelio-Cattleya Brilliant ...	C. Iris × L.-C. Black Prince ...	Sanders.
Laelio-Cattleya Clementine ...	L.-C. Feronia × L.-C. Fascinator ...	Charlesworth.
Laelio-Cattleya Dragonosa ...	C. Dragon × L.-C. Luminosa ...	S. Gratix, Esq.
Laelio-Cattleya Epsom ...	L.-C. Ojhir × C. Gaskelliana alba ...	Pantia Ralli, Esq.
Laelio-Cattleya Euryoda ...	L.-C. Eurydice × C. Rhoda ...	Charlesworth.
Laelio-Cattleya Faith ...	L.-C. Phoebe × C. Bowiana aurea ...	Hassall.
Laelio-Cattleya Golden Guinea ...	L.-C. Myra × C. Dowiana aurea ...	Pantia Ralli, Esq.
Laelio-Cattleya J. Stanley Todd ...	L.-C. Phoenix × C. Trianae plumosa ...	Sanders.
Laelio-Cattleya Lucienne ...	C. Daphne × L.-C. St. Gothard ...	Charlesworth.
Laelio-Cattleya Mildred ...	L.-C. Phoebe × C. Sibil ...	Hassall.
Laelio-Cattleya Oriflame ...	L.-C. Thylene × C. Rex ...	Armstrong & Brown.
Laelio-Cattleya Papita ...	St. Gothard × Colmaniana ...	A. Hanmer, Esq.
Miltonia Lena ...	eximium × O. Harrison ...	Charlesworth.
Odontioda Alcazar ...	Oda. Hippolyta × O. J. Emperour ...	Charlesworth.
Odontioda Alva ...	Oda. Wikonia × O. Harrison ...	Charlesworth.
Odontioda Angela ...	O. Doris × Oda. Cooksoniae ...	Charlesworth.
Odontioda Ariotta ...	Oda. heatoneusis × O. eximium ...	Charlesworth.
Odontioda Beryl ...	O. eximium × Oda. Wilsonii ...	Charlesworth.
Odontioda Borda ...	C. Noezliana, fine variety × O. Nathaniel ...	Charlesworth.
Odontioda Cora ...	Oda. Coronation × O. eximium ...	Charlesworth.
Odontioda Dacia ...	O. eximium × Oda. Joan ...	Charlesworth.
Odontioda Enchantress ...	Odm. harvengtense × Oda. Madeline ...	McBean.
Odontoglossum Agapetum ...	amabile × Maillardianum ...	Charlesworth.
Odontoglossum Beryl ...	Uro-Skinneri × Amethyst ...	Charlesworth.
Odontoglossum Cardinal Wolseley ...	ulustrissimum × Alexandrina ...	Charlesworth.
Odontoglossum Creola ...	Epicasta × Harrisonum magnificum ...	Charlesworth.
Odontoglossum Creon ...	Jasper × Maillardianum ...	Charlesworth.
Odontoglossum Helvetia ...	crispo-Harrisonum × Maillardianum ...	Charlesworth.
Odontoglossum Ithone ...	Aglaon × Dusky Monarch ...	Charlesworth.
Odontoglossum Leucorhodium ...	crispo-Harrisonum × Regale ...	Sanders.
Odontoglossum Magali ...	Bessii × Magali Sander ...	Sanders.
Odontoglossum Ugradora ...	Uro-Skinneri × Dora ...	P. Smith, Esq.
Odontoglossum Vesuvius ...	eximium × Amethyst ...	Charlesworth.
Oncidioda Pallas ...	tigrinum × C. Noezliana ...	Charlesworth.
Sophro-Laelio-Cattleya Anzac ...	L.-C. Dominiana × S.-L.-C. Marthon ...	Charlesworth.
Vuyllstekeara Adonis ...	M. Warszewiczii × Oda. Madeline ...	Charlesworth.
Vuyllstekeara Edna ...	Miltoniada Harwoodii × Oda. Charlesworthii ...	Charlesworth.
Vuyllstekeara Eros ...	M. Warszewiczii × Oda. Charlesworthii ...	Charlesworth.
Vuyllstekeara Eva ...	Miltoniada Harwoodii × Oda. Brevii ...	Charlesworth.
Vuyllstekeara Felicia ...	M. Warszewiczii × Oda. Felicia ...	Charlesworth.
Vuyllstekeara Nora ...	Miltoniada Harwoodii × Oda. Cooksoniae ...	Charlesworth.
Vuyllstekeara Ruby ...	Miltoniada Harwoodii × O. Ashworthianum ...	Charlesworth.

TREES AND SHRUBS.

MAGNOLIAS.

THE Magnolias are amongst the most beautiful of trees and shrubs, suitable for the embellishment of gardens and pleasure-grounds. In spite of their beauty they are by no means so common in good gardens as one would expect. This probably is due to the fact that they are by no means the easiest of subjects to transplant successfully; intending planters should insist on having trees that have been regularly shifted, for plants that have not been disturbed develop large, fleshy roots, which are apt to die back when they are injured. If planting cannot be done early in the autumn, it is wise to wait until the spring, just before the trees start into growth.

The ground for planting should be carefully prepared; it should be enriched with a compost consisting of good mellow loam, with the addition of good fibrous peat and well-decayed leaf-mould. When the trees are well established in the soil they are quite capable of taking care of themselves in soils of average quality. Many of the species flower so early that the blossoms are liable to injury by spring frosts, but such handsome sorts as *M. stellata* and *M. Soulangeana* (see Fig. 11) open their flowers in succession over a fairly long period; thus it seldom happens that the entire crop of flowers of these species is entirely destroyed. It is also advisable to plant in sheltered positions, as rough winds damage and discolour the flowers.

M. grandiflora, the evergreen Magnolia from the Southern States of America, is usually seen planted and trained on walls. Although in sheltered positions in the south and western counties it is frequently seen growing quite well in the open, this species varies considerably in its freedom of flowering—the so-called Exmouth variety usually being the best in this respect.

Other species of Magnolia native of the Southern United States are *M. acuminata* (Cucumber Tree) with handsome foliage and yellow tinted, slightly fragrant flowers (this species makes a fine, large tree); *M. Fraseri*, which attains a height of 30 to 50 feet, and bears white flowers and leaves which are often a foot in length; *M. tripetala*, with large, white flowers, and leaves from 1 to 3 feet in length; *M. macrophylla*, another large-leaved species bearing large, white flowers with a purple blotch at the base; the blooms often measure 8 to 10 inches across; and *M. glauca*, with small very fragrant flowers.

M. conspicua (the Yulan) is a native of China, and flowers from February to May, its beautiful white flowers being often in part injured by frost. Many fine specimens of this species are met with in old gardens; there are numbers of varieties, or hybrids of this species with the Japanese *M. obovata*, such as *M. Soulangeana* and its var. *nigra*, also *M. Lennei*, both beautiful plants, their large flowers being white inside and purple on the outer side of the petals. Other varieties are *Alexandrina*, *spectabilis* and *speciosa*.

Among the Japanese species are *M. stellata*, a very free and early flowering tree, with starry-shaped and deliciously scented white flowers, which are borne in succession over a long period; *M. obovata*, of which there are several varieties; *M. Kobus*, with creamy white flowers, this in its native state forms a tree some 80 feet in height; and *M. salicifolia*, a small, slender tree with white flowers, somewhat resembling *M. Kobus*; this species has only recently flowered in this country. Other beautiful and distinct species are *M. parviflora*, *M. Watsonii* and *M. hypoleuca*.

The beautiful *M. Campbellii*, from the Himalayas, is not hardy except in favoured positions in Ireland and in the south and western counties of England.

More recent introductions from China are *M. Delavayi*, a species with very large, evergreen leaves and creamy white flowers (except in the west this handsome Magnolia requires the shelter of a wall), and *M. Wilsonii*. *J. C.*

THE WESTERN PLANE; PLATANUS OCCIDENTALIS.

WITH regard to the inquiry by Mr. J. D. Colledge about the existence of this tree in England (see *Gard. Chron.*, December 31, 1921, p. 335) and the reply by Mr. A. D. Webster, it is quite true that the latter gentleman sent me in August, 1919, fruit-bearing twigs of a Plane at Westcombe Park, Blackheath, which he considers to be true *Platanus occidentalis*. They did not appear to me to belong to that species, but more likely to one of the several forms of the "London" Plane (*P. acerifolia*). But as Prof. Henry had just then concluded an exhaustive study of cultivated Planes and published the results in Vol. XXXV. of the *Proceedings of the Royal Irish Academy*, I forwarded the twigs to him for his opinion. He knows more about the subject probably than any-

men ceased to offer *P. occidentalis* in their catalogues in large quantities when all they have to supply is the common "London" Plane or some of its progeny. *W. J. Bean.*

ÆSCULUS INDICA.

READERS contemplating the planting of ornamental flowering trees of the largest size, in pleasure grounds and parks, should not omit to include *Æsculus indica*, the Indian Horse-Chestnut, a subject also for a wide, imposing avenue. Towards the end of May, most arboriculturists regard the Common Horse-Chestnut (*Æsculus Hippocastanum*) as our most beautiful flowering tree. A month to six weeks later, no one who has seen the Indian Horse-Chestnut flowering at Barton, Suffolk; Tortworth, Gloucester; or Kew will dispute the claim that the Himalayan species is equally attractive, and, if possible,



FIG. 11.—MAGNOLIA SOULANGEANA; FLOWER NATURAL SIZE, WHITE FLUSHED RICH PURPLE.

one else. His reply to me was as follows: "You are quite right about the specimen of Plane from Westcombe Park. It is not *P. occidentalis*, and is identical in leaves and fruit with a branch from the large tree of *P. acerifolia* at Ranelagh."

The mere fact of a Plane producing solitary fruit-balls does not prove it to be *P. occidentalis*, although that is an almost invariable characteristic of the species. The Plane known as *P. hispanica* (doubtless a seedling from *P. acerifolia*) very frequently bears solitary fruit-balls.

P. occidentalis has been raised frequently at Kew from American seed, but none of the plants have ever succeeded well. One young tree grew to about 12 feet high, but became much cankered on the stem and eventually died. Personally, I have never seen other than small plants of *P. occidentalis* in this country, and no satisfactory evidence has yet been produced of the existence of even moderate-sized trees in England. It is time, at any rate, that nursery-

more valuable, because at the later date the galaxy of trees and shrubs in flower is past. Before the flowers open, and again after they fade, trees of *Æsculus indica* attract attention because of their luxuriant leafage. The tree is hardy, except perhaps in the coldest parts of the British Isles; probably the difficulty of importing the seeds, which soon lose their vitality, explains why this Horse-Chestnut is so little grown. Now, however, that the home-grown trees ripen fruits in most seasons, plenty of young trees should be available for planters. The fruits are darker skinned than those of the common Horse-Chestnut; when they are ripe the seed collector at Kew has to be about early in the morning before the gardens open, as small boys have discovered there are dark "conkers." *Æsculus indica* is also known as *Pavia indica*; a full-sized figure of the inflorescence and foliage formed the subject of the supplementary illustration in *Gard. Chron.*, February 28, 1903, and the plant is also illustrated in *Bot. Mag.*, tab. 5117. *A. O.*

MESEMBRYANTHEMUM AND SOME NEW GENERA SEPARATED FROM IT.

(Continued from page 9.)

. Leaves with a hump or food teeth on the flattened base.

16. *G. DIFFORME*, N. E. Br. Leaves as described by Haworth obliquely cruciate, 1-6 in. long and $\frac{1}{2}$ in. broad, some semicylindric from the base upward with a kind of half-twist at about the middle, with a sort of lobe-like tooth near the compressed-triquetrous or somewhat dolabriform tip, which often ends in a straight curved or hooked harmless bristle; other leaves without either a tooth or lobe-like rising, but hooked or gibbous near the point, or with a concavity above, one side of which forms a ridge. Some leaves microscopically ciliate towards the tip. Peduncle of plants flowering in the open air very short or scarcely any except the quadrangular base of the calyx. Flower 2-2 $\frac{1}{2}$ in. in diameter with fewer, longer and more lax petals than in *G. semicylindricum*, according to a drawing at Kew.

M. difforme, Linn., *Sp. Pl.*, ed. 1, p. 487 partly, as to *M. foliis difformibus*, Dillen., *Hort. Elth.*, p. 252, t. 194, f. 242 (not 241), and Haw., *Obs.*, p. 169 (1795) not of other authors.

The two figures of Dillenius were considered to represent one species by Linné, but Haworth retained the name *M. difforme* for the plant represented by Fig. 242, and separated that figured at 241 under the name of *M. semicylindricum*, and he was probably right, for I have not seen any among the plants I have raised of the latter species at all like the Dillenian figure 242, which represents the pedicel as being about $\frac{3}{4}$ in. long and distinctly angular, and there is drawing at Kew, made in 1826, of what was doubtless the plant Haworth described, which has the pedicel about an inch long, much thickened upwards and almost winged-angular (Haworth states under *M. cruciatum*, *Obs.*, p. 175, that it is "not of equal thickness"). But probably both these figures were made from plants grown under glass, causing the pedicel to elongate. The plant figured by Salm. Dyck as *M. difforme* is a totally different species, represented with long cylindric pedicels that are not thickened upwards, nor at all angular.

17. *G. SEMICYLINDRICUM*, N. E. Br. Leaf-pairs obliquely crossing each other, variable in size, 2-4 in. long and 3-4 lines broad and nearly as thick, half-cylindric, but the flat face not nearly extending to the variably formed compressed tip, with two blunt teeth on the upper side beyond the middle. The leaves are sometimes tipped or hooked with a short soft bristle. Pedicel 6-8 lines long, very slightly thickened at the apex and slightly angular. Corolla 1 $\frac{1}{2}$ -1 $\frac{3}{4}$ in. in diameter; petals more numerous and more crowded than those of *G. difforme*, according to the Kew drawings of these species.

M. semicylindricum, Haw., *Obs.*, p. 233 (1794), founded upon *M. foliis difformibus*, Dillen *Hort. Elth.*, p. 252, t. 194, f. 241, which is a much reduced figure of the plant.

M. bidentatum, Haw., *Suppl.*, p. 89 (1819); Salm. Dyck, *Mes.*, §7, f. 1; N. E. Br. in *Journ. Linn. Soc. Bot.*, v. 45, p. 125.

M. bigibberatum Haw., in *Phil Mag.*, v. 68, p. 338 (1826) not of Salm. Dyck.

I have this plant in cultivation, raised from seeds from Mount Stewart, Jansenville Division, sent to me by Dr. I. B. Pole Evans, 5579, and find that it varies very much in size and appearance. Haworth seems not to have realised that Dillenius' fig. 241 is a much reduced representation of the plant, and considered size of specific value. There is no difference whatever between his three supposed species.

N.B.—*M. semicylindricum*, Salm. Dyck, *Mes.*, §7, f. 2, not of Haworth; *M. difforme*, Salm. Dyck, *Mes.*, §7, f. 3, not of Linné nor Haworth; and *M. bigibberatum*, Salm. Dyck, *Mes.*, §7, f. 4, not of Haworth are three differently named plates all representing the same species, and might even have been drawn from the same individual in different years. All the names given to the plant represented are wrong, but

I have not seen any plant like it, so refrain from giving it a name.

18. *G. OCHRACEUM*, N. E. Br. Leaves 3-4 in. long, triangular or semiterete, obtusely pointed, slightly thickened upwards, one of each pair broader than the other towards the apex and slightly recurved, the other narrower and straight, flat above, one side convex, the other flat or even concave; the younger leaves finely ciliate. Pedicels 3-4 in. long, slightly compressed, thickened above. Calyx compressed top-shaped, 2-edged, 5-lobed, two of the lobes much elongated, leaf-like, 3-angled, ciliate. Corolla 1 $\frac{1}{2}$ in. or more in diameter; petals 8 lines long, in two series, recurved-spreading and oblique, brownish-yellow, paler on the back. Stamens numerous, erect, scarcely half as long as the petals; filaments, white. Ovary flattish on the top. Stigmas 5, lanceolate, acute, plumose, greenish-yellow.

M. ochraceum, Berger, *Mesemb. and Portul.*, p. 234.

DOUBTFUL SPECIES.

M. HETEROPHYLLUM, Haw., *Obs.*, p. 420 (1794). This is quite an unknown plant whose position is doubtful. It is not at all the same as *M. angustum* var. *heterophyllum*, Haw., with which it has been confused by Sonder. It is described by Haworth as a singular and very distinct species having robust green leaves that are not dotted, the lower being somewhat like those of *M. canum*, Haw. (not of Berger), and the upper somewhat like, but not quite so large as those of *M. difforme*, Linn. Nothing more is known of this species. Haworth (*Misc.*, p. 36) states "I once saw two plants of this fine species alive in the collection of Messrs. Malcolm, nurserymen, at Kennington." Although placed under the *Difformia* group by Haworth, I do not think it can be a species of *Glottiphyllum*.

M. SURRECTUM, Haw., *Rev.*, p. 101 (1821). This species also does not appear to be a *Glottiphyllum*, although placed in the same group by Haworth. According to a drawing of it at Kew it was raised in 1817 from seeds collected by Bowie. It is a very distinct species, with three pairs of ascending-spreading semiterete or nearly terete obtuse leaves about 2-2 $\frac{1}{2}$ in. long, $\frac{1}{2}$ in. broad, and nearly as thick, placed at right-angles to each other, and not at all tongue-shaped, of a dark green colour and not dotted. I have not seen anything like it. *N. E. Brown.*

(To be continued.)

THE MARKET FRUIT GARDEN.

DECEMBER, 1921, did its best to make up the deficiency in the year's rainfall. With 3.04 in. of rain it was the wettest month of 1921, and the heaviest rainfall for any single day in the year occurred on the 14th, though that was only 0.66 in. However, the total rainfall for the year was brought up only to 15.23 in., which, it is to be hoped, will long stand as a record. It is only 0.59 in. more than half the average for the previous twenty years in my district. In other words, the total rainfall for 1921 was 14.45 in. short of the average. Moreover, the number of days on which rain fell, 106, was 46 below the average. January and December were the only two months with over 2 in. of rain, whilst February, July, and September had less than 1 in., and June no rain at all.

WHEN ARE FRUIT BUDS FORMED?

It is wonderful how much knowledge some of the old gardeners gained about the plants they grew, apparently simply by observation and thought. I am delighted with one of the seventy-five observations concerning the culture of fruit trees quoted in *The Gardeners' Chronicle*, p. 300. Vol. LXX., from Bradley's *Treatise of Husbandry and Gardening*. He says: "Blossom buds are formed by the first sap between April and June, and filled for bearing between July and October." The reason why this pleases me so much is that it appears to reconcile the apparently conflicting results of two modern investigations, both of which have

been referred to in these notes more than once. Some elaborate American experiments established the fact that Apples form their fruit buds for the following year quite early in the season, within about a month, in fact, of the trees coming into life in spring. Then came the late Mr. H. E. P. Hodsoll's theory that the biennial bearing habit of Apples could be overcome by manuring, the unique feature of his system being a dressing of soluble fertilisers early in August to feed the fruit buds for the following season, the trees by that time having practically completed their growth and the hanging crop, and therefore being obliged to store the food material in the buds and other parts. This theory appealed to me as being well worthy of further trial, but I could not quite see why the trees should be fed in early autumn for fruit bud development if the buds were actually formed several months before, as the American investigations seemed to prove beyond reasonable doubt. Bradley's "observation" seems to supply the solution of the problem. The blossom buds are formed between April and June, but are "filled for bearing" between July and October. Early autumn, therefore, should be the right time to manure the trees, in order to feed the buds for the next year's crop. Incidentally this manuring should also help the trees in the following spring, when the new buds are being formed, since at that time, root action hardly having started, the trees are drawing on reserve food material stored in their system during the previous autumn. Later on, when root action and sap flow are in full swing, they can utilise the manures given in the ordinary way in winter.

BLACK CURRANT CUTTINGS.

I am much obliged to Mr. H. E. Durham (p. 327, Vol. LXX) for giving me another method of treating Black Currant cuttings, with the idea of getting them to throw up plenty of shoots from below the ground level. The idea appears to be excellent, and will be given a trial. But to carry it through to the end involves leaving the bushes three years in the nursery quarters. Probably, however, they could be transplanted to their permanent positions as two-year-olds, and planted deep, in place of filling in the trench and leaving them for another year. I have generally transplanted my bushes as yearlings, planting deep, so as to get the base of the shoots well under the soil. There is no doubt that deep planting is very important. Bushes that are planted shallow seldom make large specimens.

EFFECT OF SPRAYING ON THE SOIL.

When orchards are sprayed year after year with the same washes, the soil must receive a considerable amount of the chemicals employed. In some cases this is beneficial, as when the trees are sprayed with limewash, but in others the result in time might be injurious, for all that is known to the contrary at present. It has been suggested, for instance, that the continued use of lead arsenate might in time affect the soil, rendering it unhealthy for plant growth.

I propose to use a solution of copper sulphate every winter, or rather early spring, on such varieties of Apples as are liable to scab, having found this to be a partial preventive of this disease, and I wondered if this might in time injure the trees through the soil. Apparently, however, there is no fear of this. Some French investigators have found that the soil of vineyards which are repeatedly sprayed with copper sulphate for many years does become very rich in copper, even up to 100 lb. or more per acre in the surface soil. The metal is retained by the fine particles of the soil, owing to their absorbent properties, and also by the chemical reactions in which it may be involved, so that the drainage water is able to remove only an infinitesimal amount. Vineyard soils thus become constantly richer in copper; but their quality does not vary, as they fix it with such energy that the plants are not able to assimilate too much. As a matter of fact, copper has been found in varying amounts in all soils and in all plants. It is evidently soluble in the cell sap, as it travels

about the plant at the same time and in the same manner as the nutritive principle, without in any way harming the tissues through which it passes. It is suggested that it may even be of use to them.

DUAL-PURPOSE APPLES.

In some official notes on the Imperial Fruit Show, published in the *Journal of the Ministry of Agriculture*, it is pointed out that most of the varieties of Apples exhibited by overseas growers are suitable for both dessert and cooking. It is suggested that, as these Apples have been successful in the home markets, it may be necessary for growers to consider seriously whether the great degree of specialisation which in the British section was manifest by the very large fruits of Bramley's Seedling and the small ones of Cox's Orange Pippin is either necessary or wise. In my opinion we should be making a mistake if we introduced more dual-purpose varieties. The public certainly prefer big Apples for cooking. Again and again market reports state that good large cookers are in demand, whilst smaller samples are cheap. In times of glut the latter are almost unsaleable. It is difficult to sell cooking Apples which have the size and colour of dessert fruit. It is true that we have two excellent dual-purpose Apples in Newton Wonder and Blenheim Pippin, but in these cases the large fruits are sold for cooking and the small for dessert. At present we have the finest dessert and the finest cooking Apples in the world. If we went in for dual-purpose varieties, we could make neither claim with truth. After all, are not our dessert varieties quite as suitable for cooking as any of the imported dual-purpose Apples? Worcester Pearmain is about the only market variety I know that does not cook well. There is nothing to prevent people from cooking Cox's Orange if they like. It is certainly excellent for the purpose, but it is difficult to make people believe that a dessert Apple will cook well. *Market Grower.*

CULTURAL MEMORANDA.

MELONS.

I HAVE read with much interest the recent notes in the *Gard. Chron.* regarding "wilt" in Melons and how to cure it, but all Melon growers should bear in mind the old adage "Prevention is better than cure." I venture to suggest that under proper cultivation there should be no wilting. I have grown Melons for the past twenty years, and have had little or no trouble with damping or canker at the collar.

The soil best suited to Melons is a yellow loam, somewhat consistent. The object is to provide a rich holding medium which will encourage the young plants to make an abundance of roots. To two parts of such loam add one part of well-rotted farmyard manure, rubbed through a half-inch riddle and enough coarse, sharp sand to keep the whole porous. I sow my earliest batch in February, preferably one seed in a thumb pot, as this prevents disturbance of the roots when potting. Plunge the pots over a bottom heat of 70°, allowing the temperature to rise to 80° in the daytime. My aim is to get plants with as strong a constitution as possible right from the very beginning, as soft, drawn stems always lead to disappointment. When the seedlings show their third or rough leaf, pot them moderately firmly in 3-inch pots, using a similar mixture. Before potting, the soil used should be warmed to the temperature of the house, and when watering always use tepid water. A week before the plants are ready for their fruiting quarters—which will be ascertained by turning a plant out of the pot to see if it is well rooted—make up a bed in ridge form, 2½ feet wide, 9 inches deep at the sides, and rising to 18 inches in the centre. By this method the soil will become warmed to the same temperature as that of the house in which the Melons are to be grown.

For the Melon bed, chop up good fibrous turf into pieces about 3 inches square. To each barrow-load of soil add half a barrow-load of

decayed farmyard manure, and one 6-inch pot of crushed bones, mixing the whole well together. Set the plants 18 inches apart in the centre of the ridge (some may think this rather close). Beat the bed firmly all over, and cover it with an inch of loose soil to leave a rough surface. Give the plants a good soaking with tepid water and be sure that the whole bed is well moistened.

The leader should be allowed to run up without being stopped until all the fruits have formed, then stop it two joints above the last side shoot carrying fruit. Stop the side shoots one joint beyond each fruit, and tie the growth upright about 6 inches from the leader; thin out the leaves as the plant develops, but do not remove a leaf where there is a fruit near its base. Maintain a buoyant atmosphere in the house by damping the floor twice a day until the time for pollinating, when the house should be kept dry. When pollinating it is most essential that three to four fruits on each plant should be set on the same day so that they swell in unison. Syringe the foliage once a day after bright sunshine, taking care not to wet the base of the plant, as in nine cases out of ten this is the main cause of canker or wilt. Give air on all favourable occasions, but guard against draughts. All through the growing season the collars of the plants must be exposed to the light, and this can be done by cutting away with a sharp knife the cluster of leaves which form at the base of the plant. Care must be taken in doing this, as a ragged cut may mean decay. When the plants are in full growth, with the fruit swelling freely, afford an occasional watering with liquid manure, always bearing in mind that one good soaking is better than six sprinklings. When netting commences the waterings should be gradually reduced as the fruit ripens. This treatment should procure a good crop of Melons, each weighing from 6 to 7 lb. *Donald Allan, Marks Tey.*

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Mistleto.—Our experience here tends to confirm Mr. Dallimore's observation on the result of resistance on the part of a tree to invasion by Mistleto (see p. 390, December 24, 1921), namely, that more swelling is caused by successful than by unsuccessful resistance. Mistleto, if it ever was indigenous in Scotland, disappeared with the primeval forest; but it grows and fruits freely when sown north of the Tweed. About forty years ago I sowed a quantity of berries on young Apple and Hawthorn trees. The Apple trees now carry huge clumps of Mistleto, four and five feet in diameter, but the swelling on the branches is hardly noticeable. Of the Hawthorns so treated, only one remains, the rest having been removed to relieve choice Rhododendrons. The survivor is Paul's Scarlet variety; there is a large swelling on one of its branches, from which protrude a few twigs of the parasite, none of them more than two inches long. When another Hawthorn of the same variety was removed two years ago, I noted similar swellings, and even shorter twigs of Mistleto. Both Apple trees and Thorns were slender saplings when the berries were applied in March, to their previous year's growth. This seems to indicate greater power of resistance in the Hawthorn than in the Apple tree; but whereas I have seen Hawthorns in the south of France crowded with Mistleto, it may be that Paul's variety keeps the parasite better at bay owing to superior vigour. *Herbert Maxwell, Monreith.*

Apple Orleans Reinette.—With regard to your interesting report in the *Gard. Chron.*, of December 17, 1921, page 317, concerning Apple Orleans Reinette, submitted to the R.H.S. Fruit and Vegetable Committee, by Mr. Bunyard, I find that Scott in his *Orchardist*, second edition, published in 1873, states, "I received it under

the name of Court Pendu de Tournay. 1st size, 1st equal., December to March, introduced here in 1872, and has not yet fruited." It would be interesting to know if the variety is grown by anyone under this name. *G. J. Warren, The Gables, Balcombe, Sussex.*

The late Mr. Andrew Henderson.—I would like, through your columns, to thank Mr. C. Orchard for his kindly remarks (p. 337, Dec. 31, 1921) concerning my father, the late Mr. Andrew Henderson. Although only seven years old at the time, I well remember my mother making the pork pies for the gardeners who came to the meetings at Wimbledon House, though I may remind Mr. Orchard sometimes mutton was substituted for pork. My sisters also join with me in thanks for your own and Mr. Orchard's appreciation of my father's work and goodness. *Thomas Henderson, 14, Wickham Road, Beckenham.*

—I failed to notice the announcement of the death of Mr. Henderson on p. 337 of Vol. LXX. This clever craftsman was all that Mr. Orchard writes of him, but of too retiring a disposition to have had justice done to his abilities as a gardener. At Wimbledon House, "intensive" cultivation was in full swing long before the expression was invented. And his Orchids, Grapes, Pineapples, etc., were first-class. I kept up a correspondence with him till the infirmities of old age came upon him. I think it was George Turner who introduced me to the club, and Mr. Bentley, who I believe is still living, was another member. The first communication I sent to *The Gardeners' Chronicle* was an account of one of the meetings. It appeared in the number for February 14, 1874, but they had been noted long before that. The late William Tait, of Downie's Edinburgh, so well known in Scotland, was a nephew of Mr. Henderson's. His father, and later, his brother, carried on a successful joinery business in Tynninghame for many years. *R. P. Brotherston.*

Second Flowering of *Cheiranthus mutabilis*.

—Among the many floral freaks of 1921, I may mention the profuse flowering for the second time of *Cheiranthus mutabilis*, L'Herit. It flowered freely in May, as usual, and at Christmas I had two plants with at least 30 flower spikes each, in an exposed situation on the top of a rockery. I have had this species (which is a native of Madeira) in cultivation for about 50 years, having had it originally from my old friend, the Rev. H. Harpur Crewe, and have never known it bloom a second time in the same year before. No doubt the deficiency of rain in 1921 has been the cause. Every month of 1921 has been below the 20-year average rainfall here; in the last few days of December we needed 1.78 in. of rain to reach the average of 2.87 in. *Alfred O. Walker, Ulcombe Place, near Maidstone.*

"Isabelle."—I have long been familiar with this word as a colour name and also with the story that gave rise to it. But when Sir Herbert Maxwell (see p. 3) states that it is a French word meaning dove-coloured, I am more than perplexed. Dove-colour, Plum-colour, mouse-colour, and many similar quasi-coloured names seldom convey the same idea to the reader or hearer, as is intended by the person using them. Dove-colour here in the south of England is usually intended to describe a distinct shade of soft pale grey. Isabelle, on the contrary, is a proper colour name used in French to describe a light brown shade. For synonyms in French, there are *fauve*, *bai*, *peau de buffle*, and certainly none of these is what we know as dove-colour. Buff or pale buff may be considered the best English translation, or even tan. These shades are certainly more applicable to soiled linen than dove-colour! *C. H. P.*

Lardizabala bitemata.—This climber grew in the garden I had charge of in Killarney, on a south wall, but did not seem so happy as at Monreith, for although it flowered fairly well, it did not make any appreciable growth. In spite of this, I always felt proud of the flowers that did appear. *Mandevilla suaveolens* in a similar

position was rampant and flowered quite freely, and in 1911 several of its peculiar seed pods developed and ripened. Sir H. Maxwell's hesitation to have his plant torn down reminds me of a case when a mansion was at the time a blazing furnace, and an individual looking on asked a man directing a fire hose to play on to the creepers and try to save them! A. Elgar, Ward End Park, Birmingham.

SOCIETIES.

WATFORD HORTICULTURAL.

MISS BRADFORD, J.P., presided over the December (1921) meeting of this society, at the Council Chamber, Watford. Miss Bradford in her opening remarks paid tribute to the fine power for good which the society exercised in a large, populous and growing district such as Watford, and said that the hard-working committee of this organisation had done magnificent work during the war period in maintaining and improving local food supplies. The subject for the evening, "Pruning Fruit Trees," was ably dealt with by the lecturer for the evening, Mr. F. W. Miles, and the interest of an audience numbering well over 100, was fully held for considerably over an hour.

PERTHSHIRE AND FORFARSHIRE FRUIT GROWERS.

A MOVEMENT which has been on foot for some time to establish a fruit growers' association for Perthshire and Forfarshire was brought to a successful issue on January 7, when a meeting of fruit growers was held in Blairgowrie to consider the matter. There was a good and representative attendance presided over by Mr. Wm. G. Macpherson, Blairgowrie. It was resolved to form a fruit growers' association for the two counties, and office bearers and a committee were appointed, with Mr. Macpherson as Chairman and Mr. McDonald, Walton, Blairgowrie, as Vice-Chairman.

THE WEATHER.

THE WEATHER IN DECEMBER.

THE month of December, 1921, opened with a five days' continuation of the cold, easterly weather experienced in November; but a very mild, westerly wind afterwards set in, and this continued with scarcely any interruption to the month's close, the latter half of December being very stormy and at times wet, at Southport. The earlier weeks had been quieter, with a damp atmosphere, but only small amounts of rain fell. The mean temperature of the complete month was so high as 44.4°, or 4.7° above the normal for December. Frost in the shade was restricted to a couple of days, and even ground frost to seven days. Of bright sunshine, 42.7 hours were experienced, or 8 hours more than the average. The total rainfall, however, amounted to 3.57 inches, implying an excess of 0.70 inch. Wind movement was so much as 491 miles per day, or 74 miles per day above the normal. There were no fewer than 511 hours of wind from westerly points (i.e., off the sea). Gales occupied 68 hours, distributed over eight days; but really destructive force was not attained (except in a few momentary gusts, and even these were not severe). There was no snow, and very little fog. Hail fell on three days. A notable smooth, glazed frost was produced on the morning of December 5.—Joseph Bazendell, The Ferry Observatory, Southport.

THE WEATHER IN SCOTLAND.

DECEMBER, 1921, was another month of mild, dry, bright weather with slight falls of snow on two days. The mean temperature was nearly 3.5°, and the rainfall fully 1 inch, below the normal. Rain fell on 16 days to a total of 1.55 inch, the 21st being the wettest day with a fall of 0.38 inch. Bright sunshine was recorded for 49.8 hours, being an average of 1.6 hour per day and a percentage of 23. With a mean of 29.79 inch, the barometer varied from a highest of 30.38 inches on the 4th to a lowest of 29.15 inches on the 20th and 28th. The mean temperature was 41°, with a mean maximum of 47° and a mean minimum of 35°. The highest maximum of 53° was registered on the 8th and 31st, and the lowest minimum of 27° on the 5th, while the lowest maximum of 56° occurred on the 4th and the highest minimum of 43° on the 8th and 17th. On 9 nights the temperature fell below the freezing point. On the grass the mean minimum was 30°, with a lowest of 20° on the 5th; there were 17 nights of ground frost. At 1 foot deep the soil temperature with a mean of 40° fluctuated between 41° and 36°. The prevailing winds were from the west, with gales towards the end of the month.—John Davidson, Director of Studies, St. Andrews Provincial Committee at the Training College Gardens, Kirkton-of-Mains, near Dundee.

ANSWERS TO CORRESPONDENTS.

"There are few gardeners, and still fewer amateurs, who do not on occasion require immediate information upon various points of practice. But either from an unwillingness to inquire, or from not knowing of whom to make the inquiry, they too often fail to obtain the information they are in want of. And let no one be alarmed lest his questions should appear trifling, or those of a person ignorant of that which he ought to know. He is the wisest man who is conscious of his ignorance; for how little do the wisest really know!—except that they know little. If one man is unacquainted with a fact, however, common, it is probable that hundreds of others in the same position as himself are equally in want of similar information. To ask a question, then, is to consult the good of others as well as of one's self.—*Gardeners' Chronicle*, No. 1, Vol. 1, January 2, 1841.

HEDGE OF THUYA LOBBII: J. M. W. As the young plants are only two feet apart and they have already met, it will not be necessary to stop them until they are within six inches of the desired height. The tops of vigorous young examples of this evergreen are nearly always whip-like in character, and they stiffen with age. We note with satisfaction the good preparations that were made previous to planting the Thuyas. The well-being of the hedge will be all the greater secured if attention is paid to after cultivation in such matters as keeping the surface regularly hoed in order to prevent the growth of weeds and to aerate the soil.

HORTI-PLOUGH: H. L. Information about the Horti-Plough could be obtained from the makers, Messrs. Mote and Boland, Somerset Road, Teddington, Middlesex. The cable is wound on to a drum by moving a lever backwards and forwards, and this draws the plough along.

HORTICULTURAL TRADE PAPERS: *Japonica*. The *Horticultural Advertiser* is published at Lowtham, Notts, and communications should be addressed to Mr. C. E. Pearson; the *Nurseryman and Seedsman* is published at Hatton House, Great Queen Street, W.C.; and the *Horticultural Trades' Journal*, by the Hortus Printing Co., Junction Road, Burnley, Lancs.

HYACINTH BLOOMS DROPPING OFF: *Constant Reader*. The trouble is probably due to the action of cockroaches (see *Gard. Chron.*, December 31, p. 332).

HYBRIDS: B. A hybrid is the progeny resulting from the crossing of two distinct species; i.e., the pollen from one species is used to fertilise the second species, and the seeds resulting from such a combination will produce plants showing some of the characteristics of each parent. For instance, *Begonia Gloire de Lorraine* is the result of crossing the South African *Begonia Dregei* with *B. socotrana*, which is a native of the island of Socotra. Of course, you will understand that the seed parent must be so treated that neither its own pollen or the pollen of any other species than the one desired to be used as the male parent is allowed to fertilise the flower.

KEROSENE SPRAY: *Anxious*. Six pounds of copper sulphate, 85 pounds of lime water, and 1½ gallon of paraffin are sufficient to make 100 gallons of the wash. The copper sulphate is first dissolved in a little of the water and the clear lime water run into it. The paraffin is then added, and the whole churned up with water to make 100 gallons. If a lesser quantity than 100 gallons is required, you can easily work out the proportions.

MAGNOLIA GRANDIFLORA NOT FLOWERING: *Constant Reader*. The type species rarely flowers before it attains considerable size, but the flowering may, at times, be hastened by growing the plant in very firm and rather poor soil until it has formed the habit of flowering, after which, under the conditions stated, top-dressing would be necessary. Root-pruning would not be advisable unless the growth is very rampant, and even then it should be practised with caution. The pruning of this evergreen *Magnolia* should consist

in removing, during the winter or early spring all the side shoots that were formed during the previous year. This may be done by giving them a sharp, downward jerk, or by cutting them off close to the leading shoot from which they spring. The Exmouth variety of *Magnolia grandiflora* blooms in a much younger state, and this we have seen, in the West of England, as young bushes not more than 4 feet high, bearing four and five flowers each.

MANURES FOR CORDON APPLE TREES: G. B. If your recently planted cordon Apple trees are growing satisfactorily, the use of animal manure is not to be recommended, as this would cause them to make too much wood growth at the expense of fruiting. Seeing that the soil was formerly rich pasture-land and that the turves have been dug well under the surface and the subsoil loosened, the trees should fruit satisfactorily, but a little basic slag applied in the autumn, with a dressing of potash in the spring, will favour the production of fruit rather than of wood. When the trees are cropping heavily, it would be an advantage in hot, dry summers to apply a mulch of stable manure, as this would help to conserve the soil moisture, and, by feeding the roots, enable the trees to mature their crop.

NAMES OF PLANTS: J. P. Drimys Winteri.—*Dendron*: 1, *Sequoia sempervirens* 2, *Cryptomeria japonica*.—W. J. M. 1, *Eranthemum pulchellum*; 2, *Ficus repens variegatus*.—L. C. *Danae Laurus* (*Ruscus racemosus*); 2, *Solanum aculeatissimum*.

NICOTIANAS FOR SUMMER BEDDING: *Constant Reader*. The seed should be sown in moderate heat towards the end of the present month, and as soon as the seedlings are large enough to be handled they should be pricked off at 2 inches apart in boxes containing leafy, sandy soil and placed in a warm house. After a few weeks a further transplanting will be necessary, and, if this can be done in 3-inch flower-pots, the plants will be best for planting out in the flower-beds, but many gardeners obtain good results from plants which have been grown in boxes. The soil at this stage should contain more loam than before. After having been potted or transplanted into boxes, the plants should be replaced in the same temperature as that in which they were growing. Ten days later they may be gradually hardened off and be planted out in their flowering quarters at the end of May or early in June. The sorts which give the best floral display are the hybrids of *N. affinis* and *N. Sanderae* while *N. sylvestris* and *N. grandiflora* are robust species which bear handsome foliage surmounted by smaller flowers.

PRIMULA OBCONICA: G. F. The flower of *Primula obconica* submitted is rather more blue in the colouring than usual.

SOIL ON AN ANTS' HILL: H. W. The soil which you describe as being obtainable from an ants' hill would probably be suitable for use in potting plants, but it would have to be mixed with plenty of sand, as, being in a fine state of division, it would probably set so closely when watered as to exclude the air from entering freely. Mixed with such materials as bone meal, wood ash, crushed mortar, and well-rotted stable dung, it should be suitable for a variety of garden purposes.

VIOLETS FAILING: H. L. We have made a careful examination of the soil in which your Violets are growing, and can find no pest that would be likely to cause the damage you describe. Send an affected plant and some of the white worms you refer to. The grubs should be enclosed in a tin box separate from the plant, which should also be packed in a tin box, if possible.

Communications Received.—W. S. W.—N. G.—W. H. M.—Tenab—H. H.—R. P. B.—J. F.—W. S. B.—W. I.—E. B.—E. K.—D. P.—J. A. P.

THE Gardeners' Chronicle

No. 1830.—SATURDAY, JANUARY 21, 1922.

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 39.1.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, January 18, 10 a.m.; Bar, 29.8; temp., 41°. Weather—Bright.

The aptly-named Sleepy Disease which not infrequently affects Tomato plants and causes loss of crop has been the subject of thorough and able investigation* by Mr. W. F. Bewley, Mycologist to the Research Station of the Nursery and Market Garden Industries Development Society. The conclusions reached by Mr. Bewley are of great importance and point the way to the prevention, if not to the absolute cure, of this disease. The agent producing the disease is almost invariably the fungus *Verticillium albo-atrum*, but in some cases it is another and altogether distinct fungus, *Fusarium lycopersici*. It is easy for a grower to ascertain which of the two fungi is the cause of an outbreak, for *Verticillium* is a fungus which grows best and therefore does most damage at a relatively low temperature—70-72°F., whereas the *Fusarium* is a high-temperature fungus and thrives best at 82-84°F. The symptoms of Sleepy Disease are well known; a generally stunted plant with leaves on which yellow blotches occur. When conditions are favourable to the spread of the disease, the plants suddenly succumb to it without any previous sign of infection. In this state the limpness of the leaves is a sure sign of the impending death of the plants. A certain means of identification of the disease is afforded by the post-mortem dissection; for in any plant affected with sleepy disease, a brown stain running along the wood from the point of infection in the root and up the stem may be seen. The fungus, *Verticillium albo-atrum* is able to gain entrance to the root of the Tomato

plant either by way of a wound or through the intact surface, and inasmuch as it has been shown by Mr. Bewley to thrive vigorously when it gains access to soil which has been partially sterilised, soil-sterilisation is of little value in preventing the disease if means are not also taken to prevent the re-infection of the soil. That such means must be thorough may be judged by the facts, first, that the fungus continues to grow and may pass into a resting stage on the remains of the roots of diseased and dead plants left in the soil, and second, that as has been shown by careful inoculations and re-infections, numerous plants beside the Tomato may serve as hosts (or nurses) of the disease-producing fungus. Among such plants are the Potato which, when infected, also shows yellowing and wilting, the Egg Plant, Antirrhinum, Cucumber, and sundry others, such as seedling Sycamore and Elm. From experimental inoculations made in Tomatos growing at different temperatures and at different times of the year, Mr. Bewley has shown that owing to the temperature requirements of the fungus, the disease is worst in spring when the temperature is relatively low, is checked in summer with a rising and higher temperature and reappears again in autumn as the temperature falls. Following the line pointed to by this evidence, Mr. Bewley has shown that it is possible to check the disease and obtain a crop by increasing the temperature of the houses in which the Tomatos are growing. Additional boiler heat sufficient to produce a temperature just above 77°F. has proved successful—especially if at the same time the house can be shaded; for with a lowered rate of transpiration of the plants, the progress of the disease is less rapid. In one experiment of this kind, of 68 per cent. of plants showing sleepy disease 58 per cent. recovered and no longer showed wilting. Other points of great interest to growers are that "soft" grown plants are less liable to Sleepy Disease than are "hard" grown plants, and that the practice sometimes adopted of giving plants a check at an early stage is calculated to render them more prone to the disease; also that plants grown in a soil rich in humus are more apt to exhibit Sleepy Disease than are those which are grown in poorer soil. One variety only, Manx Marvel, appears to be highly resistant, and the investigators at the Experimental Station are at present engaged in endeavouring to raise varieties immune to this serious disease.

British Mycological Society.—The programme for the meeting of this society, to be held on Saturday, January 21, in the Botany Lecture Theatre, University College, Gower Street, W.C., at 11 a.m., includes lectures as follows:—Dr. W. Brown, "On the Germination and Growth of Fungi at Various Temperatures and in Various Atmospheres"; Miss D. M. Cayley, on "Die Back of Stone Fruits due to *Diaporthe perniciosa* and the Behaviour of Monopore Cultures in Artificial Media"; Mr. W. B. Crow, on "The Morphology and Affinities of *Leucostoe mesenteroides*"; Dr. H. Wormald, "Notes on Crown-gall"; Dr. M. C. Rayner, on "Obligate Symbiosis in Calluna"; Mr. W. J. Dowson, "Michaelmas Daisy Wilt."

Handsome Bequest for Musselburgh Public Park.—A handsome bequest for the maintenance of Lewisvale Public Park, Musselburgh, was intimated at the last meeting of the Town Council of that Burgh. It was announced that the late Mr. Douglas Brown, formerly of California, native of Musselburgh, and a son of a former magistrate, had bequeathed, subject to a life rent, one-seventh of his estate, to be devoted to the maintenance of the Park and also to defray the salary of the park-keeper. The Lewisvale Park

was presented to the Burgh by Mr. Douglas Brown and his brothers as a memorial of their late father. The Provost expressed the gratification of the Council and inhabitants at this intimation, and the Burgh treasurer said that the income would be quite sufficient to maintain the Park and pay the park-keeper's salary.

La Societe Lyonnaise d'Horticulture.—After seventy-eight years' existence and active work in Lyons, the Societe d'Horticulture Pratique du Rhone has amalgamated with the Association Horticole Lyonnaise, adopting the above-named title. It is interesting to record that this amalgamation is, in fact, a reunion, for the Association Horticole broke away from the parent society some years ago. Other societies that have emanated from the Societe d'Horticulture Pratique du Rhone are the Societe Pomologique de France, the Societe Francaise des Rosieristes, and the Societe Francaise des Chrysanthemistes, all prosperous and progressive organisations engaged in a special branch of horticultural work in their own particular spheres. The official organ of the newly constituted society will be issued during January of this year, and will be known as the *Lyon Horticole et Horticulture Nouvelle Reunis*.

Early Snowdrops.—Mr. S. Arnott, of Maxwelltown, writes: I was agreeably surprised on January 2 to be informed that a clump of Snowdrops was in full bloom that morning, and evidences of this were brought to me, as I was confined to bed through illness. The clump was composed of bulbs of one of the hybrid Snowdrops raised by the late Mr. William Thomson, High Blantyre, Lanarkshire. These were derived from *Galanthus nivalis* and *G. plicatus*, but the raiser kept no record of which was the pollen and which the seed parent. These hybrids are mostly of exceptional size and beauty. Other clumps, including one of *G. Elwesii*, flowered in quick succession, and during the week ending January 9 a goodly number of Snowdrops were in bloom. This is remarkably early for our neighbourhood, although at St. Mary's Isle, Monreith and other places in the seaboard counties of Kirkcudbrightshire and Wigtownshire, Snowdrops in December are quite common.

Munificent Gifts to Colchester.—Lord Cowdray has presented the town of Colchester with the sum of £10,000 for the purchase of the Holly Trees Mansion for the extension of the public park. This makes the second gift of £10,000 to the town, the other being for the purchase of Colchester Castle and other property for the town's use. Lord Cowdray has announced his intention, in connection with Lady Cowdray, of contributing a further £5,000 to provide new entrance gates and railings in connection with the extension of the public park.

"Index Kewensis."—A further Supplement, making the fifth, to the *Index Kewensis*, brings up the list of known plants to the year 1915. It is a large volume, containing 277 pages, and the geographical distribution of new species is given in greater detail than in previous parts of this monumental work. Numerous names accidentally omitted from previous Supplements are included, and others are reinserted in cases where the reference originally given was not the earliest.

Association of Economic Biologists.—A general meeting will be held at 2.30 p.m. on Friday, January 27, in the Botanical Lecture Theatre of the Imperial College of Science, South Kensington, London, S.W.7. The chair will be taken by the President, Sir David Prain, F.R.S., and Professor E. P. Stebbing, Professor of Forestry in the University of Edinburgh, will open a discussion upon "The Importance of Scientific Research in Forestry and its Position in the Empire."

Hopetoun House Gardens.—Much to the regret of all who know Hopetoun House, the seat of the Marquis of Linlithgow, in West Lothian, the Marquis has intimated his decision to close the establishment on account of the burden of taxation. This decision will probably mean some changes in the gardens, which have for so many years been among the finest in Scotland,

* Sixth Annual Report (1920) of the Experimental and Research Station, Turner's Hill, Cheshunt.

and have been maintained in splendid condition under the care of a succession of able gardeners, such as the late Mr. Smith, Mr. T. Hay, now of Regent's Park, London, and latterly of Mr. Highgate, who has worthily maintained the traditions of Hopetoun. Where all departments of gardening have received due attention, it is impossible to discriminate, but it is well known that hardy flowers have been a conspicuous feature of these noble Gardens. In an interview with a Press correspondent Lord Linlithgow stated that he was extremely sorry to have to close down the gardens at Hopetoun House, as these were of great interest to himself and his family. It was a satisfaction to him to know that his head gardener, Mr. Highgate, was a moving spirit in the allotment movement and in the encouragement of Scottish gardening, and it had always been a pleasure to send Mr. Highgate to various places to lecture on horticultural subjects and to judge at local shows.

Rock and Formal Gardens at Chelsea Show.—We are asked to state that all exhibitors who propose to arrange Rock Gardens or Formal Gardens at the Chelsea Show to be held on May 23 to 25, and who have not already received a communication from the Royal Horticultural Society, should communicate with the Secretary, Mr. W. R. Dykes, at once.

American Rose Society.—We learn from an American contemporary that this society now has a membership roll of 2,000, of which there are some in sixteen different foreign countries. Evidently the Rose is a popular flower in the United States, and there is probably no other special floricultural society there with so large a list of members.

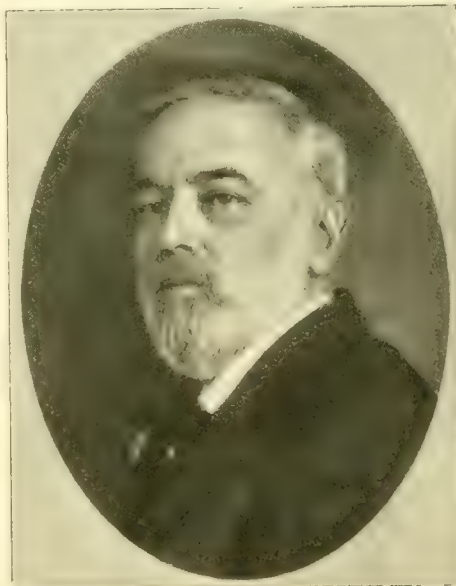
Sir John Kirk.—The death of Sir John Kirk, in his 90th year, is a great loss to British science. Born at Barry, near Arbroath, Forfarshire, on December 19, 1832, Kirk devoted himself at an early age to the study of botany. He followed the profession of medicine, and his proclivities and profession determined his career. He organised a party of medical men as a volunteer corps to aid the British wounded in the Crimean War, and his great chance came when, in 1858, he was selected to accompany Livingstone in his Zanzibar expedition. For five years he acted as second to that great explorer and was with him in the discovery of Lake Nyasa. Returning to England in 1863, he spent much time at Kew in working out his botanical collections. From 1866 he held various offices at Zanzibar, and there he remained with increasing influence until 1886. Thanks to him, German designs on Zanzibar were in a large measure frustrated, and it was through him that negotiations, which led to the foundation of British East Africa, were set on foot. After his retirement, Sir John settled at Sevenoaks, and during the years spent in retirement he devoted himself with never-failing energy to the advancement of science.

Horticultural Club for Farmers.—Steps have already been taken to form a club for the newly-organised horticultural section of the Young Farmers' Club at the Model Village, Welwyn Garden City. At the opening meeting, Mr. W. Jenkins, of the Ministry of Agriculture, was able to state that twelve young people had undertaken to cultivate the fruit-belt, which it is hoped will be a distinct and attractive feature of the village. Mr. H. Etchers and Captain J. G. Simpson have volunteered to superintend the future work of the new club.

National Institute of Agricultural Botany.—In connection with the proposal to create a fellowship of the Institute of Agricultural Botany, the Prime Minister has shown his interest in the work of the Council in a letter sent by him to Sir Lawrence Weaver, the Chairman. The letter is as follows: "Dear Sir Lawrence, I have been following with great interest the rapid progress of the National Institute of Agricultural Botany, and congratulate you and your colleagues on the serious and useful work the Institute is already doing for the farming community. You are wise to broaden the basis of your organisation by creating a Fellowship of the Institute, which will enable every one con-

cerned with the improvement of crops to help forward the good work. I gladly show my appreciation of what you are doing by asking to be enrolled as one of the first Life Fellows of the Institute. With all good wishes for its continued progress, both in successful work and in wide support from everyone interested in agriculture.—Believe me, Yours sincerely, D. Lloyd George."

The Hon. Vicary Gibbs.—The Hon. Vicary Gibbs' garden at Aldenham, Elstree, is famous throughout the world of horticulture, not only for its general beauty, but particularly for the wealth of flowering trees and shrubs which it contains, and, moreover, those who have lacked the good fortune to see Aldenham in its growing glory are yet able to enjoy the reflex of its beauty by reading the descriptions of choice plants which the Hon. Vicary Gibbs and his gifted head gardener, Mr. Beckett, contribute with such generous and skilled hands to the horticultural Press. The Hon. Vicary Gibbs has the versatility of the cultured Englishman, and when his garden is fallow in winter he devotes his leisure to genealogical research—results of



HON. VICARY GIBBS.

which have appeared in the *Complete Peerage*, the fifth volume of which has recently been published. The trees and shrubs at Aldenham represent much devoted labour, both in their acquisition and cultivation, and among them are to be found many of the best plants, both from North America and from China. During the period of the war the Hon. Vicary Gibbs set a fine example in patriotism by devoting a large acreage at Aldenham to the cultivation of vegetables. The energies of the staff were diverted from the pleasure grounds to the Potato fields, and the crops which were raised were not only a real contribution towards an increased food supply, but showed what high yields may be obtained when the pleasure gardener turns his skill to market gardening. The Hon. Vicary Gibbs, whose knowledge of horticulture is no less than his devotion thereto, has had a busy life—a partner in Antony Gibbs and Sons, merchants and bankers, he occupied a seat in the House of Commons for the St. Albans Division of Herts from 1892-1904. Born in 1853, he is the second surviving son of the first Baron Aldenham, was educated at Eton and Christ Church, Oxford, and was called to the Bar in 1880. It is well for horticulture that in spite of the difficulties of the present time, men like the Hon. Vicary Gibbs continue to follow Candide's advice: "Let us cultivate our gardens; alike in the pleasure which they derive and give they are happy."

Retirement of Sir David Prain.—Sir David Prain, C.M.G., F.R.S., who has occupied the

post of Director of the Royal Botanic Gardens, Kew, since 1905, will retire under the age limit at the end of February of this year. It will be remembered that Sir David Prain was formerly director of the Royal Botanic Gardens at Calcutta, and came to Kew as successor to Sir W. Thiselton Dyer. Sir David's work as a botanist is very widely known, while his capabilities as an organiser and a horticulturist are reflected in the admirable condition of the famous national gardens which have been under his care for seventeen years. The First Lord of the Treasury has appointed Mr. A. W. Hill, F.R.S., D.Sc., as successor to Sir David Prain. Mr. Hill has been Assistant Director at the Gardens for fourteen years and was previously Fellow and Dean of King's College, Cambridge, and University Lecturer in botany. Mr. Hill will take up his new duties on March 1.

Rainfall at Tisbury Garth Gardens.—Mr. J. B. Allan, Tisbury Garth Gardens, Tarporley, Cheshire, informs us that the rainfall there during 1921 amounted to 21.31 inches, or 14.32 inches less than in 1920. The heaviest rainfall occurred on October 3, when 1.22 inch was registered. February was the driest month with .35 of an inch of rain. In August, the rainfall amounted to 4.48 inches, and this was the wettest month in the year, with 22 rainy days. January had the most rainy days, with a total of 24. There were 170 days in which .01 of an inch or more of rain was registered and 118 days in which .04 of an inch or more was recorded. The driest spell of weather was from June 26 to July 22, when there were 25 dry days. The hottest days were July 8 and 9, when the temperature rose to 95° in the shade. The coldest day was on November 6, when 11° of frost was registered.

Appointments for the Ensuing Week.—Wednesday, January 25.—Irish Gardeners' Association meeting; Wimbledon and District Gardeners' Society's meeting; Newport and District Gardeners' Association's lecture by Mr. G. E. Davies on "Propagation." Thursday, January 26.—Gardeners' Royal Benevolent Institution annual general meeting and election of annuitants at Simpson's, 101, Strand, W.C.; Bristol and District Gardeners' Association meeting; Royal Botanic Society's meeting; Hornsey and District Chrysanthemum Society's annual general meeting. Friday, January 27.—Association of Economic Biologists meeting; Paisley Florists' Society's meeting. Saturday, January 28.—National Auricula Society's annual meeting.

"The Gardeners' Chronicle" Seventy-five Years Ago.—*Birmingham and Edgbaston Horticultural Society.*—We understand the donations which have been so liberally contributed for the purpose of improving and embellishing the Botanic Garden at Edgbaston now amount to little short of £400, the whole of which has been raised within the last few weeks, and it is highly probable that a considerable addition thereto will soon be realised. We learn that it is intended, as soon as the state of the funds will admit, to erect a Geranium house, in addition to the present buildings, to be devoted exclusively to the culture of the numerous varieties of that beautiful and favourite plant. A Garden Committee has been appointed, to whom will be confided the direction and superintendence of improvements which it is decided to carry into effect in the forthcoming spring. The Committee, it is said, will direct their attention to the floral department of the gardens (irrespective of the present botanical arrangement), with a view to render them more generally attractive than they have hitherto proved, by means of a regular and unbroken succession of flowers. *Birmingham Advertiser*, Dec. 31. *Gard. Chron.*, Jan. 16, 1847.

Publications Received.—On *Forms of the Hop* (*Humulus lupulus* L.) *Resistant to Mildew* (*Sphaerotheca humuli* (DC) Burr). By E. S. Salmon. Reprinted from the *Annals of Applied Biology*, Vol. VIII. Nos. 3 and 4, November, 1921. University Press, Cambridge.—*Seed Trade Buyer's Guide for 1922.* Published by the *Seed World*, Chicago, Illinois. Price \$1.00.

FLORISTS' FLOWERS.

ANTIRRHINUMS.

ALTHOUGH the Antirrhinum is a hardy perennial it may be treated as an annual, and grown as such it forms one of the most showy of summer bedding subjects. The habit of growth is admirably adapted for bedding purposes; there are dwarf, intermediate, and tall forms, and in many instances the effect is greatly enhanced by a combination of the three types, especially in the case of large numbers in beds or wide borders.

The colours of the flowers include a wide variation of hues, those enjoying the greatest popularity are the selfs, or at least those in which only one shade predominates. Seeds of many distinct colour forms may be had from seedsmen, and the plants may be relied on to give good results.

To secure stock for a summer display a sowing of seed should be made at the end of January; use small, shallow boxes filled with light, sandy soil made moderately firm, and scatter the seeds thinly over the surface. Cover the seeds lightly with fine soil, in which a little old mortar rubble has been mixed, and place the seed pans in a moderately warm house or frame.

As soon as the seedlings appear, place them in a light, airy position to prevent damping, and when large enough to handle prick them out into boxes. Afford the plants a little warmth until early in April, when they may be planted out into a cold frame or any position where protection can be given during cold, wet weather. By pinching out the tip of the leading shoots side growths are induced to develop, and bushy plants thus obtained, which, by the time the borders and beds are cleared of the spring flowering plants, should be in excellent condition for planting permanently.

Antirrhinums will grow well in most kinds of soils, but well drained ground is most suitable. Any attempt to winter the plants on stiff, cold ground, with a view to obtaining a spring and early summer display of flowers is sure to end in failure. On a friable soil plants raised from seeds sown at the latter end of July in the open ground, and transplanted early in the autumn to allow them time to become established before winter, will give a wealth of flower in the spring.

In suitable soils Antirrhinums sometimes grow to a height of 4 to 5 feet, and assume quite a shrubby appearance; such plants when in flower are most beautiful objects. When preparing the sites for Antirrhinums it is better to exclude manure unless the soil is exceptionally poor, especially for autumn planting, as excessively rich soil is productive of rank, sappy growth at the expense of flowers. To prolong the flowering season, all seed vessels and dead flowers should be kept removed. Good colour varieties are:—Coral Red, Orange King, Rich Apricot, Pale Apricot, Bright Pink, Mauve Queen, Yellow King, White and Crimson Gold—suffused. *James A. Paice.*

SEEDLING PHLOXES.

I DOUBT if there is a more pleasant phase of gardening than that of raising new varieties of popular kinds of flowering plants with a view to obtaining improvements on existing varieties; with many kinds of florists' flowers this enterprise proves interesting and exciting. The accompanying illustration (Fig. 12) of a bed of seedling Phloxes at Aldenham in 1921 conveys some idea of the contrasts in colour found in such a display.

At Aldenham we carry out a considerable amount of this class of work, dealing with such subjects as Pentstemons, Polyanthuses, Streptocarpus and Asters, but I never recollect anything to be compared with these seedling Phloxes. They were seen by many folk, and gave great pleasure to all; in fact, it was a difficult task in some instances to draw attention to other points of interest at Aldenham, once the visitor had reached the Phloxes. One gentleman, who has done very much good work among Phloxes expressed the opinion that he had never seen anything to equal ours.

There were about 1,400 seedlings, and of these nearly 500 were selected as worthy of a second

season's trial, inasmuch as they showed prospect of advance in comparison with existing varieties.

My sole reason for setting out these details is to endeavour to emphasise the great pleasure that this sort of enterprise can afford to those who will undertake it. Unfortunately, the illustration does not show the wonderful range of colour tones and tints that the flowers displayed.

The seeds were sown at the end of October, 1920, in a light, sandy compost, and placed in a temperature of about 50° to 55°; when the young seedlings were sufficiently large enough to handle comfortably, they were pricked off into boxes. After they had become established, they were gradually hardened off, and were planted out into the bed in rows, 1 foot apart, with 6 inches between the plants in the rows. They were carefully supported by Spiraea sticks, each plant being tied to its support, and, to further help them to resist the effects of any rough winds, the sticks were in turn tied to lines of tarred twine run along the rows and attached to stout stakes inserted at the ends of the rows. Until flowering took place, the Dutch hoe was kept busy along the rows to keep down weeds, and aerate the soil, while the plants' requirements in the way of water were carefully

to remember that the photograph was taken early in March. Since then I have searched the regular channels for an advertisement of this variety, and am still searching, though with the conviction now that it must be paying the raisers better to sell the flowers than the cuttings, although I note that this Chrysanthemum was exhibited at the last R.H.S. fortnightly meeting in the old year. In the meantime the alternative for the majority of us is to make use of the sorts that are available, and fortunately there is a fair choice. As a flower, Cheshunt White leaves little to be desired, but the plant has a poor habit. I grow this sort four together in a 9-inch pot, and stop the plants once in April. In an average season this stopping results in January flowers, but last year Christmas saw them at their best.

The Favourite is a later introduction, with a habit as near perfection as one could wish in a bush Chrysanthemum. The blooms are of the incurving type, and each plant will develop a dozen or more flowers each, some 4 or 5 inches across. Christmas White is useful, but hardly so serviceable as the other two for late work, the flowers being at their best about



FIG. 12.—SEEDLING PHLOXES AT ALDENHAM HOUSE GARDENS.

attended to. After they commenced to flower many happy hours spent in examining and comparing the varieties gave us our reward; the comparisons have been made with named varieties in our big Phlox borders, near at hand, and which in their turn contain somewhere between 150 and 200 of the best named sorts obtained in Great Britain, and from France, Germany, Holland and the United States.

The selected 500 will be subjected to a further strict examination this year, with a view to eliminating all that are not up to the desired standard, for there is neither pleasure nor utility in saving a seedling that is only equal to or inferior to one already in cultivation.

One of the great advantages derived from growing seedling Phloxes is that they commence to flower when the permanent plants are on the wane, and will continue blooming to quite late autumn. *E. Beckett, Aldenham Gardens.*

LATE-FLOWERING CHRYSANTHEMUMS.

LATE-FLOWERING Chrysanthemums are amongst the most useful plants in gardens and well worth growing. Whilst in camp in the spring of 1919 I received a copy of *The Gardeners' Chronicle*, which contained an illustration of a houseful of Chrysanthemums of the variety Autocrat. I lost the paper, but seem

mid-December. Western King is a free-blooming variety, but rather on the small side. The plants, however, lift well, and are grown with but little trouble.

Baldock's Crimson seem to be about the best variety of its colour, and the plant has a nice, stocky habit. The bronze sport from it is also worth a place in collections. Edith Cavell, a famous exhibition variety, makes a good late bush, blooming at the end of the year, when the shoots are restricted to a dozen disbudded blooms; the colour is rich under artificial light. Lieut. H. Peto is, however, an improvement upon it, being a dwarfer grower, while the blooms are more refined.

W. H. Lincoln has disappeared from most catalogues, but as it was well exhibited in late December it is evident that its period of usefulness is not yet over. In its day it was the best yellow variety of its type. Nagoya is useful in this colour, but it has a poor habit.

December Gold is a variety which varies with the seasons, and is not to be relied on after the middle of December. Framfield Pink retains its vigour wonderfully well, and Pink Pearl can hardly be overlooked. My favourite is, however, Bertha Lachaux. The blooms are of substantial build, the florets reflexing beautifully and the colour a rich, clear pink. *F. G.*

The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Laelia anceps.—The varieties of this beautiful Orchid take a prominent place in supplying choice blooms during the winter. The white varieties are specially valuable in what is probably the duller season of the Orchid year. When the flowering period is over the plants should be allowed to rest until new roots are observed to be pushing from the rhizome, when any necessary repotting should be done. Where the plants are grown in quantity, it is not desirable to disturb the whole stock in one season, unless the plants are in a bad condition, as in many cases they take some considerable time to recover after being disturbed. In repotting large specimens it is advisable to take them carefully to pieces, each having two or three pseudo-bulbs. The back pseudo-bulbs may, if the eyes are good, be potted separately, or with the leading ones, as they will generally break, and make new growths, unless they are very old. *Osmunda fibre*, of a coarse nature, thoroughly pulled to pieces and mixed with a small quantity of Sphagnum-moss provides a suitable compost, which will last a considerable time. The white varieties, especially, should be induced to rest for so long as possible, as they then break into growth more freely, and produce flowers more abundantly. The coloured varieties are free in the production of flowers, and bloom in advance of the white ones, therefore they should receive attention first. Newly potted plants will not require much water for some time to come provided the material is neither wet nor dry when it is used. This small detail is often overlooked, especially by amateur growers. No recently potted plant should have water applied to the compost until the new roots have grown freely in the fresh material.

Watering.—The greatest care and attention must be given in the application of water at this season. Many plants are at rest, and these only require sufficient moisture to keep them plump, and prevent them from shrivelling; others will be growing actively, and require water whenever they become dry. A recognition of this difference is one of the secrets of successful cultivation. Too much water is as bad as too little, the effect being the same in both cases, namely, the loss of roots and the general deterioration of the plant.

THE HARDY FRUIT GARDEN.

By H. MARKHAM, Gardener to the Earl of Strafford, Wrotham Park, Barnet.

Pruning Older Fruit Trees.—Much has been written in favour of pruning and keeping the heads of old fruit trees well thinned. Yet we not unfrequently meet with trees quite thickets of useless wood that rarely bear satisfactory crops. In suitable weather these should be thinned out so that the remaining branches may have ample light and a better chance to develop strong, fruitful buds and fruits.

Root Pruning.—Trees that are not yielding satisfactory crops of fruit should have their roots thoroughly examined, and, if found necessary, pruned and replanted in a sweet, fertile compost. Although this work is best undertaken early in autumn, when the ground is still sufficiently warm to enable fresh fibrous roots to develop, it may be successfully carried out at any time when the weather is suitable during winter. When operating on large trees it is prudent to extend the work over two seasons so as not to give the trees too severe a check. In commencing the work dig out a trench 2 ft. deep from 4 ft. to 6 ft. away from the stems, a little more or less according to the age and size of the trees. Gradually remove the soil from amongst the roots with a garden fork, taking

every possible precaution not to injure them more than can be helped. Thick tap roots which have penetrated the subsoil should be severed, fit being of the greatest importance not to miss a single root of this character, for which reason undermine the trees thoroughly. In cases where the roots have taken a downward direction near the main stems, it will be advisable to place a piece of tile or slate under the roots that are severed in order to prevent them growing downward again. When the roots have been lifted, see that the drainage is made good. Prune the tips of any roots which have been injured, and replant at different angles, working plenty of fine soil amongst them, and after making the whole firm, finishing with a mulch of strong manure. In some cases the whole of the roots may be lifted at one time, but one-half the roots of larger trees should be pruned one season and the rest early the following autumn.

Younger Trees.—Any of the younger trees that are growing so strongly as to be unfruitful should have their roots lifted entirely and relaid afresh in moderately firm soil. This will at once check the exuberant growth and cause the tree to make sturdy fruiting wood.

PLANTS UNDER GLASS

By T. PATEMAN, Gardener to Sir C. NAUL-CAIN, Bart., The Nodde, Codicote, Welwyn, Hertfordshire.

Begonia Gloire de Sceaux.—This useful Begonia is coming into flower, and the roots may be stimulated with a concentrated fertiliser about every ten days. They will also benefit by having a little of the soil carefully removed and a light compost containing a little artificial manure substituted.

Violets in Frames.—These plants will need constant attention during the next few weeks with regard to removing decaying foliage to prevent damping and consequent loss of many flowers. Slightly stirring of the soil between the plants will be very beneficial, and will tend to maintain a sweeter atmosphere. Violets require an abundance of fresh air, and the lights should be removed entirely whenever the weather permits.

Forcing Flowering Shrubs.—For grouping in the decorative plant houses and for cutting purposes forced flowering shrubs are indispensable during the early spring months, especially where decorations are required on a large scale. When forcing these plants into flower it is not advisable to bring them direct from the open and place them in a high temperature forthwith, as this would tend to result in spindly growth, which is not to be recommended. Perhaps there is no better place in which to place them direct from the open than a fruit house that has just been closed for forcing. In such a house, with a gradual rise in the temperature, the plants will form strong sturdy growth, which is essential to produce good flowers. At this stage a double quantity of the plants may be brought under cover, and stood closely together until growth commences, when they may be divided into two batches, the one to remain in the lower temperature to form a succession, and the other transferred to the forcing house. When the flowers have almost developed, the plants should be removed to cooler quarters, but they must not be exposed to cold draughts. Plants of a shrubby nature suitable for forcing include *Azalea indica* in standard and bush forms, *Azalea sinensis* hybrids, Lilacs, Wisterias, Laburnums and *Viburnum Opulus*. *Rhododendron* may be forced, but instead of being subjected to hard forcing, they should be allowed to develop in a medium temperature.

Calceolaria Clibranii.—This useful plant is beginning to grow freely, and attention should be given to the proper staking and tying of the shoots, otherwise the growths, which are very brittle, may be broken when tying them in position. Two-year-old plants will benefit from occasional applications of plant food. This *Calceolaria* makes fine specimens when grown on the second year provided attention is given to feeding the roots.

THE FLOWER GARDEN.

By EDWIN BOKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

Preparation of New Borders.—Where new borders are to be made, this work should be proceeded with without loss of time in suitable weather, and there are one or two important points to remember. A deep, free root run is as essential to herbaceous and similar flowering subjects as to vegetables, and therefore in making a new bed or border see that the soil is thoroughly and deeply worked. Further, make sure that the drainage is in good condition, and where beds are made in positions that are not of easy access to land drains, then some form of drain, such as a good layer of broken bricks or large stones, should be put well down to form a place to which surplus water can soak until such time as it can get away into the surrounding ground. Old beds that are being got ready for bedding purposes should receive some form of plant food, either in the way of animal manure, well decayed, or a dressing of a reliable artificial manure, for it must be borne in mind that exhaustion of such food is constantly taking place in these beds that are occupied year after year with such plants. Where it can be done, it is as well to remove some of the soil, say, to a depth of from two to three feet, and replace it with good stuff, such as decayed turves well chopped up. Where heavier material only is available, mix with it a good proportion of gritty material such as road sand.

Summer Bedding.—There are many extra subjects which are used nowadays to enhance greatly the beauty of summer bedding. The modern style of flower bedding is not of such a formal character as at one time, and a great variety of half-tender plants may be used for the purpose that are at the present season of the year being sheltered in pits and frames. Most of these are presumably young plants raised from cuttings that were struck towards the end of last season, or when the summer bedding was removed to make way for the spring bedding. As the very best results can be attained only from really well-grown specimens, these young plants should now be re-potted into suitable-sized pots, and grown on in a warm temperature to develop healthy growth, so that by the time they are ready to be hardened off they will be shapely specimens of full beauty. This work may be carried out as opportunity presents during the next month, and will be found to well repay for careful attention. Where stock of the nature referred to was not propagated during the fall of the year the work should be undertaken forthwith. Many growers put the best of the bedding plants as they are lifted, with a view to propagating from them now, and if the larger specimens devoted to this purpose are brought into growth in a house having a genial temperature, and fairly moist atmosphere, they will soon provide ample material for use as cuttings. The latter should, when ready, be inserted without further delay in sandy compost, and potted on as soon as they are suitably rooted. Fuchsias, Pelargoniums, Heliotropes, Swainsonias, Calceolarias, Iresines, Plumbagos, and many other bedding plants may thus be dealt with now.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

Cucumbers.—Make a further sowing of Cucumber seeds, as young plants raised now will make rapid progress as the days increase in length, provided they are grown in plenty of heat and moisture. A night temperature of 65° to 68°, with a corresponding rise during the day, will be suitable for the next few weeks. Plants already fruiting require extra care and attention during this month; encourage the young growths to develop as much as possible by affording the roots light top dressings of rich compost, and watering them occasionally with warm, diluted liquid manure. Admit a little fresh air, if only for a short time, on bright days to prevent a stagnant atmosphere. Damp

the beds and paths lightly, according to the weather, in order to maintain a moderately moist atmosphere.

Ventilation and Temperatures.—The ventilation of fruit houses requires to be done with great care and needs constant attention during the early stages of forcing. Guard against cold draughts and checks from sudden changes in the outside temperatures. Nothing will be gained by attempting to force the plants unduly during very cold weather; slow progress now is soon made up later when more genial weather and longer days prevail.

General Remarks.—The pruning of vines or Peaches should be completed without further delay. The houses should be washed and painted if possible, especially if mealy bug or red spider has been troublesome. Place a sheet on the border and carefully rub the loose bark off vines; carefully collect up all the rubbish and burn it. Wash the vine rods with Gishurst Compound to destroy any insects that may be harbouring on them, and also as a preventive against further attacks.

Permanent Trees in Borders.—The house containing trees planted in borders should be closed, if this has not been done already. Examine the borders carefully and supply the necessary moisture down to the drainage, using tepid water. Promote atmospheric moisture by damping the walls and paths, and not so much by direct syringing of the trees, especially in dull or damp weather. Keeping the trees constantly moist is detrimental to their progress.

THE KITCHEN GARDEN.

By JAMES E. HATHAWAY, Gardener to JOHN BRENNAND, Esq., Ralderby Park, Thirsk, Yorkshire.

Onions.—Where large Onions are required for exhibition the seed should be sown now in pots or boxes. Where plenty of room is available 60-sized pots are the best receptacles as seed pans, but Onion seed may be sown in well-drained boxes, about 3 to 4 in. deep. Cover the drainage material with rough fibre from turves, and fill the box with a mixture of rich fibrous loam, leaf-mould, decayed horse droppings, wood ash, and, if the soil is of a heavy texture, sand to lighten it. The whole of the materials should be passed through a half-inch sieve. The soil should not be too wet nor too dry, and should be made firm, and the boxes should be filled nearly to the top. Press the surface perfectly flat, and sow the seeds thinly, shaking soil over them through a very fine sieve to cover them. The seed pans or boxes should be placed near to the roof-glass in a house having a temperature of about 55° to 60°. If the seedlings are grown in an excessive amount of fire-heat they will become drawn and spindly. In gardens where Onions sown out-of-doors do badly this is the best method of growing the plants forming the main crop.

Leeks.—A sowing of Leeks should be made now. The general treatment should be similar to that advised for Onions, but the seed is best sown in 60-sized pots, and the soil should not be made too firm.

Hot Beds. As fast as materials are available continue to make hot-beds. Stable litter and leaves in equal proportions make good hot-beds. Beds on which it is intended to place portable frames should be made 3 ft. wider all round than the size of the frame. Tread the litter and leaves firmly. Soil which has been sifted through a half-inch sieve should be placed in the frames to a depth of about 8 inches. As soon as the soil is in a suitable condition (which may be ascertained by means of a thermometer or a stick pushed into the fermenting materials) early types of Carrots may be sown in rows 10 to 12 in. apart, and Radishes sown thinly between them as an intercrop. Early Snowball and Milan Turnips may also be sown in these frames. Turnip seeds germinate very quickly, and so soon as the seedlings appear air should be admitted when the weather is favourable to prevent the plants becoming drawn.

Shallots.—Shallots should be forthwith planted if not already done. Level the ground with a rake and plant in rows made 1 foot apart, allow

ing 9 inches between the bulbs in the rows. Shallots should be planted practically on the top of the soil, and only just pressed into the ground. Afterwards draw the soil to them, leaving only just the tip of the bulb showing. Garlic may also be planted now, but this herb should be planted deeper than Shallots.

PALMS OF THE RIVIERA.

JUBAEA CHILENSIS, Mol. (*J. spectabilis*, H. B. and Kunt) is a Palm which resembles *Butia* very much, but is a much larger size. Though this Palm is not rare in the Riviera gardens, still it is not met with frequently, though it was introduced many years ago, and before several other Palms which are now met with everywhere, such as *Phoenix canariensis* and *Washingtonia*. The reason is that *Jubaea chilensis* is slow growing, and that it commences to flower only at the age of fifty or sixty years, while *Phoenix canariensis*, which is quick growing, flowers and fruits at the age of eight or ten years. Apart from this, *Jubaea chilensis* is a much less ornamental Palm than *Phoenix canariensis*. Its trunk is even thicker and its leaves shorter and more stiff, also less gracefully arched. The fact of it being less orna-

that such a stately Palm, the only native Palm of the Chilean mainland, should be thus exterminated without adequate means being taken to replace the felled trees or some way found to tap the sap without cutting down and thus destroying the Palm outright. It is so much more regrettable, as the sap is not the only useful part of the plant, for the kernels of the fruits are edible, as, indeed, are probably those of all Palms belonging to the tribe *Coccotheca*. The kernels of the fruits of *Jubaea chilensis* are single in the fruits, which vary according to varieties, from the size of Walnuts to that of a middlesized Apricot. While the flesh of the fruit is full of fibre and of no value for eating, the kernels have a very fine flavour, like that of the well known Coco nuts, but superior. The kernels are much appreciated in Chili and used for all purposes, for which Coco nuts, Almonds and such nuts are used, that is either eaten raw or boiled with sugar, in cakes or in other ways. The fact of the kernels of *Jubaea chilensis* being so valuable may, perhaps, prevent the utter destruction in the wild state of this interesting Palm and eventually lead to its cultivation, especially as it is not exacting as to the kind of soil in which it will grow and resists great drought.

To those who like to combine the useful with the ornamental, I could not give better advice



FIG. 13.—*SALVIA LEUCANTHA* FLOWERING A SECOND TIME IN THE SAME YEAR.

mental than *Phoenix canariensis* and that, though it was introduced much earlier, it did not produce seeds, when *Phoenix canariensis* already did so, accounts for its relative rarity in the Riviera.

Still, like all Palms, it has a great ornamental value, and is well worth planting, especially as it is very hardy, much more so than *Phoenix canariensis*, and is, with its tall, straight, smooth trunk, always an imposing Palm when of a certain age. As stated, the trunk is smooth, the bases of the dead leaves, though remaining for many years, finally falling off. The folioles are bent, like the folioles of *Butia* and all Palms of the tribe *Coccotheca*, so that each half is turned downwards, while in the *Phoenix* the halves are turned upwards, forming a rim in both cases. Unlike the *Butia*, to which *Jubaea chilensis* bears a great resemblance, the petioles are spineless. This slow-growing Palm reaches in time, probably in the space of centuries only, a height of twenty to twenty-eight metres, but such very large individuals, which exist only in the wild state in a few parts of its native country, Chili, are becoming exceedingly scarce, since this Palm is frequently cut down to obtain the sap from the trunk, this sap being boiled until it acquires the consistency of syrup or sugar, which it replaces in its native country. After the plant has been felled, the top is cut off, and from this cut continues to flow for months a quantity of sap, which fills the enormous trunk. It is rather unfortunate

them to plant a few specimens of *Jubaea chilensis*, and where the temperature of the district is favourable to the tree, that is where frosts as low as 15° C. occur occasionally, but do not last more than a short time, this hardy Palm will exist, though, of course, like all plants, it will do better in climates where its vitality is not put to such a severe trial. Dr. A. Robertson, Proschowsky, Jardin d'Acclimatation, Les Tropiques, Nice, France.

SALVIA LEUCANTHA.

This very pretty Labiate comes from Mexico, and is usually treated as a greenhouse shrub, though in the West of England we grow it out of doors. It usually flowers profusely during July and August, but in 1921, owing no doubt to the extraordinarily fine summer, we had two crops of flowers, the second of which was unusually good. The photograph (Fig. 13) was taken here at Tolven, Reduth, on November 7. The corolla is white and densely woolly, while the rachis is equally woolly, but it is violet or amethyst, and the whole looks uncommonly pretty. It is a splendid companion for *Leonotus lewisii* or *Salvia Pride of Zurich*. A stock plant gives numerous cuttings in the autumn, and they in their turn, when rooted and planted out in April, make a handsome show during the following summer. H. W. Reduth.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 5, Tavistock Street, Covent Garden, W.C.2.

Editors and Publisher.—Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication or referring to the Literary department, and all plants to be named, should be directed to the EDITORS. The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

MR. KINGDON WARD'S SIXTH EXPEDITION IN ASIA.*

9.—IN THE LIMESTONE COUNTRY.

WE were now deep in the limestone country, and as we went northwards the country grew drier. Many of the streams disappeared underground, and I imagine that at certain seasons there would be difficulty in finding water. In such a region the only permanent water supply would be that derived from melting snow, and the snow line could not be expected to be much below 19,000 feet. So far we had not glimpsed a snow peak, nor so much as a lurking patch of snow. The passes we crossed were not above 9,000 feet, the highest peaks some four or five thousand feet higher, grim and bare looking. Nevertheless we found new flowers every day, and the flora was clearly growing richer in spite of the disabilities under which it laboured. Clearly we were travelling towards the source of supply, in the direction from which the flora had originally come. Also the mountains were growing higher, so that we found more species for the same altitude than hitherto. So far east of the Yangtze we had found but seven species of *Rhododendron* below 10,000 feet altitude, including *R. Delavayi* and two white flowered species already found far to the south of Ta-li, the purplish-pink *Azalea*, and three dwarfs. At least six species of *Oak* occurred commonly, and the *Conifers* were becoming more varied, though *Pines* were still by far the commonest trees. A shocking purple *Pleione* was plentiful in the Pine woods, though scattered; it vied with the *Roscoea* in outrage. On May 25 we got down into more populated country—open valleys of hard, red earth, where there was cultivation. *Amphicome arguta* warned us not to expect flowers here. In the evening we came down to a considerable stream, the La-pa-ho, which I mention by name because it is not marked on any map. A pretty *Cornus* was in flower here, with large and cream-coloured bracts, and masses of fragrant white *Jasmine* grew everywhere; it was the sixth species of that genus we had met with.

On the arid, shrub-clad slopes the pale blue *Iris kumaonensis*, funny little dwarf that it is, alone cheered our hearts, though *Primula Poissonii* glared balefully at us from the bogs, which were not numerous.

All next day, till late in the afternoon, we were marching through cultivated valleys, where surprising quantities of Paddy are raised. The flora in the wayside ditches and on the gentle slopes was astonishingly unromantic; in fact we were back to civilisation—or in what goes by that name in China. We even passed

through a village where a five-days market was being held, and saw the finest assortment of Mosos, Lisus, Lao-pang, and other picturesque hill tribes to be met with in a day's march.

However, in the evening we turned off from the valley and climbed up amongst broken limestone crags, where we found a few flowers. A *Thalictrum* with purple blossoms just opening out was probably *T. Delavayi*; a fine, hairy-leaved *Geranium* grew on the rocks, and an orange-eyed *Aster* with brilliant violet ray. Dwarf blue *Irises* dotted the slope, and a *Vetch* with yellow flowers was rampant in the gullies. The country here was very much broken up, and the going correspondingly hard. Our route lay practically north, behind a range of limestone hills, which separated us from the valley we had been following earlier in the day; but streams from the west broke through this range, and had to be crossed. It was the same next day, but we crossed a pass and returned to the other side of the range, only to find ourselves in a valley where the stream flowed south instead of north, so that these main streams also flowed eastwards to the Litang river, instead of west to the Yangtze, whose gorge here must be very narrow. It was not a little surprising to find a *Ficus* growing on the bare limestone crags up here. A maroon-red *Paeony* was coming into flower—it looks a fine colour with the sun shining through the blooms. This species, in favourable situations, forms a small bush up to four feet high, springing from a large woody rootstock. We did not come across the yellow *P. Delavayi*. The country was still very bare, not even *Pines* growing on these south-facing slopes under 10,000 or 11,000 feet.

In the afternoon we ascended another wide valley where there was some cultivation; then, leaving that behind, where the stream issued from a ravine, we camped at an altitude of 9,167 feet. In the stream bed here grew *Tamarisk* bushes, their pale, sea-green foliage looking fresh and pleasing. A *Leycesteria* was in flower, and a charming little *Picea*, laden with cones, young and old, growing in honourable isolation, made a delightful picture.

Tremendous cliffs rose steeply on either side, up one of which we had to climb next day. The other, facing north, had rolled down a long scree of big boulders, and here grew thickets of shrubs, conspicuous amongst which was a *Dipelta*, with tender, white flowers, orange spotted, and a *Schizandra*. There was also a lot of *Bamboo*, but no trees save a few gaunt and scattered *Tsuga*, waving streamers of green lichen.

We started early for the big climb on May 28. Up through the steep Pine woods, till we could see over the heads of the mountains we had recently crossed, and still up. It grew perceptibly cooler, and still we mounted. The ground was purple with *Roscoea* which, however, varies widely in depth of colour. One might suspect it to be stained with the variation of each soil, only there is an absolute monotony of soil; we never were off limestone during the week's march.

A purple *Morina* grew here too—possibly *M. betonicoides*—and all the familiar Pine-wood flowers already referred to. Then we left the *Pines* and came out on to the open ridge covered with shrubs such as we had already seen in abundance. Only the white *Rhododendron*, a shrub of four or five feet, mottled the slope. The *Azalea* was also still in flower, with *Pieris*, *Desmodium*, etc. *P. Kingdon Ward*.

"THE FLOWER GARDEN."

IN the year when Queen Victoria ascended the throne, Messrs. Orr and Co. commenced to issue a series of books on gardening, which are interesting as showing the stage that horticulture had reached at that period. The first of these dainty volumes was that whose title stands above this article. The other two were respectively *The Greenhouse* and *The Orchard*, written by Charles McIntosh, of Claremont and Dalkeith Palace, and illustrated, as was *The Flower Garden*, with Baxter colour prints and engravings. They were published in numbers at 1s. each. I have been unable to identify the writer, or rather, editor, of this, the first volume, but there is internal evidence that he was a Scot, and, obviously, well educated. The remarks on landscape gardening, with which the volume opens, did not please Loudon, who slated the writer unmercifully in *The Gardeners' Magazine*. Notwithstanding, we are obliged to the writer for information, and for designs of then existing flower gardens, which Loudon failed to supply, and not impossibly he may have incurred the displeasure of that gentleman by ridiculing some of his designs. The author's point of view as opposed to the striving after "irregularities"—sometimes grotesque, instances, of which are mentioned, is summed up in the remark that "it is a narrow, partial and incorrect principle to represent nature as irregular. At the same time, it seems to be quite forgotten that gardens are not natural." It is stated that the style of flower gardening—which has continued till the present time—was introduced about 1790. A plate of a geometrical flower garden shows the method of arranging and the plants to be used. For spring, there were *Hyacinths*, *Tulips*, *Narcissus*, *Violas* of sorts (an old name revived later) *Ranunculus*, *Anemones*, and *Stocks*. For summer and autumn there were choice *Dahlias*, *Verbena chamaedrifolia*, *Calceolarias*, *Fuchsias*, *Heliotrope*, *Scarlet Geraniums*, *Lobelia*, *Stocks*, *Violas*, *Campanula pyramidalis*, intermixed with *Lobelia fulgens*, and *Lobelia splendens* with *Campanula persicifolia*, and two beds of *Roses* and herbaceous plants.

Though many of these names represent beautiful plants, yet I am afraid that the choice in 1837 was at best a poor one, and the lists are interesting chiefly as showing that the foundation was laid ready for the superior class of plants that succeeded them shortly thereafter.

The chapters on florists' flowers are not lengthy, but extended enough to contain all that is needed to obtain a clear conception of their status. The lists of varieties are very long and the prices usually are attached. Thus, of *Tulips*, there are about 400 names, the prices ranging from 2s. 6d. each to £50 for *Parmegiano*, a *Bybloemen*. There were, however, varieties still higher priced, but these were never catalogued. A *Tulip* bed in full bloom, fully protected by a shed like construction and with a sheet of calico stretched over the plants to prevent drip, affords a good idea of the care taken to perfect the blooms of *Tulips*. Some 150 *Hyacinths* are named and priced, among which are a few still appearing in bulb catalogues. The *Ranunculus* was still popular, though approaching decline, and of this, some 500 varieties appear. Prices were mostly one shilling, and none reached a pound. They are divided into no fewer than 18 colour sections. *Anemones*, if the number of varieties named affords a criterion for judging, were less popular, only 146 being listed at prices as low as 6d. each. The *Dahlia*, however, was as popular then as now, more than 900 varieties being named. These are distinguished by colour only, and the height of each is given; heights ranging from 2 to 7 feet. The beginnings of the Show and Fancy sections are clearly indicated.

About 130 *Auriculas* are named and priced. Some, as *Lee's Bright Venus* and *Taylor's Glory*, have no price attached, but *Conqueror of Europe* is as much as £3, while *Booth's Freedom* is 15s., and *Lovely Ann* 5s. Many are as low as 4s. each. An *Auricula* stage, a frame, an implement for flattening unruly

* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 23, August 20, September 3, October 8, October 29, 1921, and January 7, 1922.

petals and other engravings are included in this chapter.

A fine print of the beautiful old double crimson Primrose appears in the chapter on Polyanthus; I wonder the plant still exists, being a difficult client to please.

A fine example of a scarlet Bizarre illustrates the chapter on the Carnation, of which about 270 are named, of Picotees 120, and yellow grounds 40. These are all comparatively cheap, 4s. to 5s. the pair being the price generally. All but an insignificant minority have their raisers names prefixed, but alas! as little is known of the identity of these folk as of the particular flowers. Hogg, of course, we know, and Turner, Glenney, Tyso and Willmer are not unfamiliar, but of Crook and Snook and the rest, we are oblivious. In those days, Carnations had as many troubles to contend against as now. Our author has his doubts as to who or what was responsible for the eating down to the very "stumps" of the leaves of Carnations. He laughs at the suspicion of rats, but is not so sure about cats, for do not cats eat grass? Of the guilt of sparrows, he has no doubt. A little less than 200 Pinks are named, mostly at 2s. per pair. Hogg and Turner are largely represented as raisers, but the Pink men, as a rule, are different from Carnation growers. About 350 Pansies are named, the varieties shown in a plate giving one to wonder how such things could be named at all. From this time, however, the Pansy made great progress. A different account of the origin of the Pansy is given here from that generally accepted. Lee, of Hammersmith, was attracted by some seedlings he saw in a garden at Walton, and added to these some he imported from Holland, among which was the large blue, and from these all the varieties then cultivated had been raised! So difficult is it to get at facts.

The list of Chrysanthemums is that published earlier in *The Gardeners' Magazine*. In addition to these, there were others raised by one or two persons. Mr. Freestone, gardener to W. Brereton, Holt, not only raised new varieties, but had succeeded in flowering them the same year from seed.

The number of Roses exceeded any other flower by many hundreds, and an epitome of the history of many kinds is given, not quite complete however. There are, too, very large selections of plants and shrubs, that devoted to hardy Heaths, having a plate of greenhouse kinds beautifully executed. The botanical names of species are translated into English, and some curious examples are among these. "Alpine," for instance, is "kin," but the greatest attempt of all is "Canadian Shepherd" for *Shepherdia canadensis*! Vulgar names I have not met with elsewhere are Primrose rose for *Rosa hamaespherica*, and Aaron's Rod for *Phlox paniculata*. Among the large number of plants treated in brief fashion, the Hollyhock is absent. Like so many others, its time was coming speedily. R. P. Brotherton.

HOW ARE PLANTS AWARE OF TIME?

THE majority of people would, perhaps, reply off-hand to this query that it is a question of season, which plants are compelled to know by force of physical circumstances, such as conditions of temperature and moisture; but very little reflection will show that this answer is incomplete. In my garden, as a weed, I have a Cape Oxalis, much like *O. versicolor*, and now, in spite of being chilled and discouraged by the worst weather of the year, it insists on growing, evidently with all the vigour it can bring to bear, while in much more favourable weather it is perfectly quiescent. It has no encouragement whatever, and it is growing apparently only because it is the time of growth in South Africa. Many would say "of course," and pass the matter over, but I think there is here a mystery that no one has attempted to explain—so far as I remember. It is notorious that plants do flower at the right time according to the calendar rather than at the right season according to physical conditions, so much so that none marvel; indeed, it is the sole explanation why we have various plants in flower when they are the most

valuable, and growth, too, at a fixed time is often one of the great difficulties of cultivation.

There are, however, various things to observe which require some explanation. It would be thought, for instance, that there would be forgetfulness in the dormant seed, so that a seedling raised in this country would readily accommodate itself to seasons of the English climate, corresponding with those of its natural home. If it does this in some cases, it does not in numerous instances I have in mind. I believe I am correct in stating that seedlings of Aloe raised from an imported packet of seed, which may have been sown at any time of the year, would in every case flower when the plant flowers in South Africa, i.e., according to calendar, paying no regard whatever to corresponding seasons in this country. Moreover, I believe that English-grown seed would result in

then may not be induced in the habit of a plant if ages of repeating seasons take the place of the klinostat? I am aware, of course, that there are instances of accommodation to climate, as, for instance, I believe, the change of the flowering season in the case of Australian *Acacias* planted in India. R. Irwin Lynch, F.M.H., Chelston, Paraguay.

PRIMULA LIMNOICA, CRAIB.

PRIMULA limnoica, which is illustrated in Fig. 14, belongs to the denticulata section of the genus. The chief difference between it and *P. denticulata* lies in its somewhat narrower leaves, which are closely set with short, pilose hairs, while the peduncles are clothed on the upper part near the capitate head of flowers



FIG. 14.—PRIMULA LIMNOICA.

the same way. I have had various experiences of this kind, but, obviously, it is not the kind of thing that one could carry very far in experiment. For many years I have had my mind upon this subject, but I cannot say that I have any fixed theory, though, as shown by Sir Francis Darwin, rhythmic action can sometimes be very wonderful in plant life. As an example the case of Dandelion stalk just now occurs to me. If laid horizontally it naturally turns up, if, however, it is turned the other way after a sufficient interval of time by a klinostat it reverses, and if then the klinostat is made to turn at the same interval of time, the turning first one way and then the other by this Dandelion stem becomes automatic, and if the klinostat is finally stopped, nevertheless the Dandelion stem continues to turn first one way and then the other at the correct interval of time. What

with a yellow farina. So far the plant has not proved so hardy as its better known ally, but it will evidently succeed under the same conditions, that is, in rich, moist soil in half shady situations. The lavender blue flowers are produced in heads, on stems from 6 inches to 15 inches high, during April or May.

This species was found by Forrest in the Taping Valley, Upper Burma, at an altitude of 3,500 feet in April, 1917. He states that it grows in boggy situations by the sides of streams. Farrer came across it in 1919 growing on the Hpimaw Hill at an altitude of from 7,000 feet to 9,000 feet. He describes it as abundant on the bracken slopes, making drifts of blue when in flower. These flowers have little or no scent. The plant figured was shown by Mr. Lionel de Rothschild at a meeting of the Royal Horticultural Society on March 3, 1921. W. J.

THE GREAT DROUGHT OF 1921 AND ITS EFFECT ON GARDEN PLANTS.

(Continued from page 19.)

HAMPSHIRE.

The drought at Exbury was even more severe than in other parts of England, only about 60 per cent. of the rainfall at Kew being registered.

All the newly planted shrubs and the Rhododendrons in the woods had to be watered from the beginning of May to the middle of October, with the exception of two weeks. There was, however, an adequate water supply, and as a result very few plants suffered. Some newly planted Austrian and Scotch Firs outside the watered area succumbed, whereas the evergreen Oaks and *Picea orientalis* seemed to relish the drought and heat; in fact, some 7-ft. evergreen Oaks acquired in 1921 have done remarkably well.

The ponticum Rhododendrons in the woods looked very sorry for themselves, made hardly any growth, and hung their leaves straight down, but the later rains revived them, and there seems to be practically no casualties.

Cobaea scandens, which survived the winter on the verandah of the house, fruited freely in the open, and the large green fruits have been quite attractive; ripe seed has been gathered. *Buddleia alternifolia* seeded for the first time. *Viburnum Henryi* was particularly attractive, covered with its red berries. *Ceratostigma Willmottiana* flowered freely and was very attractive at the end of October. Rhododendrons set flower-buds more freely than I ever remember, every plant being covered with some hundreds of buds, and they should be a glorious sight in 1922.

Altogether the season appears to have been one eminently suitable to Chinese plants. *Lionel de Rothschild, Exbury, Hampshire.*

LANCASHIRE.

The year 1921 will be long remembered by gardeners in Manchester and its immediate neighbourhood as one of the most productive and successful seasons for many years past. Gardeners and allotment holders who gave ordinary attention to the culture of their vegetable plots were rewarded in most instances with abundant crops. Flowers in private gardens and in public parks were never seen in greater profusion, in better colour, or in the aggregate blooming over a longer period than during the past year. Two factors were mainly responsible for these effects, viz., the long spell of bright, dry weather and the abnormal absence of smoke in the atmosphere brought about by the coal strike. The following are a few details regarding the effect of the drought upon various vegetable and fruit crops, trees and shrubs:—All Brassica crops were exceptionally good. There was a marked absence of the Cabbage fly, which is the more remarkable as this pest has been extremely destructive in this district during late years. The only failures were with Turnips and Kohl Rabi. Where the ground was deeply tilled and manured Peas gave magnificent crops, both in quantity and quality, the pods being thoroughly well filled. Early and second early varieties matured rather quickly, and only in the case of deep cultivation did they produce a second crop. Beans of all kinds were good. Kidney and Runner Beans gave heavy crops, and it was a very poor allotment or garden where the owners did not secure Beans to salt in sufficient quantities for use through the winter.

Although Celery is generally regarded as a moisture-loving plant the crops last year were exceptionally fine.

Bred, Silver Beet, and Jerusalem Artichokes produced very heavy and fine, clean crops.

Leeks produced very fine, well-matured stems.

Potatoes were about the average, although in some instances the drought seemed to suit this crop exceptionally well. Witch Hill and Edzell Blue were two of the best early immune varieties grown. King George, as a second-early, yielded a fairly heavy crop. Great Scot

and Kerr's Pink in some gardens produced close on sixteen tons to the acre. Kerr's Pink is about the only variety which has shown any tendency to produce second growth.

Summing up one may safely say that the vegetable crops on the whole were very abundant in 1921, of excellent quality, but of short duration. It must be borne in mind, however, that the rains which came in August in the northern part of the country saved many garden crops which were on the verge of ruin, and helped them on wonderfully.

With regard to fruit, Pears suffered from frost and bitter winds when in bloom, and consequently a meagre crop of fruits set. The fruits, however, which did set on the whole developed well. In some cases trees which lost all their first crop of blossom, flowered a second time shortly afterwards; the fruits set well and in some instances were a heavy crop.

Apple trees were later coming into flower and these fruits set magnificently. Owing to the drought and the impossibility of spraying and watering the trees in June the fruits dropped all too freely. Notwithstanding this the crops on many trees had to be thinned, and on the whole the fruits developed well and were of good quality and colour. Generally speaking, neither Apples nor Pears kept as well as usual. One unusual experience was the splitting of the fruits of Warner's King and Bramley's Seedlings after they had been safely stored. This is a condition that has not previously been observed in this district, and one is apt to put it down to the effects of the drought.

Pears and Apple shoots have ripened most satisfactorily, and the trees are packed with well-developed fruit buds, which thus show encouraging prospects for next year.

Plum trees were badly caught by frost when in bloom, the crop being an absolute failure.

Raspberries, Blackberries and Loganberries all suffered from the frosts and cold winds early in the season, when the terminals, the young foliage and the flower buds were considerably damaged. The result was short crops of rather poor quality.

A few of the earliest blooms of Strawberries opened with blackened centres, but in spite of this the plants produced the heaviest crop that has been known in the district for many years past, and the fruit was really magnificent, being of excellent quality.

Black Currants produced a heavy crop of exceptional quality and of large-sized berries.

Red and White Currants did well and produced very satisfactory crops.

Gooseberries were a light crop, but this was not due to the drought as most of the bushes were damaged by late frosts. It was found that in the case of all fruit-bearing plants where the ground had been well mulched the ill effects of the drought were not noticeable.

On the whole herbaceous flowering plants flowered very abundantly during 1921, although in many instances they were over very early, but produced second crops of blooms.

Dahlias made a great show and produced an abundance of fine blooms until the frost destroyed them in November.

Roses suffered rather from frosts and winds in their first growth and blooming. The blooms were not very good and had no lasting power. On the contrary, the second crop was magnificent, and the plants bloomed on until the first days of November, and when cut lasted exceptionally well. Although the first growths of Sweet Peas were browned by the frost the plants did well, but the crop was produced on the secondary growths.

After such a small rainfall it was naturally expected that the leaves of most deciduous trees and shrubs would fall very early in the year. This proved quite a false expectation as the trees were clothed with luxuriant foliage later into the season than has been the case for a great number of years past. Beech, Ash, Oak, Thorn and Elm retained their leaves until the sharp frost which was experienced about the last week in November. Shrubs also made new growths late in the season, and in some instances Rhododendrons for example bloomed a second time. *W. W. Pettigrew, Manchester.*

OXFORDSHIRE.

Eryobotrya has flowered in these gardens this year for the first time. The tree is growing on a wall facing south, but sheltered by shrubs and tall *Cupressus macrocarpa*. It has made good growth and fine foliage each year, but has never flowered until this year. The soil here is a stiff loam over very stiff clay.

Iris stylosa has also flowered much more freely than usual. The first blooms were fully three weeks in advance of other years. *V. Gammon, Eynsham Hall Gardens, Witney, Oxon.*

(To be continued.)

NOTES FROM IRELAND.

The rainfall registered at the Royal Botanic Gardens, Glasnevin, for the 11 months ending November 30, 1921, totalled 22.41 inches; the annual average rainfall for ten years at Glasnevin is 27.15 inches.

Rhodostachys andina, a conspicuously charming Bromeliad, recently flowered at Glasnevin, planted at the foot of a greenhouse wall; it is furnished with a soft rose-pink inflorescence. Near at hand was a little colony of a *Polyanthus Narcissus*, sent to Sir Frederick Moore from Crete, in full flower; it is a pretty, refined plant in flower, and the earliest of its family.

The dying year was remarkable for a wealth of blossom on such winter-flowering subjects as *Chimonanthus fragrans*, *Lonicera fragrantissima*, and *Iris stylosa*, which yielded a rare crop of blossom, in both the white and typical colour, for some three months previously, while the ubiquitous winter Jasmine is cheery everywhere around Dublin, but rarely are its full possibilities revealed as seen in one garden in the Monkstown district, where an old plant is pruned annually after flowering, and fed liberally, resulting in a pendant shower of strong, arched sprays five feet, or more long, now one mass of golden glory.

At the 92nd annual general meeting of the Royal Horticultural Society of Ireland held at the offices, 5, Molesworth Street, Dublin, on December 16, visitors were much interested in a remarkable display of *Calanthe Veitchii*, shown in arched sprays four feet long with up to three dozen flowers on a spike. The exhibit further included some handsome *Cypripediums* in such kinds as *Sanderac*, *Lecanum giganteum*, *Lady Moore*, *violaceum* and *Portia*, and was from the gardens of B. H. Barton, Esq., D.L., Straffan House, Co. Kildare (gr. Mr. F. Streeter), to whom a First-Class Cultural Certificate was unanimously awarded.

At the previous Council meeting of the above Society, a First-Class Certificate was awarded to Messrs. Wm Cotter and Co., Corporation Fruit and Vegetable Markets, Dublin, for the new Irish seedling Potato named Mahon's Fingallian. This fine Potato was raised by Mr. Mahon, gardener to the Earl of Fingal, Killeen Castle, Dunsany, Co. Meath, and has been under control trial for several seasons; it is a very prolific main-crop, round, rough-skinned variety, with shallow eyes, and the haulm remained green, sturdy, and unaffected by late blight when that of Arran Chief and similar main-crop sorts had quite died down.

At the last monthly meeting of the Irish Gardeners' Association, at which a Potato competition was held amongst the members, Mr. Wm. Cotter handed in a cheque for £25, as prizes during the coming year for Mahon's Fingallian Potato and has further presented ten guineas to the R.H.S.I. for the same object.

The 24th annual meeting of the Drummond Benefit Association for land stewards and gardeners was held at 58, Dawson, Dublin, December 20, Mr. P. J. Reid, St. Anne's Gardens, Clontarf, presiding. The balance-sheet disclosed assets, chiefly invested in trust securities, on bank deposit, and cash on hand, £3,189 5s. 2d. Since the Association's inception the amount disbursed in assisting members and the widows and orphans of deceased members, exceeds three thousand pounds.

Here, as elsewhere, Apples are keeping badly and the Potato crop generally, which was plentiful and fairly good, is inclined to be troublesome under storage. *K., Dublin.*

WOOLLY APHIS, OR AMERICAN BLIGHT.

WOOLLY Aphis, or American Blight, is one of several species of aphides that feed on the sap of trees, and it does much damage to Apple trees.

Schizoneura lanigera, to give it its scientific name, can be readily detected along the stems of young, infested branches and about the bole of the tree, by its white, tufty, woolly masses.

Its size, when fully grown, is about $\frac{1}{4}$ inch long and about 1-8 inch across, and as it multiplies in various forms during growth, having winged females producing live young, wingless females also viviparous, and males without wings that pair with egg-laying, wingless females, its numbers are rapidly augmented.

It is a dark purplish-brown colour, oval in shape, with very small eyes, legs and antennae very short, a body covered with a cottony coat most markedly developed towards the tail. The legs, when contracted under the body, are quite hidden, allowing dense masses of the pests to lie close together.

As the aphides are wholly suctorial in their habits, depending upon the sap for their nourishment, they are provided with a rostrum or haustellum, which is grooved on one side along the entire length, and in this groove lie the three setae, or piercers, used in puncturing the bark. The rostrum is divided into three separate members, or joints, the first, arising from the lower portion of the head, being much the longest; the second is more dilated and

fine hooked hairs, and others can be seen near the tip, employed probably for tentative purposes. The setae (Fig. 17) are very fine and very elastic, and will return to their former position when bent in a medium such as glycerine or Canada Balsam; they possess no barbs or other serrations, are finely furrowed along their length and possess a central canal.

While members of some genera of aphides



FIG. 16.—WOOLLY APHIS, FROM THE UNDERSIDE; SHOWING THE ROSTRUM.

are furnished with exceedingly short rostra, others have this organ produced to an extraordinary length. Normally, the rostrum of the Woolly Aphis is short, reaching to about the second pair of legs (Fig. 16), but when first born it appears disproportionately long and stout, protruding far beyond the tail. It soon ceases to grow, however, whilst the rest of the body rapidly develops.

Living in dense companies and, by the incessant probing and pricking of the bark by their setae, setting up warty and spongy swellings caused by the increased flow of sap to the wounds, it follows that the small twigs attacked produce stunted leaves and fruit, and often die. Closely packed as they are with heads towards the bark and woolly tails or backs uppermost, the Woolly Aphis is capable of withstanding great cold, and an instance is recorded where some of the insects were taken alive in the month of December while the thermometer registered 20 deg. F., and snow was on the ground. Moisture, too, does not readily penetrate between the waxy threads, and provided as the pests are with plenty of fat globules throughout their body, they are practically weatherproof.

The woolly fibres are given off from a series of four longitudinally arranged pores down the back, and form a means of protection and concealment.

Various kinds of applications have been used and suggested for the eradication of these insects, such as tars, fish-oils, ammoniacal gas liquors, tobacco water, lime and soot, soap-washes, and others, but whichever is used a thorough and careful hand-brushing is necessary, as mere spraying is insufficient. A strong solution of soft soap, with paraffin added, is very good, used as suggested, so long as no crevice is left untouched. It should be remembered also that these woolly aphides come up from the roots, so the soil should be disinfected. The little ladybird insects (*Coccinellidae*) will devour American Blight,

and the blue tit is especially useful in ridding infested trees of the pests. *J. W. Plaskett, Buckenhamworth.*

JERUSALEM ARTICHOKE.

It may be of interest to describe the excellent collection of Jerusalem Artichokes exhibited by Messrs. Vilmorin, Andrieux et Cie. at the last meeting of the French National Horticultural Society, comprising no fewer than 26 different varieties. Some were old, others some named and some unnamed—had been raised at Verrières.

Among the older varieties were the common Artichoke, widely known for a long time, with large, red irregularly shaped tubers; the Egyptian variety, received from that country in 1895, and probably a seedling from the common kind, which it much resembles, except that the tubers are smaller and more irregular in outline; the Improved White variety, received from England in 1892, with very white and "warted" tubers, producing a large yield; the Pink, with piriform tubers, regularly shaped, and of a coppery-pink colour.

The varieties raised as seedlings by Messrs. Vilmorin included the Long Red variety, introduced more than half a century ago, with long, fairly large tubers, very deeply coloured, almost violet; the Patate, a well-known variety, raised in 1889, with long yellow tubers, but little "warted"; the Piriform variety, raised in 1903,

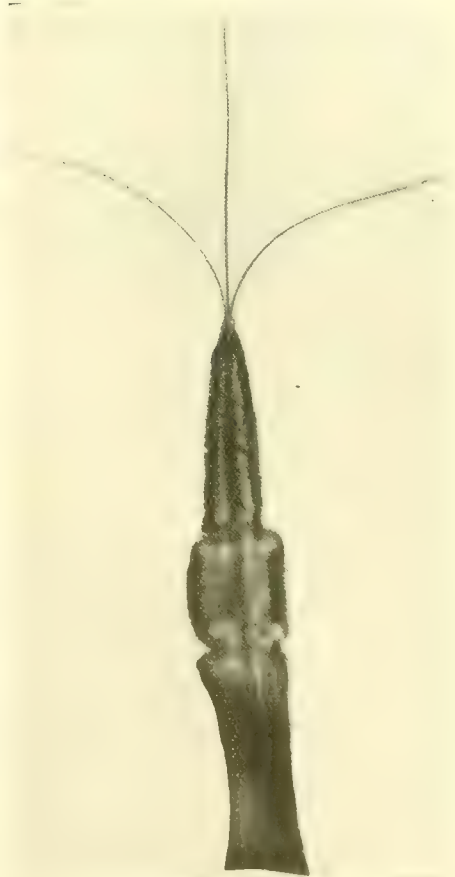


FIG. 17.—ROSTRUM OF WOOLLY APHIS WITH THE THREE SETAE EXTENDED.

with purplish-red tubers of long shape larger and more shapely than the common kind, but less prolific in yield; the Spindle, raised at Verrières in 1915, a very interesting production, with pinkish-yellow, fusiform tubers, very shapely and smooth. This variety has been sold lately, especially in England, under the name of "Topinbel," and stated to be a hybrid,



FIG. 15.—ROSTRUM OF WOOLLY APHIS; SHOWING THE OPEN CANAL ALONG THE ENTIRE LENGTH OF SHEATH.

formerly was thought to be perforated and not channelled like the others, but, as may be seen from the illustration (Fig. 15), also is grooved; the third or tip portion is obtusely pointed, can sweep round in a circular manner, and has a stout ring at the point through which the piercers may be seen occasionally to protrude.

The edges of the channel are armed with

viz., a cross between *Hebanthus tuberosus* and *H. doricoides* or *H. decapetalus*.

Besides those already described, seventeen recent varieties were shown, which have not yet been named. Most of them produce tubers with a yellow skin, more or less dark, oval or long-shaped; several appeared decidedly interesting.

The percentage of sugar in the tubers according to analyses taken in 1920 (*i.e.*, the quantity of reducible sugar obtained after hydrolysis) varied between 14.5 per cent. for the common Artichoke with red tubers, 16.6 per cent. for the white variety, and 21.2 per cent. for the Spindle. Among the unnamed varieties, several contained 18 per cent. and 19 per cent. of sugar; the tubers were large, rounded and regular in shape.

It is now more than a century since Messrs. Vilmorin turned their attention to the improvement of the Artichoke. At the meeting of April 13, 1809, of the Société d'Agriculture du Département de la Seine, Philippe-André de Vilmorin gave a report of the results he had obtained in his experiments in raising these plants from seed. He believed he had found "a means of regenerating the race, if that were necessary, and perhaps of obtaining interesting varieties, as had been found possible in the case of the Potato." Already he had obtained forms with tubers variously coloured red, yellow or whitish.

On April 20, 1831, Louis de Vilmorin, his son, presented to the same society a paper on the number of sowings he had made the previous year, which had resulted in plants exhibiting numerous variations in the size, number and positions in the ground of the tubers produced. He had come to the conclusion that the Artichoke was an exceedingly variable plant when multiplied from seed, and therefore capable of improvement. This opinion was confirmed shortly afterwards by a letter which he sent to Tessier, the editor of the *Annales de l'Agriculture Française*, in which he remarked, however, that there would always, or at any rate for a long time, be a difficulty in the way of raisers who wished to make numerous and repeated sowings—viz., that the plant does not seed, or scarcely at all, in the north, and very little in the centre of France. In this letter Louis de Vilmorin also stated, in reference to the colouring of the tubers: "The colour is also very variable, about a third of the plants raised from seed having produced yellow or yellowish-white tubers, instead of red, as in the cultivated species."

At the meeting held on March 4, 1857, of the Imperial and Central Agricultural Society, Louis de Vilmorin presented a collection of 28 varieties of Artichokes, in which No. 1 represented the old kind, and the 27 others the results of sowings made by his father and himself.

Henry de Vilmorin (1843-1899) went on with the experiments. He procured some seeds from Corsica, with the assistance of Dr. Joseph Michon, and made a number of sowings. Towards 1890 he reported several times to the various societies on the subject of his work. From the point of view of appearance and colour the tubers showed great variation; about a third were yellow, the rest varying from pink to purplish red.

In 1895 the variety Patate was placed on the market. It had yellow tubers, of a long shape which made it easy to pull them out of the ground.

Philippe de Vilmorin continued the experiments of his predecessors on a very large scale, and obtained several varieties of merit, notably the Spindle, which has been already mentioned. It may easily be seen that the development of the Jerusalem Artichoke, introduced into Europe from North America about 1607 (according to the opinion of M. C. C. Lacaita—see his interesting article in *Kew Bulletin*, 1919) has been very slow. It may, however, be hoped

that if its cultivation is undertaken in earnest in the countries where the plant attains normal development, if the seed is sown on a large scale, and judicious selection is made among the resulting plants, progress may become very rapid. The Artichoke is important from an industrial point of view as being a source of alcohol, and if the abundant yield of the white variety could be combined with the regularity of shape found in the Patate variety, and the richness in sugar of the Spindle, it might be said that genuine progress had been made. A. M.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

Funkias for Shady Positions. Funkias are very accommodating plants, as instanced by Mr. Coutts in his interesting article in your issue of January 7th (p. 3). In addition to the positions mentioned, it may not be generally known what excellent plants Funkias are for shady and partially shady places. Even under trees, in good soil, they thrive well. I have seen them used for covering the ground under Pines, where the stems were bare; also under Oaks. Considering what handsome plants they are, and the many and varied positions they are able to fill so well, it is surprising they are not more largely grown. *Arthur J. Cobb, University College, Reading.*

Lilium testaceum.—I am glad that the difference of opinion regarding the depth at which to plant this beautiful Lily has been the means of inducing Sir Herbert Maxwell to write such an interesting note as that which appeared on page 3. My own experience has been in favour of deep planting; but it is only fair to say that Mr. A. Grove, one of our best authorities on the culture of Lilies, recommends that *L. testaceum* should be planted at the same depth as *L. candidum*, for which he advises one of 4 inches. I can only state that in most cases in which I have observed this Lily doing exceptionally well, it was at a greater depth than 4 inches—at least 6 or more. Of course, much depends on the nature of the soil and the exposure of the position, and I am not disposed to be dogmatic on the point. *S. Arnott.*

Wilt in Melons.—Your correspondent "Anxious" recommends the use of sulphate of copper for the above disease, and not only advises sprinkling it on the base of the stem, but also syringing the foliage with a solution of the salt. Surely there is some mistake in this; a solution of copper sulphate would burn up every piece of foliage, as it is a strong corrosive, and, as is well known, is used for this purpose to destroy Charlock, and algae in ponds, though, certainly, at a greater strength than is recommended by your correspondent. Can it be that a Bordeaux mixture or Burgundy mixture in powder form is meant, as these are very often referred to as sulphate of copper? I think this matter should be made clear, as I have seen disastrous results to foliage from the use of copper sulphate dissolved in water without the addition of a base to neutralise the acid present in the salt. *C. G.*

Damage to Fruit Trees in Pots by Voles.—During the recent cold weather, early in the present month, I had occasion to examine the protecting material around and over our orchard house trees, which were standing in the open on a bed of coal ashes. I was astonished to find many of the trees completely ringed by voles. The Cherry trees had suffered most, for every tree had been eaten for several inches in a complete circle from the pot upwards. The Pears and Apples had also suffered, but not to the extent of the Cherries. It was singular that the Plum trees were not touched. The trees in question were standing in a fully open position in front of the fruit range, which position they have occupied during their resting period for several seasons, and no damage had been done by voles before. I have never known pot trees to be attacked by voles previously; although I have seen trees in grass orchards and shrubs, notably Laurels, badly eaten during severe

weather. The damage to our pot trees was all done in a few days, when bitter, cold winds were prevalent in this district. This may possibly account for the voles being driven into the protecting material, hence the damage. Those having pot trees covered with protecting material, either litter and leaves, still in the open, will be well advised to examine their trees frequently, and so possibly avoid damage being done by these destructive pests. *J. Hawkes, Cliveden Gardens, Shenfield, Essex.*

Sowing Lawn Grass Seed. The hot and dry season experienced during 1921 was disastrous to lawns in many parts of the country, and the small amount of rain that has fallen since has failed to bring them into good condition. It will therefore be desirable, especially in the absence of good turf, to sow the lawn areas with grass seed. There is no better time for this work than the latter half of March or the early part of April, as the showery weather usually experienced then is favourable to rapid germination. The ground should first be thoroughly prepared as for turfing, made solid by treading, and worked to a perfect level by means of a finely toothed rake. Quantities and kinds of grass seeds found suitable per acre for producing a fine sward on most soils are as follows:—*Lolium perenne tenue*, 20 lb.; *Cynosurus cristatus*, 5 lb.; *Festuca duriuscula*, 3 lb.; *F. ovina tenuifolia*, 2 lb.; *Poa nemoralis*, 2 lb.; *P. semper-virens*, 2 lb.; *P. trivialis*, 2 lb.; *Triticum flavescens*, 1 lb.; *Tritolium repens*, 6 lb.; and *T. minus*, 2 lb. *Thos. Glover, Benfleet Hall.*

Grape Gros Colman at Nymans, Handcross.—Mr. James Comber, gardener to Colonel Messel, O.B.E., has grown some remarkably fine bunches of this well known and often despised Grape. The berries were as large as Czar Plums and beautifully finished, when I saw them hanging on the vines on January 2. When grown to perfection, it is certainly the best late black Grape. The skin is thin, the flesh melting, and the flavour delicious. The vine is a lean-to-facing due south, rather higher than generally seen. I gathered from conversation with Mr. Comber that this variety needs generous treatment, free circulation of air, and gentle warmth from the heating apparatus. I noticed the branches were further away from the glass than usual, and no shading had been given. *R. H. Holton, Cranley.*

Winter Flowering Begonias at Steep Park, Jarvis Brook, Crowborough.—Mr. C. Milner, gardener to W. B. Woodrow, Esq., is an enthusiastic and successful cultivator of the increasingly popular winter flowering Begonias, and he has a brilliant display of them at Steep Bank. B. Gloire de Lorraine var. Mrs. Rothschild, and the variety Turnford Hall are both grown in quantity. The large conservatory is practically filled with glorious plants in about 7-in. pots averaging 2½ feet to 3 feet in diameter, and 2½ feet high. The colour of the pink variety is extremely rich, and each plant is a specimen with clean, healthy foliage and fine long sprays of bloom. I noticed suspended from the roof three grand baskets of the pink variety, each 3½ feet in diameter and a perfect mass of bloom, associated with *Cobaea scandens variegata* growing luxuriantly from the pillars and rafters of the house, and forming a charmingly effective combination. Mr. Woodrow is evidently a plant lover, and has given every encouragement to his gardener. I understood from Mr. Milner he found April the best time to propagate these Begonias, the cuttings being then in the right condition to produce healthy and vigorous plants. About equal parts leaf-mould and loam, with a good addition of coarse sand are used for the cuttings; and one part leaf-mould and three parts loam, with sand, is the compost used for potting on. For the final potting one part leaf-mould, three parts fibrous loam, with most of the fine soil removed, and sand forms the compost. Mr. Milner does not mix organic manure in the compost, preferring to top dress the roots with decomposed cow manure and fibrous loam. Careful watering is practised at all times and the plants are never allowed to become dry. It was on January 7th I saw the Begonias at Steep Park, and the display was well worth the journey to Crowborough. *R. H. Holton.*

* *Annales de l'Agriculture Française*, Tome 38, p. 222.

† *Annales de l'Agriculture Française*, Tome 3, 3e Série p. 227.

‡ *Bulletin des Sciences*—Société Impériale et Centrale d'Agriculture, Tome 12, p. 322.

SOCIETIES.

ROYAL HORTICULTURAL.

JANUARY 17.—The first meeting of the year was held on this date and there was a fairly good attendance. The exhibits were good but not so numerous as usual, although they combined to make up an interesting display, consisting chiefly of capital groups of vegetables, fruits, Carnations, and early hardy flowers. The Orchid Committee granted four Awards of Merit and the Floral Committee one only.

Orchid Committee.

Present: Sir Jeremiah Colman, Bart. (in the chair), Messrs. Jas. O'Brien (hon. secretary), Arthur Dye, Gurney Wilson, C. J. Lucas, Fred. K. Sanders, R. Brooman White, Frederick J. Hanbury, C. H. Curtis, W. J. Kaye, Pantia Ralli, A. McBean, H. T. Pitt, J. E. Shill and S. W. Flory.

AWARDS.

AWARD OF MERIT.

Brasso-Cattleya Rutherfordii The Dell variety (B.-C. Digbyano-Mossiae Queen Alexandra × C. Gaskelliana alba), from BARON BRUNO SCHRÖDER (gr. Mr. Shill), The Dell Park, Englefield Green. A superb white Brasso-Cattleya, of model form, the petals and lip being effectively crimped and fringed. The only colour is the pale lemon yellow tinge on the disc of the lip.

Cypripedium Nellie Pitt (Idina × Pyramus var. Black Prince), from H. T. PITT, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood). Dorsal sepal broad and flatly expanded, pure white, with large claret-red blotches ascending from the yellowish base. Petals very broad, honey-yellow with dark blotches; lip tinged with purple.

Lycaste Lucianii (Skinneri × lasioglossa), from W. R. FASEY, Esq., Holly Bush Hill, Snaresbrook (gr. Mr. E. J. Seymour). This Orchid was imported as a natural hybrid some years ago, and has been shown on several occasions since. The plant now shown had fifteen flowers and buds. Sepals light mauve, petals white, the hairy lip having rose spotting on white ground.

Odontioda Thalia (Schröderiana × Lambeauiana), from MESSRS. CHARLESWORTH AND CO., Haywards Heath. The plant bore four large and finely formed flowers of ruby-purple colour with a gold shade. Lip rosy-mauve with dark blotch in front of the yellow crest.

PRELIMINARY COMMENDATION.

To *Odontoglossum crispum* Viceroy, a grand home-raised seedling of model shape with pure white flowers, from MESSRS. CHARLESWORTH AND CO., Haywards Heath.

CULTURAL COMMENDATION.

To Messrs. SANDERS, St. Albans, for a very fine plant of the pure white *Vanda Watsonii* with many flowers.

GROUPS.

Messrs. SANDERS, St. Albans, were awarded a Silver Flora Medal for a very effective group—tastefully arranged on a base of green Moss, and including fine *Odontoglossums*, *Odontiodas* and *Cypripediums*, with a very interesting selection of species, including the rare *Coelia bella*, with white flowers tipped with violet; *Epidendrum polybulbon* luteo-album, and various *Lycastes*, both species and hybrids. Novelty in the group were *Odontioda Jupiter* (O. Magali Sander × Oda. Joan), with a branched spike of nineteen flowers of large size and bright chestnut-red colour, the lip being bluish white in front; and *Odontoglossum Mosaic* (formosum × ardentissimum), with large white flowers evenly blotched with rose-purple.

Messrs. STUART LOW AND CO., Jarvisbrook, Sussex, were awarded a Silver Flora Medal for a pretty group in which the varieties of *Laelia anceps*, both white and coloured, were well represented, the coloured forms containing a good specimen of the rare var. *Roeblingianum*, with petals marked like the lip. Good scarlet *Sophronitis* crosses, including the new S.-L.-C. Nestor with salmon-red flowers, were also shown with *Odontoglossum cordatum* Low's variety, O.

Uro-Skinneri splendens and var. album, and various other species of *Odontoglossums*.

Messrs. FLORY AND BLACK, Slough, were awarded a Silver Banksian Medal for a small group of specially good hybrids raised at Langley, and including the new *Sopbro-Cattleya Phyllis* (C. Tityus × S. grandiflora), with good red flowers. Messrs. J. AND A. McBEAN, Cooksbridge, showed a set of their superb *Odontoglossums*.

OTHER EXHIBITS.

Mrs. FARRER, Ingleborough, sent *Cypripedium Virginia* Farrer's variety (Fairricanum × aureum Oedippe), raised by the late Reginald Farrer, whose death under lamentable circumstances we recorded last year. The plant bore three very pretty flowers, with white dorsal sepal tinged with mauve, and bearing fine dark-feathered lines. R. GERRISH, Esq., Milford Manor, Salisbury, showed *Odontoglossum Gorizia* (Jasper × President Poincaré), with fine flowers of an unusually clear violet tint. PANTIA RALLI, Esq., Ashted Park, Surrey (Orchid grower, Mr. Farnes), sent *Odontoglossum Violetta* (Armstrongiae × Doris), a perfect flower with rich violet-purple blotching. W. R. FASEY, Esq., sent probably the finest form of the large pure white *Lycaste Skinneri alba* magnifica yet shown. Messrs. SANDERS showed *Odontoglossum Cruesas* (harvengtense × Fascination), a distinct yellow-ground hybrid with dark purple blotches.

Floral Committee.

Present: Messrs. H. B. May (in the chair), W. J. Bean, W. B. Cranfield, James Hudson, John Green, G. Reuthe, John Heal, Donald Allan, F. McLeod, J. Jennings, C. R. Fielder, T. Stevenson, W. B. Gingell, Charles Dixon, H. J. Jones, R. W. Wallace, Chas. E. Pearson, E. F. Hazelton, W. P. Thomson, Clarence Elliott, W. R. Dykes, and R. C. Notcutt.

AWARD OF MERIT.

Erica carnea King George V.—This is one of the varieties of *Erica carnea* collected in Switzerland some years ago by Mr. Potter for Messrs. Backhouse, of York. It differs from the species in having a more compact habit and in flowering much earlier. We were informed that the floriferous little bush on view had been in bloom continuously since last September. Shown by Messrs. R. WALLACE AND CO.

GROUPS.

Carnations were represented by really good blooms. Lord LAMBOURNE, C.V.O. (gr. Mr. H. Cunningham), Bishop's Hall, Romford, contributed a tastefully arranged collection of such sorts as *Carola Snowstorm*, *Wivelsfield White*, *Edward Allwood* and Mrs. C. F. Raphael (Silver Flora Medal). A collection from Messrs. ALLWOOD BROS. was noteworthy for the bright colours and general freshness of the blooms. The most prominent varieties were *Edward Allwood*, *Mary Allwood*, *Wivelsfield Pink*, *Wivelsfield Claret*, *Laddie*, and *Benora* (Silver Flora Medal).

Many varieties of Carnations were displayed by Mr. C. ENGELMANN, who had particularly good blooms of *Topsy*, *Laddie*, *Benora*, *Cupid*, *Saffron* and *Triumph* (Silver Flora Medal). Associated with a praiseworthy collection of Carnations Messrs. STUART LOW AND CO. displayed a batch of freely flowered plants of the fragrant *Daphne indica rubra*, and also of well flowered *Azalea indica* varieties and *Acacia platyptera*. Amongst the Carnations a vase of *Laddie* was prominent (Silver Flora Medal).

Plants of *Azalea indica* in variety were shown by Messrs. L. R. RUSSELL, LTD., amongst which were displayed such uncommon *Bromeliads* as *Tillandsia Zahnii*, *T. Lindenii* and *Vriesia splendens major* (Silver Grenfell Medal).

Chrysanthemums of unusually good quality for so late in the season were shown by Mr. S. ARSH. The chief varieties were *Winter Cheer*, *Nagoya* and *The Favourite* (Silver Banksian Medal). An exceptionally artistic arrangement of *Iris tingitana* was made by Messrs. CARTER AND CO., and the many flowers were of much more than average merit (Silver Banksian Medal).

A selection of *Erica carnea* varieties, with the type of *E. praecox*, were shown by Messrs.

R. WALLACE AND CO., who also displayed *Hamamelis mollis* and *H. japonica rubra* (Silver Grenfell Medal). A capital rock garden was made by Messrs. WM. CUTBUSH AND SON, who planted it with various dwarf shrubs and such alpine as *Sedums*, *Saxifrages*, *Sempervivums* and *Arenaria balearica* (Silver Banksian Medal). A small model rock garden and sunken garden was exhibited by Mr. C. DIXON (Bronze Flora Medal).

Messrs. SKELTON AND KIRBY made a small rock garden in which *Ericas* and *Nandina domestica* predominated (Bronze Banksian Medal). An interesting collection of sprays of Conifers was shown by Mr. G. REUTHE, who also had Christmas Roses and *Iris histrioides* (Bronze Flora Medal), while Mrs. HOPKINS showed miniature succulents and a few alpine.

Fruit and Vegetable Committee.

Present: Messrs. C. A. Nix (in the chair), Wm. Poupart, Owen Thomas, E. A. Bunyard, F. Jordan, Wm. Pope, E. A. Merryweather, E. Beckett, T. Pateman, James Kelly, W. Bates, A. Bullock, S. B. Dicks, W. H. Divers, G. P. Berry, A. W. Metcalfe, G. Reynolds, and J. G. Weston.

GROUPS.

A particularly noteworthy collection of Apples was contributed by Messrs. G. BUNYARD AND CO. There were no fewer than 75 varieties, and each was represented by a goodly dish of firm and shapely fruits. High colour predominated, and in this respect the collection was even better than at the Autumn Fruit Show. The following varieties were perhaps the most prominent—*Wealthy*, *Newton Wonder*, *Wm. Crump*, *Forster's Seedling*, *Rougemont*, *Scarlet Hollandbury*, *Baumann's Red Winter Reinette* and *Mother* (Gold Medal).

An excellent exhibit of Apples and Pears was made by Sir CHARLES NALL-CAIN (gr. Mr. T. Pateman), The Node, Welwyn. The dessert varieties of Apple were excellent in their medium size, good form and typical colouring. These included Cox's Orange Pippin, Cox's Pomona, Rival, Parquet, Adam's Pearmain and Claygate Pearmain. The culinary sorts were also admirable, and of these Lane's Prince Albert, Newton Wonder, Lord Derby and Royal Jubilee were fine examples (Silver-Gilt Knightian Medal).

The only collection of vegetables was from Messrs. SUTTON AND SONS, who staged splendid Leeks in such varieties as *The Lyon*, *Sutton's A.1*, *Improved Musselburgh* and *Royal Favourite*. Sutton's A1 Kale and Couve Tronchuda were also particularly good. Forced Dandelion and Chicory Potatoes and Onions were also well shown (Silver Knightian Medal).

NATIONAL ROSE.

JANUARY 17.—There was a larger attendance than usual at the Annual General Meeting of this Society, which was held at Caxton Hall, Westminster, under the presidency of Mr. E. J. Holland.

In moving the adoption of the Report for the year, the President remarked that from the many appreciative letters that had been received, it was evident the publications of the Society met with the approval of the general body of members. When discussing the financial state of the Society, Mr. Holland remarked that for a long time it had been the custom of the Society to pay all debts during the year in which they were incurred, but this year it had not been found possible to continue this desirable custom. It would be seen from the Statement of Accounts that while there was a balance in hand of just over £14, there was an unpaid account of £1,058 18s. 6d. due to the printers. This sum was incurred for the issue of the various publications, and a great proportion was for the *Enemies of the Rose* and the *Selected List of Roses*, which would be issued to new members during the present year, and it was confidently anticipated that the deficit would be cleared off before the end of the year.

There had been a record increase in membership during the past year, when no fewer than 1,604 new members joined the Society.

Feeling reference was made by the President to the great loss that had been sustained by the deaths of Mr. George Paul and Mr. John Hart. Mr. Paul was one of the oldest members and was closely associated with the work of the Society almost to the day of his death. Mr. John Hart, who was well known as a successful amateur Rosarian, was also an active and valuable member of the council.

The proposal was seconded by Mr. H. R. Darlington, who also paid a tribute to the memories of Mr. George Paul and Mr. John Hart. There was no discussion, and the report was unanimously adopted.

The Dean Hole Memorial Medal for the past year was awarded to Mr. Samuel McGredy, who was unfortunately unable to come across from Ireland to receive it personally. In making the announcement, Mr. Holland referred to Mr. McGredy's well-known genial disposition and enthusiastic love of Roses. He was a particularly successful raiser of new varieties of merit, of which he had raised a record number and had been awarded fifty Gold Medals of the National Rose Society.

In formally presenting the financial statement the Hon. Treasurer, Mr. Preston-Hillary, reminded the meeting that it had already received an admirably lucid explanation of the reasons for the adverse financial position, and in view of the general increase in costs of all descriptions this was unavoidable. He pointed out that on the receipt side the income from subscriptions was £500 more than ever before, and the income from advertisements and sales of publications had also increased.

An enthusiastic vote of thanks was accorded to Mr. Courtney Page, the Hon. Secretary, in appreciation of his great work for the Society, and in reply he referred to the extraordinary efforts made by members in proposing new members. The trade had assisted greatly in this direction, and Mr. H. R. Botwright, an amateur, had proposed over seventy members. Of the 7,386 members of the Society there were, Mr. Page stated, only 31 whose subscriptions were unpaid, and he felt sure that this small number would soon be further reduced. In giving interesting particulars of the office work done during the past year he said that 1,500 technical questions were answered.

On the close of the meeting the members attending adjourned for tea, which was followed by an exhibition of the latest lantern slides acquired by the Society.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

THE monthly meeting of this society was held in the R.H.S. Hall on Monday, January 9, Mr. Arthur Bedford in the chair. Seven new members were elected, and four members were allowed to withdraw double the amount of the interest on their deposit account, amounting to £13 17s. One member withdrew the sum of £10 from his deposit. The sum of £5 8s. 5d. was passed for payment to one lapsed member, and £53 14s. 4d. was passed for payment to the nominee of one deceased member.

The sick pay for the month on the ordinary side amounted to £89 15s. 3d., and on the State side to £35 11s., while maternity benefits came to £6. Three members were assisted in regard to the cost of dental treatment, and one in regard to optical treatment, from the extra benefits provided by the State section. The sum of £800 was invested in Funding Loan by the State section, and the trustees were instructed to invest £1,000 on the private side.

Obituary.

R. Murrell.—We are informed that Mr. R. Murrell, Rose Acre, Shepperton, died somewhat suddenly a few days ago from a severe attack of influenza. He was an expert Rosarian and cultivated a large collection of Roses. Only two years ago he added several acres to his nursery at Halliford, and in this addition he took a very keen interest during the past season. His death, in the prime of life, is a great loss to the world of floriculture.

William Carter.—We regret to announce the death, on December 18 last, of Mr. William Carter, at the age of 76 years. The deceased entered the employ of Messrs. Nutting and Sons, Ltd., 106, Southwark Street, London, in 1874, and he represented this firm for many years on Romford and other markets, where he made many friends amongst market growers. Owing to failing health, Mr. Carter was compelled to retire a few months ago after 47 years of loyal service with the same firm.

INQUIRY.

CAN any reader give me the names of Begonias that produce tubers or "bulbils" at the tips of their growth, or in the axils of their leaves, and, if so, whether such tubers are formed before or after the plants have flowered?
Coombe.

TRADE NOTE.

TRADERS are no doubt acquainted with the scheme which the Government have initiated, whereby traders and others can obtain facilities from their bankers to enable them to finance their export trade. Briefly, the Government are prepared, under certain conditions, to guarantee drafts against shipments of goods exported from this country, and the scheme has quite recently been extended, now covering general credits and credits in respect of specific transactions. Explanatory leaflets can be obtained from the Department of Overseas Trade, 35, Old Queen Street, S.W.1.

Horticultural traders having an export business, which at the time may be of diminishing value on account of the existing depreciated exchanges, could with advantage apply for Government guarantees under this scheme, but in this case difficulties might be experienced by reason of horticultural commodities, such as fruit and forest trees, plants, insecticides, fertilisers, etc., not being listed with the Department. Therefore, any horticultural trader wishing to avail himself of the facilities offered by the Government, and, after acquainting himself with the conditions of these credits, is invited to communicate with the Secretary of the Chamber, 18, Bedford Square, W.C.1, as the Chamber has received official notification that special commodities can be listed with the Export Credits Department.

ANSWERS TO CORRESPONDENTS.

BOOKS: *A. S. R. Cactus Culture*, by W. Watson, price 2s. 3d., and *Orchids for Everyone*, by C. H. Curtis, price 27s. free by post, would be suitable for your purpose, and can be obtained from our Publishing Department.

BOOK ON FRUITS: *Eastnor. Fruit and its Cultivation*, by T. W. Sanders, obtainable from our Publishing Department, price 8s. 3d. post free, would be suitable for your purpose.

GREENHOUSE ERICAS: *F. M. K.* The type of Ericas used for pot cultivation may be propagated by means of cuttings inserted during the spring, selecting small, twiggy shoots, about 1½ to 2 inches in length, and young growth that is just sufficiently firm to prevent damping. August is also a suitable month for propagating these plants, but on the whole spring is the best time, as the rooted cuttings may be potted, and become nicely established in thumb pots before the winter. The receptacles in which the cuttings are rooted should be clean—48-sized pots are very suitable, and should be filled with crocks to at least half their depth, the crocks being covered with coarse peat to keep the drainage clear. Fill the pots with fine sandy peat, which should be rammed very firmly, finishing with clean silver sand on the surface. The cuttings should be

carefully dibbled into the soil. The specimen you enclose is *Erica hymenalis*.

MOSSY LAWNS: *Mere Grass.* The use of lime on lawns is good practice, as the grasses, in common with so many other plants, require lime for their well being, and its application will also assist in checking the spread of the moss. For this purpose it may be applied as freshly slacked lime at the rate of 5 lb. per square yard as soon as this may be conveniently done. As suggested, a short-handled domestic fire shovel would be useful in spreading the lime evenly. If the lawn is in otherwise good order it would not be necessary to rake it over before applying the lime; but the dead moss should be raked out later on. The dressing of lime may well be followed by soot during the early spring; this will give a very dark green colour to the grasses. Superphosphate is an excellent moss destroyer, and, at the same time, is a good fertiliser. This may be applied towards the end of February at the rate of 4 lb. per square rod, or an even stronger application made without fear of injury to the grasses.

NAMES OF PLANTS: *W. S. Wickham.* *Viburnum rhytidophyllum*.—*A. M. D.* *Cryptomeria japonica*; an old introduction to English gardens, and not at all rare.

PRUNING NEWLY PLANTED PEACHES AND NECTARINES: *G. C.* When pruning newly planted Peaches and Nectarines great care is necessary in keeping the basal and lower branches well furnished with fruit-bearing shoots. We recommend in your case that each young shoot be cut back two-thirds its length, and the weaker shoots half their length, and any unnecessary shoots removed altogether. This will cause growths from buds near the stem and an ample supply of shoots at the base of the tree for future years. In budding a basal shoot must be preserved, so also must the terminal shoot on the same branch, and any necessary shoots in between required for shaping the tree must be kept on the upper side of the branch. The same remarks apply to the Cherry, but much depends on the size of the tree. As a rule, the growth a young Cherry tree makes the first year is small, and shoots must be corrected in the same way as for the Peach; later prunings will be confined to the extreme ends of the branches, and in cutting back the current year's shoots to a couple of buds to form fruit spurs. The treatment for Apricots the first year is similar to that recommended for Peaches; later, the trees will be composed of main branches, and the small shoots which issue from the latter must be shortened back to three buds to form fruit-bearing spurs along the whole of these main branches.

RHODODENDRON HYBRID: *J. C. W.* You will probably be able to obtain the hybrid mentioned from Messrs. R. Veitch and Sons, Exeter.

TO SKELETONISE LEAVES: *P.* Put 6 oz. of washing soda into two quarts of boiling water. Slack 3 oz. of quicklime, and add to the soda solution. Boil the whole for 15 minutes, let it settle, and then pour off the clear fluid. Put this on the fire and boil; while it is boiling put in the leaves and boil them for one hour or so. Take out a leaf, and if the epidermis comes away easily when rubbed between the finger and thumb (under clean water), the leaves are ready. After the epidermis is removed, put the skeletons into a solution of a wineglassful of chloride of lime to a quart of water, in order to bleach them; some will be finished in about 10 minutes others in about an hour; when white, throw them into pure water to clean out the bleach, and float out on to slips of paper. The best leaves to commence with are Holly, Poplar, Ivy and Laurel, and they should have no signs of decay in them.

Communications Received.—Lenton Sands—W. H. M.—E. N.—A. J. S.—Regular Reader—R. T.—Y. V.—H. A.—A. N.—C. W.

THE

Gardeners' Chronicle

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 39.6.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock street, Covent Garden, London, Wednesday, January 25, 10 a.m.: Bar. 29.6; temp. 40°. Weather—Dull.

The Origin of the Potato.

Students of horticultural history will find much of interest in Professor Hindrick's sumptuous volume of *Sturtevant's Notes on Edible Plants*, a review of which appeared in our issue of January 14, and they will be grateful to the Editor for having accomplished an onerous and important task with such skill and thoroughness. Although much has been written on the origin of the Potato, there are few contributions to this much-debated subject which provide so many facts as are contained in Sturtevant's notes. The difficulties of elucidating the origin of anything are illustrated strikingly by the case of the Potato. Men are late in realising that any new thing they do may have historical interest, and hence, when interest is quickened and later generations cast about to discover the origin of this or that, the records, if they ever existed at all, are found to be too meagre for certainty. Humboldt's observations recorded by Sturtevant (p. 545 *op. cit.*) that the Potato was in cultivation at the time of the discovery of America, in all the temperate regions of Chili to New Grenada seems to be borne out amply by subsequent researches. Thus in the vocabulary of a now extinct S. American tribe (the Chibcha) the names of ten distinct varieties of Potato are to be identified. The earlier records, such as those of Peter Martyr which refer to the time of Columbus, are rendered doubtful by the references they make to "betatas" which may refer not to *Solanum tuberosum*, but to the Sweet Potato. The "papas" referred to by Peter Cieca as being used by the inhabitants of Peru would seem without doubt to be true Potatos, and date from about the same time as another record by Cieca de Leon from the region of the Collao to the effect that the inhabitants'

principal food are "Potatos" which when dried are called chunus—it is to be observed that chunus or frozen Potatos are still the ordinary food in the Collao. That the diseases of Potatos are no new infliction is apparent from the observation of Garcilasso de la Vega that the "papas" of the Collao, round and moist, are inclined to rot soon. Hawkins appears, according to Sturtevant, to have been the first Englishman to interest himself in Potatos, and in 1564, speaking of the tubers growing in Margarita Island off the coast of Venezuela, says that "they are the most delicate rootes that may be eaten and doe far exceede parsnips or carets." Sturtevant suggests that Hawkins carried the Potato to N. America in 1565 when he relieved the famine among the French on the banks of the river May, Florida, in 1584. Hawkins' appreciation is all the more curious in that for a long time after its introduction the Potato was held in but light esteem in Europe. Already, in 1597, Gerarde had the Potato growing in his garden. Mortimer, whom Sturtevant quotes, wrote in his *Gardeners' Kalendar* for 1708 that the root is very near the nature of the Jerusalem Artichoke, although not so good and wholesome, but it may prove good to swine. The prejudice continued for long, and in 1754 Miller says of Potatos that "they are despised by rich and deemed only proper food for the meaner sort of persons." An amusing confirmation of the aphorism "what Lancashire thinks to-day, England thinks to-morrow," is supplied by the fact that when the Potato was introduced to Lancashire in 1728, its cultivation became general in the county and gradually spread to other parts of the country. Sturtevant is of opinion that the history of the Potato seems to imply that at first its tuber was of such poor quality as not to obtain general liking. We are, for our part, inclined to believe that cultivation and not the tuber was at fault. In the sixteenth century the standard of cultivation, as judged by the average yield of Wheat, was not high—not exceeding ten bushels to the acre. Much land was undrained or imperfectly drained and in these circumstances the Potato which finds its best flavour, although not its great yields, in light, sandy soils, might well have produced tubers of generally unpleasant flavour. On the other hand, and in support of Sturtevant's view, Europe was for a long time no more well-disposed than was England to the new food plant, and the ruse said to have been resorted to by Parmentier—whether it be true or not, serves to illustrate this fact. As recorded in this journal,* the story goes that it was only by withdrawing at night the military guards set by day to protect his experimental plots that he succeeded in getting Potatos into the category of "stolen fruit" which appears sweetest to the pilferer. In the present state of knowledge it is, perhaps, useless to speculate on the origin of the Potato. It would seem probable, however, that in the case of this plant as in that of other edible plants, the numerous varieties point to a hybrid origin, although in the case of the Potato the hybridity would appear to be between races and not, as in the case of Wheat and Maize, between species.

National Dahlia Society.—The annual general meeting of the members of the National Dahlia Society will be held on Tuesday, January 31, at 4 p.m., in the Lecture Room at the Royal Horticultural Hall, Vincent Square, Westminster.

Estate Nursery and Plantation Competitions in Scotland.—In the year 1912, the Royal Scottish Arboricultural Society started a series of competitions open to estate nurseries and plantations,

* *Gard. Chron.*, February 21, 1911.

and these competitions have been conducted in connection with the Society's Forestry Exhibition at the Highland and Agricultural Society's show. During 1921 the show district included the counties of Clackmannan, Dumbarton, Perth and Stirling. Two of the estates entered were also in the 1912 competition, consequently it will be seen that the competitions have completed their first circuit or rotation. In the Nursery Section, Class I. is for estate nurseries not exceeding two acres in extent, and Class II. for those of more than two acres. In the Plantations Section, there are seven classes in all. The first three classes are for plantations of not less than two acres, consisting mainly of Conifers (I.) under ten years of age; (II.) exceeding ten years and not exceeding twenty years; (III.) exceeding twenty years and not exceeding forty years. These are confined to estates having less than 300 acres of woods. Classes IV., V. and VI. are open to estates having more than 300 acres of woods, and the plantations are similarly specified, with the exception that they must be not less than five acres in extent. Class VII. is for plantations mainly of hardwoods not exceeding 35 years of age and not less than two acres in extent. The nurseries and plantations entered in 1921 were of a high order of merit and the majority of the plantations were under twenty years of age. In the Nursery Section a Gold Medal was awarded to the Dunkeld Estate and a Silver Medal to the Keir Estate, while in the Plantation Section Silver Medals were awarded to the estates of Keir, Dunkeld, Doune, Ardochallary, and Tullichewan. According to the report published in the recent issue of the *Transactions of the Royal Scottish Arboricultural Society*, the judges found a tendency in most places to increase the planting distance, especially so far as the more rapidly growing Conifers are concerned.

Florists' Tulips.—The members of the London School-Gardening Association and their friends are to be favoured by a lecture on "Florists' Tulips" by their president, Sir A. Daniel Hall. The lecture will be delivered at the London Day Training College, Southampton Row, at 7.30 p.m., on Friday, January 27.

Commercial Fruit Show at Hereford in 1922.—The Imperial Fruit Show of 1921 was discussed at considerable length, and its management was subjected to considerable adverse criticism at a meeting of the West Midland Commercial Fruit Show Association held at the Shirehall, Hereford, on Monday, the 9th inst. The members of the Association decided to hold a commercial fruit show at Hereford this year (date to be fixed), but expressed themselves ready to consider the possibility of joining in an Imperial Fruit Show if it were held in the north of England during the present season.

Exterminating Rats.—In connection with the crusade for the extermination of rats in this country, it is interesting to observe that in different countries different methods are employed to destroy these rodents. An interesting method is described in the *Queensland Agricultural Journal*, which is as follows: "Put down a tempting bait and surround it with a ring of caustic soda. Outside the ring of soda place a ring of wet rags or bags. The rat, to reach the bait, must walk over the wet bags, and so wet its feet. He then walks over the caustic soda, which, of course, burns him. He will next lick off the irritating substance, and becomes a dead rat. The same procedure may be adopted at the main entrance to a rat's tunnel. Close up all the holes possible, and put wet rags at the entrance, and soda outside, and then the bait."

A New Park for Chicago.—The authorities at Chicago have already commenced the construction and lay-out of Lake Front Park, which is to connect Grant Park with Jackson Park, and will cost approximately 50,000,000 dollars. This park will be six miles long and about half a mile wide, and will contain a series of island-dotted lagoons 400 to 700 feet wide, extending through its centre. These lagoons will be spanned by seven artistic concrete bridges, so as to give ready access to

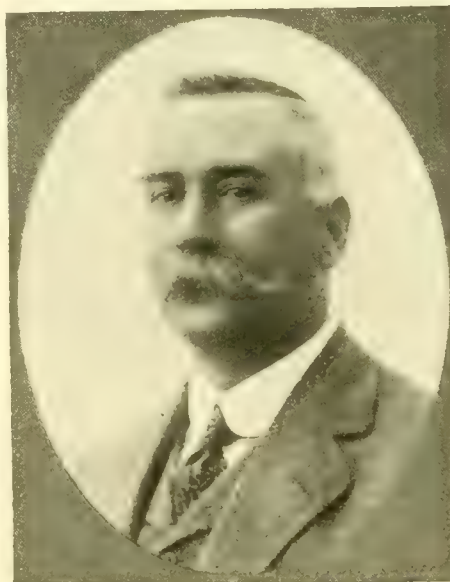
streets converging on the outer drive. The construction of this new park will necessitate the filling in of two square miles at present occupied by water averaging 15 feet deep, and it is estimated that this undertaking alone will require about 40,000,000 cubic yards of soil. About twenty miles of main drive way will be constructed, in addition to subways and five long viaducts over the Illinois Central Railway. When finished, the park will provide six miles of lake frontage, which will include extensive beaches for bathing.

A Large Addition to Box Hill.—We learn with great pleasure that Miss Warburg has presented seventy acres of land (purchased from Lord Francis Hope's trustees) to the nation as an addition to Box Hill. This magnificent gift is Miss Warburg's thankoffering for the conclusion of the war, and the area occupies a site on the right side of the Happy Valley, and runs with the boundary of land held by the National Trust, above the zig-zag. Beech and Larch woods and the Round Tower are included in these seventy acres of beautifully situated and charmingly wooded land.

The Rainfall of 1921.—Although time has not permitted a comprehensive summary of the rainfall records for 1921, a selection from the 3,000 returns made to the Meteorological Office has sufficed to give a preliminary idea of the distribution of rain in relation to the average fall in the British Isles. Probably every gardener will agree that in the year 1921 there was a very unusual shortage of rainfall, but we gather from a recent review of the year* that the area affected in an extreme degree was not very large. During the months of January, March, and December the total rainfall was above the average at all meteorological stations in the western half of Scotland, and over a considerable part of the Western Highlands there was an excess of more than 10 per cent. In a small area in the northern Pennines and some isolated spots in Ireland there was more than an average rainfall, but with these exceptions there was a deficiency throughout the British Isles, and this deficiency increased in a marked degree towards the east and south of England. Around Aberdeen the deficiency was 40 per cent. below the average, and in Ireland to the east of Cork, the deficiency was more than 70 per cent. South-east of a line drawn roughly from the Bristol Channel to Yorkshire, the deficiency was more than 30 per cent., and throughout almost the whole of the district below a line from Plymouth to Yarmouth the deficiency was more than 40 per cent., while in the east of Kent there was less than half the average rainfall. The driest years hitherto recorded were probably 1854, 1864, 1870, and 1887, and in each of these years considerable areas experienced less than 70 per cent. of the average rainfall, while in 1867 almost the whole of England and Wales as well as more than half the area of Scotland and Ireland, had less than 90 per cent. The general percentage of the average rainfall in the dry years of 1864, 1870, 1887, and 1921 respectively were as follows:—England and Wales, 76, 82, 74, 71; Scotland, 94, 80, 80, 99; Ireland, 36, 95, 77, 83; British Isles, 85, 84, 77, 82. Throughout the greater part of the Thames Valley, the rainfall was unprecedentedly low during 1921. The highest rainfall record in this district was barely 20 inches, and over the whole of the valley it was less than 17.5 inches, while in the area below Lechlade the rainfall was less than 15 inches. From the review referred to we learn that the most remarkable totals were observed in the Thames Estuary and the southern Fen districts, where considerable areas had less than 12 inches of rain; these were undoubtedly the driest places in England during 1921. The review concludes with the observation that most of the water supplies of the south-east of England are drawn from underground sources, and it may be that well-supplies are being used up in a manner analogous to

living on capital. It is known that the underground water in the chalk formations depends intimately upon the rainfall for its maintenance, and in particular the winter rains percolate freely into the fissures of chalk and compensate for the draft made during the summer. It is an ominous fact that percolation records made during 1921 in the south of England show that no water had reached the chalk since May, and that the quantity between February 1 and December 31 was not more than the equivalent of 1.75 inch of rain. Unless, therefore, an unusually rainy period intervenes between this and the early summer, the outlook for the summer of 1922, from the point of view of water supply, is not very promising.

Mr. John Cairns.—Mr. John Cairns is almost as well known in the south of England and on the Continent as in Scotland, for he is no stay-at-home Scot. Mr. Cairns received his early training with the firm of Messrs. W. Drummond and Sons, Stirling, and after five years spent in their establishment he obtained employment with Messrs. Austin and McAslan, of Mitchell Street, Glasgow, and he has remained with this firm of seedsmen and nur-



MR. JOHN CAIRNS.

serymen ever since, and is now one of the partners. Mr. Cairns possesses a wide knowledge of plants and is thoroughly well acquainted with all that pertains to the seed trade, and to his wide knowledge and experience he adds a charming personality which must be a fine asset to the firm with which he has been associated for so many years. Eleven years ago Mr. Cairns was appointed a director of the Glasgow and West of Scotland Horticultural Society, and the present year is his third period of office as Chairman of the Directors of that Society. He is taking an especially keen interest in the International Horticultural Exhibition which is to open at Glasgow on August 30, and he is sparing no efforts to ensure its success. We have had the opportunity of inspecting a draft of the schedule which is to appear shortly, and we feel sure that the wide range of subjects dealt with and the handsome prizes offered will attract exhibitors from all parts of the United Kingdom. Both Mr. Cairns, the Chairman, and Mr. Hugh M. Mackie, 124, St. Vincent Street, Glasgow, the Secretary, will readily answer any communications sent to them with reference to the forthcoming great exhibition.

The Flora of Jan Mayen Island. One of the most interesting items in the programme of the general meeting of the Linnean Society, held

on the 19th inst., was an exhibition of lantern slides, together with an account of the Flora of Jan Mayen Island, communicated by Dr. W. Rushton Parker. Dr. Parker considers that the Flora of Jan Mayen may be divided into four main groups—the floras of the sea-shore, of the bird-cliffs, of sheltered places in the "tundra," and the mountain flora. The most luxuriant flora, which consists of *Taraxacum* or *Oxyria*, grows either under the bird-cliffs or in places where tuff has been reassorted by water. The limit of flowering plants seems to be about 3,000 feet. The total phanerogamic vegetation consists of about 43 species, all of which are common to both Norway and East Greenland. The origin of the flora presents a very complicated problem. Seeds have probably been brought there on the feet of wading birds which migrate to and from their breeding-grounds in East Greenland. It is highly improbable that Jan Mayen has ever been connected with either Iceland or Greenland. Many plants have probably reached Jan Mayen during very recent years.

Disease-proof Cabbages.—At the request of the National Kraut Growers' Association, the authorities at the Wisconsin College of Agriculture have developed a strain of Cabbages immune to the "Yellows" disease, which has been a scourge for some years throughout the Cabbage growing districts of the United States. Tests conducted on disease-infected soil show that the new Cabbages are immune to the disease, while old varieties growing in parallel rows have been almost all killed. That the Wisconsin authorities consider the new strain to be quite immune may be gathered from the fact that the Association already referred to will distribute 5,000 pounds weight of the new Cabbage seed throughout the United States at an early date. This will be sufficient to plant 40,000 acres, and the amount has been obtained from stock grown from the disease-resistant strains supplied by the experts at the Wisconsin Experiment Station.

Appointments for the Ensuing Week.—Tuesday, January 31: Royal Horticultural Society's Committee meeting; Lecture by Captain A. W. Hill on "Botanical Stations in the Cameroons and Nigeria"; National Dahlia Society's Annual meeting at R.H.S. Hall; Bath and West and Southern Counties Society's Council meeting; Cardiff Gardeners' Society's meeting.—Wednesday, February 1: Royal Agricultural Society's Council meeting; National Viola and Pansy Society's meeting.—Thursday, February 2: Manchester and North of England Orchid Society's meeting; Linnean Society's meeting at 5 p.m.; Wargrave and District Gardeners' Society's meeting.

"The Gardeners' Chronicle" Seventy-five Years Ago.—*Substitute for the Potato.*—Considering what a cottager may grow at least expense to supply the loss of the Potato, it occurred to me that the Scarlet Runner may be grown in large quantities, for the sake of the seed, with great advantage. I, therefore, had some dressed to try, and when scalded, they readily slip out of the skin, and soon boil tender, and either with a little pepper and salt only, or the addition of a very small piece of bacon stewed with them, make a most excellent dish. The expense attending the growth of the plant would be the sticking, which might be obviated by putting the seed into the earth close to the hedge or fence of the cottager's garden or allotment, which would form a support without further trouble, and the space thus occupied would be very trifling. Peas they may certainly grow more extensively in their allotments than they have hitherto done, to preserve dry instead of eating them green, but they would be more open to the attack of birds than the Scarlet Runner.—*Polypodium*, Jan. 7. (These have been often recommended.) *Gard. Chron.*, Jan. 23, 1847.

Publication Received.—*Fungi.* By Dame Helen Gwynne-Vaughan. Cambridge University Press, Fetter Lane, E.C. Price 35s. net.

* *The Meteorological Magazine.* His Majesty's Stationery Office, Imperial House, Kingsway, W.C. Price 7d., post free.

FLORISTS' FLOWERS.

SOME OF THE NEWER CHRYSANTHEMUMS.

JUDGING by the results of the past season, the introductions of three and four years ago do not include so many reliable exhibition sorts as was anticipated. Wm. Rigby, Mrs. Algernon Davis, Princess Mary, and Edith Cavell being the chief exceptions from a list of about thirty. High hopes were entertained in some quarters that such varieties as Golden Champion, Undaunted, Mr. Lloyd George, Mrs. H. Tysoe and Louisa, Pockett would replace with advantage Lady Talbot, F. S. Vallis, and other of the old sorts; but they have not done so, with the consequence that older varieties were very much in evidence in the season 1921. This latter year's introductions and those of 1920, however, promise better, and the following amongst them should supply blooms of high quality for some years to come.

PRINCE ALBERT.—This is a deep yellow sport from Princess Mary, and needs no recommendation. But, as is essential with the parent, the plants need to be well cultivated to secure an early first crown bud, otherwise the blooms show an eye.

MAJESTIC.—This variety has already won its spurs, being shown at practically every exhibition of note last season. Dwarf plants are not generally associated with monster blooms, but this variety is a remarkable exception, a fact which will insure its popularity. Early propagation and a natural break are points to observe with this choice Chrysanthemum.

MRS. H. E. DIXON.—This variety was better in 1920 than last year. In an attempt to obtain natural second crowns our plants grew over 6 feet tall, and the buds were rather late. It appears to be necessary to root the cuttings in December to obtain second crowns, or to anticipate the second break by stopping about the third week in June.

MRS. SPENCER CHICHESTER.—This is a primrose yellow incurving Japanese variety of fine form. Our plants did not show any signs of breaking in the middle of June, and were stopped, which brought the development of the buds to the third week in August. In an ordinary season early propagated plants should break naturally.

MRS. GEO. MONRO. This magnificent velvety crimson does not appear to be of much use if first crown buds are chosen, and yet it is rather slow growing, so needs rooting very early.

SHIRLEY GOLDEN. The blooms of this Chrysanthemum are something after the form of Lady Talbot, and the colour of James Fraser, when the variety was grown on the early bud. In its early stages the plant is one to persevere with, for it is rather delicate, but when it is growing freely in 6-inch pots, it soon puts on as robust a look as the average variety, and runs on to the second crown bud.

MRS. PETER MURRAY.—A fine habited Chrysanthemum producing a solid bloom of rich purple colour. Buds of the natural break and first crown buds open perfectly.

ROSEMARY SIMMONS.—Another of the Lady Talbot "build," but a variety that requires growing well to obtain good blooms. Plants stopped at the end of May were late by a fortnight, and this in a hot summer.

MRS. T. J. FLEMING.—This is of the colour of Sir E. Letchworth when that variety is grown on the early crown bud, but it is a much larger bloom, and will doubtless be more heard of in the future. Of medium height, the plant has a strong habit, and requires a long growing season, so a stopping early in April is essential.

HELEN MARGERISON.—This is another pink Chrysanthemum of good quality. Grown to a natural first crown, the buds are somewhat late unless the break occurs early in June.

VISCOUNT CHINDA.—An erratic grower, which takes after Mrs. Algernon Davis in that it is a persistent bud thrower. This failing has appeared in districts widely apart, and from root

cuttings, so the fault does not rest alone with stem cuttings, which are often said to be the source of this trouble. Late rooted plants have done best, second crown buds being easily secured.

MRS. CHAS. H. CURTIS.—This reminds me of the variety Mrs. H. J. Stratton in colour, but it should last longer than that variety, as the blooms are more solid, and better formed. Natural crown buds seem to finish the best.

A. S. WATT.—This may be described as a glorified Princess Mary. The blooms are certainly a little deeper coloured, otherwise there does not appear to be much between the two, excepting there is no need to stop the plants.

VICTORY.—For a good white of proved merit it is necessary to go back to the season of 1919 for this variety. It is a monster bloom,

NEW OR NOTEWORTHY PLANTS.

PHYTOLACCA CLAVIGERA.

THE Phytolaccas are mostly coarse-growing perennials, with succulent stems and large, fleshy rootstocks, suitable for the wild garden or shrubbery borders. The species generally met with in cultivation are the North American *P. americana* (syn. *P. decandra*), the Virginian Pokeweed, and *P. acinosa* (syn. *P. edulis*), a common plant in the Himalayas and Western China. These two plants are distinguished by the former having the carpels composing the black fruits entirely enclosed in a skin, giving it the appearance of a berry. In *P. acinosa* the carpels are all separate.

An aulorescent member of the genus occurs in



FIG. 18.—PHYTOLACCA CLAVIGERA; A NEW SPECIES OF POKEWEEED.

with long, drooping florets which incurve at the tips. The plant is of medium height, and in an average season stopping at the end of April seems necessary to produce blooms early in November.

MRS. CHAS. DAVIS.—This is the latest white sort and, judging by the fine blooms, it will become popular. I have it from one of the specialists that it is the best white sort he has handled, better than Queen Mary, W. Turner, and Mrs. A. T. Miller, while the plant is a much better grower than the two first named. Next November I hope to have verified these statements.

The following are still in the front rank of exhibition varieties:—A. F. Tofield, Wm. Rigby, Mrs. G. Drabble, Dawn of Day, Francis Jolliffe, Mrs. R. C. Pulling, Princess Mary, and Mrs. Algernon Davis. Y. G.

South America; this is *P. dioica*, which has stems from 20 ft. to 30 ft. high.

A fourth species, *P. clavigera*, is illustrated in Fig. 18. This is a robust-growing perennial, about 4 ft. high, with rounded, terminal spikes of small rose-pink flowers that are succeeded by black fruits packed into a dense, club-shaped mass. The individual fruits have their carpels enclosed in a skin, as in the American *P. americana*. This species is a native of Yunnan, where it was found by Mr. G. Forrest, who sent seeds to the Royal Botanic Garden, Edinburgh. There it flowered and fruited freely, growing from 3 ft. to 4 ft. high. Specimens in fruit were exhibited by Mr. Amos Perry at the meeting of the Royal Horticultural Society on June 21, 1921, when the plant obtained an Award of Merit. W. I.

The Week's Work.

THE FLOWER GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

The Rose Garden.—Work in the Rose garden occasionally falls into arrears in winter, and where this has occurred labour should be diverted to it. New beds should be well and properly prepared, and when ready the plants carefully and firmly planted. Where planting is already finished, attention should be given, after periods of heavy winds such as we have experienced this season, to ascertain if the plants have become loosened in the soil, and where this is found to be the case they should at once be made firm again. Renovations to old beds should also be carried out, and when all these operations are completed a winter wash formed of one ounce of blue vitriol (copper sulphate) to two gallons of water should be well sprayed over the plants and beds, to act as a preventive against fungous diseases and a deterrent to insect pests. Do not apply the wash when the weather is frosty.



FIG. 19.—*ARBUTUS MENZIESII* IN CALIFORNIA: SHOWING LARGE BRANCHES STARTING FROM NEAR THE BASE OF THE TREE. (SEE PAGE 41.)

Rockery and Rock Edges.—Where rockeries are to be formed, advantage should be taken of open weather to commence this work so that the mass of stone and soil may have the fullest opportunity of settling firmly in position before the time arrives for spring planting. Rock edges, which are nowadays superseding the old grass verges and Box edgings along the fronts of herbaceous borders, should also be put in position. For either purpose it should be borne in mind that the rocks are only provided for the benefit of the plants, whereby a cool, moist rooting medium is secured, and not, as many seem to think, the prime feature of the whole. Another point to be remembered is that alpine plants benefit greatly, when grown under artificial conditions, if they are provided with a good, deep compost of a suitable nature, either in pockets or crevices, for many of the dwarf-growing alpenes send out roots a yard long in search of food, coolness and moisture. Rockeries and stone edges already in existence should be examined, and, where the plants are found to be lifting themselves out of the soil, a top dressing of suitable compost should be applied. The composts suited to the various subjects differ considerably, and it is of great benefit alike to the cultivator and to his plants to make a careful study of particular plant requirements in this respect.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the DUKE OF MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Coeologyne.—*C. cristata* and its varieties have their flower spikes well advanced, and should be carefully watered, as an excess of moisture at the roots or overhead may cause them to turn black and decay. The rare *C. Mooreana* is a most lovely Orchid that produces its blooms at this season. It is easy to grow if treated much in the same manner as *C. cristata*, but prefers slightly more heat, hence the necessity for placing it at the warmest end of the intermediate house. This beautiful, if somewhat neglected, genus of plants must not be exposed to much sunlight at any season, as their rather thin leaves readily scorch, especially if the plants are at all dry. *C. elata* and *C. ochracea* are also pushing up their flower spikes, and require water whenever they become dry at the roots. Plants of *C. pandurata*, *C. Massangeana*, and other varieties of this rather large family that have not as yet commenced to grow must be kept on the dry side. There is a great diversity, both in style and season of growth of these plants, also in their treatment, some growing in cool and others under tropical conditions. Many require a long season of rest to induce them

back portions having no roots are best removed. The whole of these Brazilian *Miltonias* succeed in a shady part of the intermediate house, and delight in ample drainage with a small depth of compost made up of A1 fibre and *Sphagnum*-moss, cut up moderately fine and placed somewhat firmly around the rhizomes.

THE HARDY FRUIT GARDEN.

By H. MARKHAM, Gardener to the EARL OF STRAFFORD, Wrotham Park, Barnet.

Gooseberries.—The pruning and thinning of Gooseberry bushes should receive careful attention, especially where large fruits are desired. Overcrowding of the branches is one of the principal causes of failure, and should be prevented. When thinning the bushes, cut out some of the oldest branches and leave plenty of the younger wood, not forgetting that the Gooseberry crops all along the previous season's growth. Side shoots should be spurred back to two or three eyes, and the leaders and other parts required for filling up open spaces be left almost at their full length. As a guide to the pruner, the branches should be far enough apart to allow the hand to pass between them without coming into contact with the spines. Gooseberry bushes delight in plenty of air and light about their stems. Old, scraggy bushes are never profitable, the fruits being small and flavourless; they should be grubbed up. After pruning is completed, rake a little of the old soil from under the bushes, apply a good dusting of lime and soot, and top-dress with suitable soil and manure.

Young Gooseberry Bushes.—These are easily raised from cuttings, and a sufficient quantity should be rooted annually for either new plantations or filling up gaps as required. Firm, short-jointed shoots should be selected, those with little pith, from 15 to 18 inches long. Remove the eyes along the cutting, with the exception of five or six at the top, to form the head. Insert the cuttings firmly in the soil, 3 inches apart, in lines 12 inches apart, and see that they are kept free from weeds and firmly pressed back into the soil when loosened by frost.

Black Currants.—Keep the bushes well thinned, and encourage strong, young growth from the base, as it is from this young wood the fruits are produced. Feed the roots more or less according to the nature and condition of the soil. Very old trees, when cut almost down to the ground level, sometimes throw up strong, fruitful wood, and continue, with feeding, to produce good crops for several years.

PLANTS UNDER GLASS

By T. PATEMAN, Gardener to Sir C. NALL-CAIN, Bart The Node, Codicote, Welwyn, Hertfordshire.

Euphorbia (Poinsettia) pulcherrima.—After the inflorescences of these plants have been cut for decorating purposes, or as the plants pass out of flower, they should be cut back, leaving about 15 inches to 18 inches of stem. They should then be stood under the stage in a moderately warm house until they are required for starting into growth to produce cuttings for next season's stock. *Euphorbia jacquinaeflora* requires practically the same treatment as that advised for the *Poinsettia*.

Plant Cleaning.—During the present month special efforts should be made to sponge and clean such plants as *Codiaeums* (*Crotons*), *Cordylines*, *Dracaenas*, *Palms* and climbing plants in the houses. If the cleaning of such plants is completed this month it will relieve pressure of other work that comes with the lengthening days, and, moreover, the plants will be in a clean state for propagating next month.

Bouvardia.—Where *Bouvardias* are grown in quantity, and it is found necessary to increase the stock, old stock plants should be placed in a warm house after being cut back, to in-

to produce flowers; others produce flowers in the greatest profusion.

Miltonias of the Brazilian Section.—These should be examined to see if any of the plants are in need of more root room or new material. It is necessary, perhaps, to point out that a plant may want repotting without being in need of a larger receptacle. In some instances a plant will deteriorate from causes not always apparent, and it will then be advisable to place the plants in smaller receptacles so that they may become well rooted. Roots being the chief feeding medium of plants, and as no plant can survive long if root action is not thoroughly healthy, the necessity for paying close attention to the condition of the compost will be obvious. To the close observer plants will teach the cultivator their requirements. *Miltonias* of the Brazilian section, being dwarf growers, do best in shallow pans suspended from the roof. All old and useless pseudo-bulbs should be cut away and the growing parts made up afresh, giving each leading growth room to develop. Those portions which have few roots to hold them in position should be pegged down firmly to the compost. Should it be desirable to increase the stock, the back portions, if the eyes are good, may be placed in small receptacles, where many will make new growths and eventually new plants. Those

duce them to break into new growth. Given a moist atmosphere, young growths will soon be available for propagating purposes, and when they are about 3 inches in length they may be removed and inserted, several together, in small 60-sized pots, using a good, open compost, with a sprinkling of silver sand on the surface. When making a hole with a small dibber to receive the cutting, the sand will fall to the bottom for the cutting to rest upon and prevent it from rotting at the heel. *Bouvardias* may also be increased by means of root cuttings. These may be obtained by shaking out some of the old plants and cutting the strongest roots into pieces about 3 inches in length; dibble these into pans or boxes, in sandy soil, and place them in a warm propagating case, where they will soon commence to grow. To be successful with *Bouvardias*, frequent fumigating is necessary during their early period of growth.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

Pot Vines.—If the earliest vinery was closed in December the buds of the vines will now be swelling freely, and the temperature may be increased from 3° to 5° at night, and from 5° to 10° during the day, as forcing should be done as much as possible during the day for the next few weeks. Renovate the fermenting material if the pots are plunged in litter, as this softens the fire heat and helps to supply the necessary moisture with light syringings on bright days. Disbud the vines as soon as it can be seen which shoots show the best bunches, and discontinue the use of the syringe direct on the vines, supplying the necessary moisture by damping all bare spaces. Let the temperature at this stage range from 55° to 58°, according to the outside weather, or until the vines are approaching the flowering stage, when the night temperature may be increased to 65° with 10° higher by day. Water the roots only after a careful examination of the soil, and give sufficient tepid water to penetrate the whole ball of roots.

Early Permanent Vines.—In many cases these vines are the earliest from which ripe Grapes are expected to be cut in May or June, and the vinery should be closed early this month. Vines which have been forced annually will quickly respond to a temperature of 48° to 53°. Little or no ventilation is necessary for the first few weeks. Thoroughly soak the border with tepid water, giving sufficient to reach the drainage, and supply the necessary atmospheric moisture by syringing the vines and other available spaces on fine days. Later vineries should be kept as cool as possible for so long as the pipes are secure from frost.

THE KITCHEN GARDEN.

By JAMES E. HATHAWAY, Gardener to JOHN BRENNAND, Esq., Baldersby Park, Thirsk, Yorkshire.

French Beans.—Successional batches of French Beans should be sown at intervals of three weeks for the purpose of maintaining a regular supply. They should be sown in eight-inch pots, well drained and half filled with a compost of good loam and Mushroom-bed manure; place the seeds evenly, about six to eight in a pot, and stand the pots in a house with a temperature of 60° to 65°. As soon as the seedlings reach the top of the pot afford a top dressing, and place the pots near to the roof glass. French Beans are very susceptible to red spider, therefore the atmosphere of the house should be kept moist and the plants syringed at least twice a day in bright weather. Where heated pits are available French Beans may be sown in them, but the bed should be raised well up to the glass. Plants raised earlier will now require plenty of weak liquid manure.

Mushrooms.—Horse droppings should be collected, and the larger the quantity that can be got together at once the better; the droppings should be spread out in a shed as gathered, and when sufficient have been

collected they should be thrown into a heap about 2 ft. thick, and turned over about every second morning for ten days. Afterwards the manure will not need so much turning, and as soon as it is in a suitable condition and the heat begins to decline it should be made into beds, the size of which must depend on the amount of material at hand. It is better to make smaller beds than to wait till enough manure is gathered ready to make a large one. A Mushroom bed should be made as firm as possible by beating the manure with a wooden mallet. When the bed is made a thermometer should be placed in it to test the temperature. Do not spawn the bed until the temperature is at about 80°. An eighteen-inch depth of material will suffice, but the deeper it is the better as it will retain heat longer. Three or four days after spawning cover the bed with a two-inch layer of finely chopped loam which has been stacked for a season; make this firm with the back of a spade. Mushrooms resent an excess of fire heat; a temperature of 60° is ample, but the house should be kept well damped. I do not advise covering the bed with litter or hay, as this has a tendency to encourage wood lice.

The species is hardy in most parts of Great Britain, though I have always failed with it in my cold climate at Dawyck in Tweed dale. I have seen a fine plant at Castle Menzies in Perthshire, and I believe there is a good specimen at Fife. It bears fruit in this country; I have myself gathered good seed from Mr. Clinton Baker's tree at Bayfordbury in Hertfordshire. The fine specimen at Kew is well known. Elwes and Henry report a tree at Bassetwood, near Southampton, which was not less than fifty feet high, with a girth of 3 ft. 2 in. in 1903. *Arbutus Menziesii* bears transplanting badly, and therefore it ought to be grown in pots until it is put in its permanent quarters.

Nurserymen in this country do not seem to stock it, and yet there is not the least difficulty in getting seed from California. F. R. S. Balfour, Dawyck.

THE SEA BUCKTHORN.

THE beauty of *Hippophae rhamnoides* is so great when densely laden with berries that many people would plant it in their gardens if they were aware that male and female plants are necessary in order to get fruit; or if they could get plants



FIG. 20.—HUGE TRUNK OF AN *ARBUTUS MENZIESII* IN MARIN COUNTY, CALIFORNIA.

TREES AND SHRUBS.

THE MADRONA: *ARBUTUS MENZIESII* (PURSH).

It is curious that this finest evergreen tree of the Pacific Coast is still comparatively so rare in cultivation, though introduced by David Douglas in 1827. It is, of course, named after Archibald Menzies, who thirty years earlier than Douglas explored Puget Sound and the adjacent bays, inlets and islands when he accompanied Vancouver to the N.W. Pacific Coast in 1793.

I have seen a tree, when drawn up among tall Conifers, reach a height of about 100 feet in the forests of British Columbia, Washington and Oregon, but never there of any considerable girth. Its smooth stems of rich, reddish brown, and crown of shining foliage, are most conspicuous, and only rivalled in beauty by *Cornus Nuttallii* when in full flower—that finest and largest of Dogwoods. The two are often seen together in the more Northern range of the *Arbutus*. The latter extends south so far as the Santa Lucia Mountains, 100 miles south of San Francisco. In California I never saw it as a very tall tree; but in Marin County, immediately north of the bay of San Francisco, there are growing several specimens which reach the immense girth of over twenty feet.

I saw these trees about nineteen years ago in company with that excellent botanist, Mr. R. W. Menzies of San Francisco, who is seen beside the trunk in the photographs (Figs. 19 and 20) of them taken last September.

from the nurseries so labelled. The berries are variously described as orange-yellow, bright orange and yellow.

Loudon describes the Sea Buckthorn as growing wild from Kent to Yorkshire, on cliffs above sea-level, and as plentiful on the sandy flats between Yarmouth and Cromer. Philip Miller described the berries as yellow, and stated that he had seen the species growing naturally on the sea banks in Lincolnshire. He states he had seen a red-berried variety on the sea banks of Holland.

I have recently seen a broad belt of this shrub about three miles long, stretching from Skegness to Gibraltar Point, Lincolnshire, and have no doubt about its being a native there. The berries are orange-yellow, though a few bushes with yellow berries have been seen. All become yellow after a sharp frost. This seems to correct their acidity sufficiently for the birds to attack them. A frost occurred in November and the berries had mostly disappeared by the end of the year, the birds eating them being the missel-thrush and possibly the fieldfare, for both are very abundant there just now. The growing town of Skegness is actually encroaching upon the Buckthorn, and bushes of it can be seen between some of the houses. The sea is receding along this coast, and the first plant to take possession of a heap of sand is *Ammophila arenaria* (the Marram Grass). Then comes the Buckthorn. Lining the sand just above high-water mark. Ridge and valley succeed one another landward, the innermost series being used as extensive golf links. J. P.

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RHODODENDRONS.

MR. COWLEY'S interesting little letter on *Rhododendron Alice* (see p. 301, Vol. LXX) has made me wish that Mr.

Mangles was still among us; for though at this time of day pioneer work ought not to be necessary, there seem to be left a large number of people for whom the term *Rhododendron* means the section known as "hardy hybrids" and that alone.

Mr. Mangles took a broader view, and constantly reiterated his praises of the species and the direct hybrids therefrom; and no one who has grown these would willingly confine himself to the so-called hardy hybrids, which they so far surpass in beauty of flower and foliage, in the length of their season of flowering, and in their intrinsic interest.

Mr. Euan Cox not long ago wrote an article to *The Gardeners' Chronicle*, in which he lamented the deadly monotony of the hardy hybrids at the Chelsea Show; and he might have added that their period of bloom was confined to the six hottest weeks of the year, when the sun may do as much damage to the flowers as the frost sometimes does to those which are produced earlier.

I am completely in accord with Mr. Cowley in his remarks on the use of peat. Not only is it unnecessary, but in heavy soil, and if the right sort is not obtained, it may be absolutely deadly. In my early gardening days I used to send a wagon to the moors and bring in peat quite oblivious of the lesson before my eyes provided by the presence in this garden of bushes of that fine old plant known as Smith's Scarlet, in perfect health and over 20 feet high, which must long ago have outgrown any peat which may have been supplied to them when they were planted—and many a *Rhododendron* I lost thereby. Also, I find that, when a nurseryman sends me a plant which has been grown in peat, it is as likely as not to die in this heavy soil, accompanied as it is by a wet climate. But should an untoward fate confine me to but six varieties, they would not be hardy hybrids—not even the handsome *Alice*, nor our opulent friend *Pink Pearl*.

Leaving out the tender species and hybrids, and choosing only those of medium size, I think they would be the pale yellow *R. campylocarpum*, the best lavender blue form of *R. Augustinii*, the brilliant scarlet *R. neriiflorum*, *R. Roylei* or *R. cinnabarinum*, the lovely pink seven-lobed *R. Fargesii* (Fig. 21), and *R. Thomsonii* with its waxy, crimson bells. Yet the last

is unwillingly substituted for the blood-red *R. arboreum*, excluded only because it is not absolutely hardy. But among so large a number of glorious species and their hybrids it is almost impossible to make so limited a choice.

Rhododendron Mrs. Kingsmill, which is derived from *R. campylocarpum* × *R. Aucklandii*, and was originally raised by Mr. Mangles, is perhaps the first of all in my estimation, for it has eight or nine large and delicate flowers of the palest possible shade of cream, and appeals to some of us even more than most of its more showy compeers; but since it is a first cross from *R. Aucklandii*, it would not be hardy everywhere. Hardiness is, of course, the crux, though a lot may be done by putting the plants in a place absolutely protected from the morning sun. Still, this puts out of court *R. Nuttallii*, the largest of all in flower; the incomparable *R. Lindleyi*, with its ally *R. Dalhousiae*; *R. Scottianum*, *R.*

After these come *Glory of Leonardslee*, *Gill's Triumph*, *Glory of Penjerriek*, and the others of the same cross, i.e., blood-red *R. arboreum* × *R. Aucklandii*, raised by Sir Edmund Loder and others. *R. Loderi* and *R. Cornubia* in its best varieties can hardly be omitted, and they may be a shade harder than those just enumerated.

So much for the hybrid; and, so far as my small experience goes, I am inclined to agree with Siedel's dictum that to make a good hybrid one at least of the parents should be a pure species, rather than that both should be unmitigated mongrels.

What a wonderful variety there is, too, among the species! They range from trees 80 feet high, such as *R. giganteum*, recently discovered by Forrest in China, and its near ally *R. protistum*, down to absolute carpet plants like *R. prostratum*, found from 16,000 feet altitude upwards; whilst *R. Forrestii* and

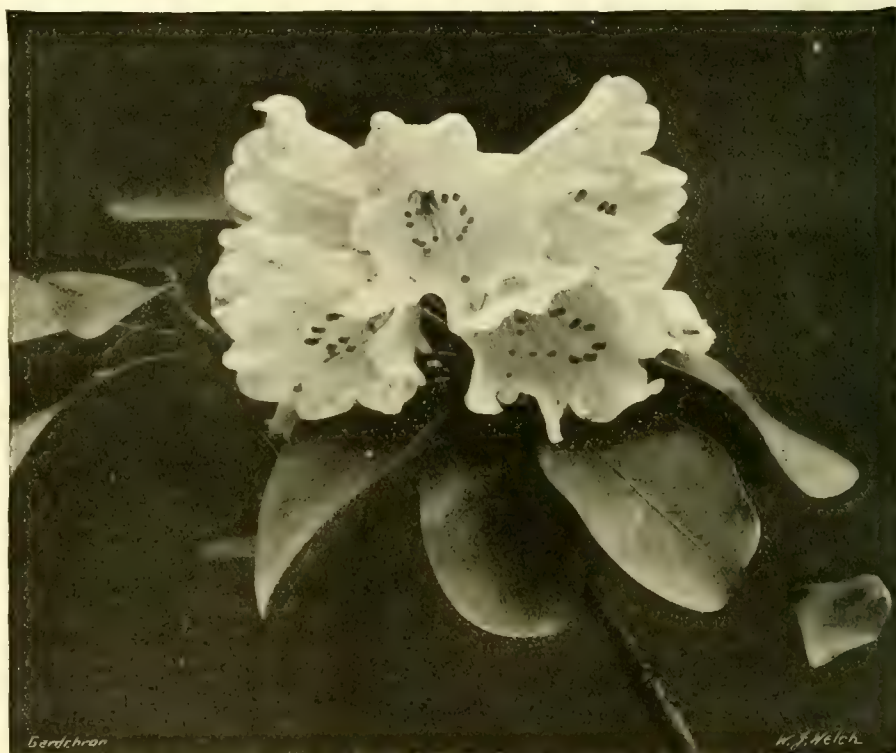


FIG. 21.—RHODODENDRON FARGESII: FLOWERS ROSY-LILAC WITH RED SPOTS.

Maddenii and *R. crassum*; the deliciously sweet-scented *R. Edgeworthii* and *R. bullatum*; the beautiful, frilled *R. Veitchii*, and some few others.

Whilst I am on the subject of the hybrids of the doubtfully hardy sorts, one or two more of the best may be mentioned. The finest scarlet I have ever seen is blood-red *R. arboreum* × *R. Thomsonii*, raised by a friend, and, I believe, still unnamed; and hailing from the same place is the finest white, *R. arboreum album* × *R. Aucklandii*. Almost on a par with these is an exceedingly beautiful hybrid, *R. campylocarpum* × *R. Aucklandii*, raised here, of a wonderful shade of yellowish pink, on which, unfortunately, a tree of *Pinus insignis*, 8 feet in diameter, fell and almost destroyed after its first flowering; also, a plant of doubtful parentage, which I have named *R. Gilian*, again raised here, with fine foliage and flowers, the shape and colour of those of *R. Thomsonii*, but twice the size.

its allies climb like Ivy, rooting along the stem as they grow. And the foliage varies immensely, from the enormous leaves of *R. sinogrande*—I have just been out and measured one 1 foot 9 inches by 10 inches—to the minute ones of *R. serpyllifolium*; some are dark green and bullate above, others smooth and pale or glaucous, and beneath there is every kind of tomentum, from bright red brown to grey, and in some cases a white waxy covering.

The inflorescence is of many shapes, colours, and sizes, *R. Nuttallii* being some 7 inches across, and *R. Tschonoskii* so small that it is apt to escape detection altogether. Sometimes the flowers are flat and salver-shaped, and from this range through every variation to the cylindrical tubes of *R. spinuliferum* and *R. Keysii*, which scarcely open at the mouth.

The colours found in the flowers are of almost every shade, except blue, and even this is approached in the lavender tints of 4238

Wilson Augustinii forma, in *R. fastigiatum*, *R. intricatum*, *R. hippophaeoides*, *R. scintillans*, etc.

Among the most remarkable are the black-crimson of *R. haemaleum*, the orange of *R. dichroanthum* and *R. apodectum*, and the yellows of *R. campylocarpum*, *R. Wardii*, *R. Boothii*, *R. aureum*, *R. sulfureum*, and others.

The habit of growth is also very diverse, in some cases tree-like, with lofty trunks, bare of branches in their maturity, in others in the form of large bushes, or in that of tall, slender shrubs with fine, attenuated branches, or, again, dwarf, spreading, sturdy little plants, as exemplified in the *R. haematodes* and *R. dichroanthum* series, and so down to the minute alpine carpet plants.

In the Azaleoid section there is much charm also, and what a pity it is that one so seldom sees the Apple-blossom flowers of *R. Vaseyi* or those of the peerless *R. Schlippenbachii*, broad in the limb, pale clear pink, and delicately spotted with green. Whilst for the gardens of the curious there are *R. Przewalskii*, *R. chrysanthum*, and *R. Championae*, which may be said never, or hardly ever, to flower at all!

Whence it may be gathered that there are *Rhododendrons* to suit every garden, from the largest park to the tiniest rock-work; and a representative collection can produce a flower or two out-of-doors all through the year, except during severe frost.

What more lovely sight can be imagined than a big bush of the blood-red *R. barbatum* in full flower in January or February? True, it is sometimes spoilt by frost, but when once the wind veers to the west or south more flowers come out to replace those which have been destroyed. Much the same may be said of *R. Nobleanum*, but that begins to bloom earlier, sometimes in September, and goes on at intervals throughout the winter. Why is it, I wonder, that its white variety is so seldom seen? It is at least as beautiful as the type, but seems rare, and the plant here, a gift from Sir Isaac Bayley-Balfour, is one of my greatest treasures.

Many species are, as regards their flowers, only known to us so far from dried specimens and the collectors' descriptions, but yearly more are declaring themselves for the first time; especially is there a wonderful promise for next spring, and among others I hear that 6778 Forrest, the true lacteam of Franchet, with canary-yellow sweet-scented flowers, has buds in one garden.

One word as to the pestilent practice of grafting. It is to be feared that it is always with us, but seed, cuttings, and layers are the most satisfactory methods of propagation from the point of view of the planter, and many of us would welcome a nurseryman who would raise them in these ways; nor would we grudge paying more for plants on their own roots than for those now sent out, often troubled as they are with suckers, and frequently grafted on unsuitable stocks.

Finally, let those in search of beauty, who are anxious to improve their minds and their gardens, make an effort to attend the *Rhododendron* show, which, I hear, is to be held under the auspices of the R.H.S. on April 25, and I think they will come away with their eyes opened to the possibilities of this genus, albeit cut flowers not be expected to compare with those on the plant *in situ*.

With the view of disarming criticism, I may say that many, very many of the species and their hybrids I have omitted to mention, and possibly the initiated will find their favourites or their most-prized hybrids—if they are raisers of such things—left out. But I must plead ignorance in some cases and lack of space in others, and will end by expressing the hope that this somewhat discursive letter may be the means of introducing new plants to some few, or, better still, encouraging them to try seed-raising and hybridisation for themselves. *E. J. P. Major, Lamellen, St. Tudy, Cornwall.*

THE GRAPE ROOM AT TEWIN WATER.

As so many gardeners are interested in maintaining a supply of Grapes over as long a season as possible, no doubt many of your readers will be interested in the method which obtains at Twin Water. I had the pleasure of designing

washed, and the ceiling is lined with stained match-boarding. In front there is a two-inch air cavity, and in the roof there are six hit-and-miss ventilators equally and triangularly placed in the outer and centre walls at the ground level, and there are somewhat similar ventilators at the roof. By this means a continuous current of air passes round the two rows

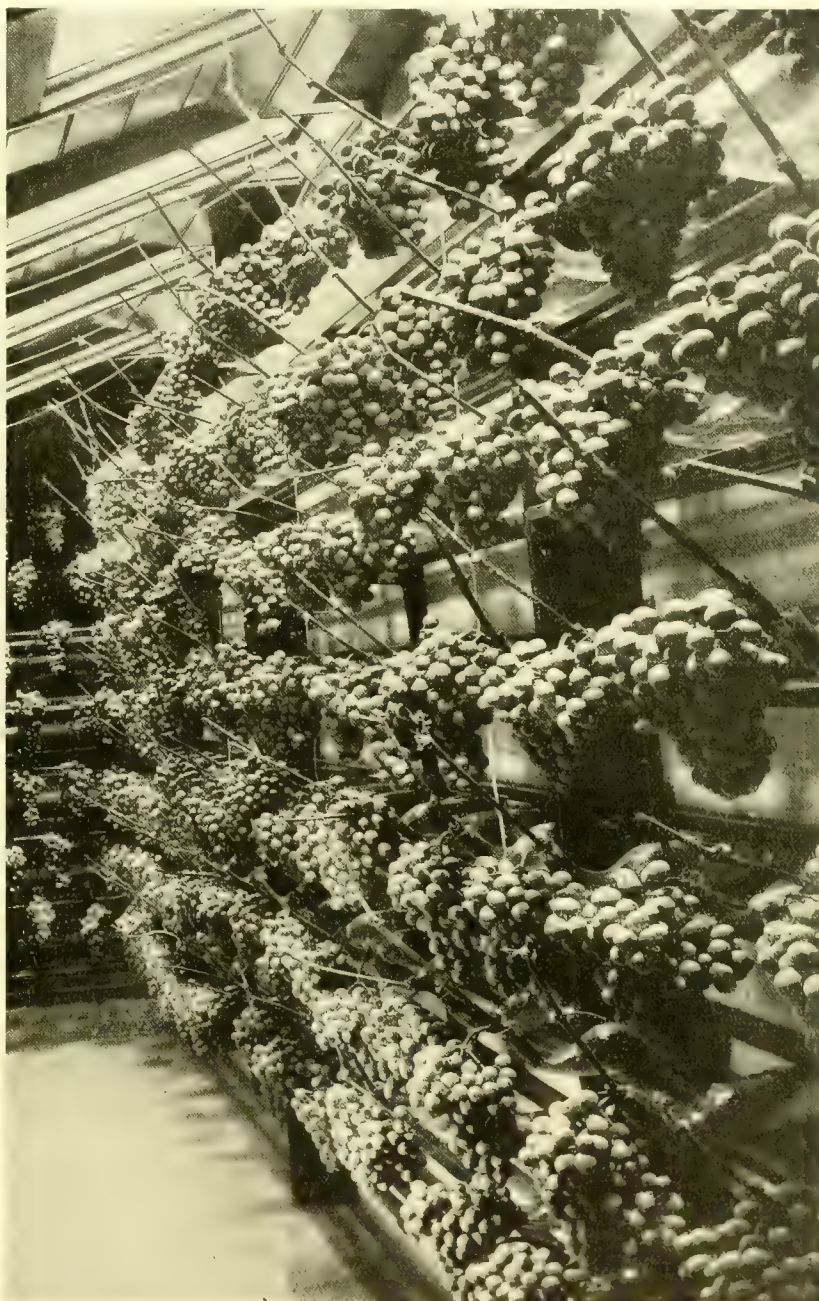


FIG. 22. THE GRAPE ROOM AT TEWIN WATER, WELWYN.

the Grape room illustrated in Fig. 22, which is a lean-to brick structure with slated roof. It is built on a northern aspect, is 21 feet long and 5 feet 4 inches wide. The height to the ceiling in front is 7 feet 5 inches, and the back wall is 9 feet high to the ceiling. There are five sky-lights in the roof and two windows in front, which provide sufficient light for all the necessary work that has to be done in the Grape room, but the lights and windows are easily closed by means of sliding shutters. The floor is of solid concrete with a smoothly finished surface. All the walls are plastered and cement

of inch and a quarter hot water pipes and then out through the three gauze wire ventilators into the roof's highest point. The stained lattice shelves are designed to hold the Copped Hall Bottles, and are fixtures on the back wall and gable end, but removable in the front, where they can be arranged right and left as required. The equableness of the temperature is splendidly maintained, and there is no difficulty in keeping Grapes in splendid condition until the end of April. The capacity of the Grape room is 300 bunches. *H. Lloyd, The Gardens, Twin Water, Welwyn, Herts.*

THE DISCOVERY OF SOME OF JACQUES LE MOYNE'S BOTANICAL DRAWINGS.

A DISCOVERY of considerable interest to the student of botanical illustration has come to light in connection with an album of drawings in the Victoria and Albert Museum, South Kensington. This album had been exhibited as a specimen of early bookbinding, but the drawings it contained were brought to the notice of Mr. R. T. Gunther, M.A., F.L.S., the librarian of Magdalen College, Oxford, who very kindly directed my attention to them. Both the album, of small folio size, and the paper it contains belong to the sixteenth century; and the very beautiful water-colour drawings, fifty-nine in number, are without doubt the work of a French artist, Jacques (or Jacques) Le Moyne, dit de Morgues (or de Morogues), who accompanied one of the French expeditions to America as an artist, and who settled in London after his return, dying in 1588.

In 1586 Le Moyne published in London a quaint little book of woodcuts of animals, birds, and plants, entitled *La Clef des Champs*, which is now exceedingly scarce. I am convinced that some of the woodcuts of plants in this book were made from these drawings of Le Moyne which have now come to light, but only a careful comparison would determine how many. That such a set of plant drawings by Le Moyne existed has been pointed out by Prof. Hutton in his *Craftsman's Plant-Book*.

These water-colour drawings are highly finished and show great artistic skill. Some are ornamented with very life-like drawings of butterflies and insects. The colouring is strikingly fresh, and looks almost too fresh for the date at which they were executed, which must have been prior to 1586. Their fine preservation is no doubt partly due to their having been kept in book form and in a fine binding. Seventeen of the drawings have names added by the artist, in Latin or French, and the first drawing has what looks like a signature of the artist—*Demorogues*. It is this name, considered in connection with the date of the binding and paper, and also from the fact that some at least of the originals of the *La Clef des Champs* woodcuts are amongst the drawings, that convinces me that this very beautiful and probably unique set of sixteenth-century plant drawings is the work of Le Moyne.

The plants depicted include many which were commonly found in the gardens of the period. The Daffodil, Violet, Snowdrop, Lily of the Valley, Roses, Stocks, the Daisy, Carnations, Marigolds, Lavender, Poppies, both wild and cultivated, and a fine Iris are among the garden flowers depicted. The fruits include the Pear, Apple, Pomegranate, Lemon, Grapes, Walnut, Cherries, Medlar, Fig and Damson. Other plants are the Artichoke, Millet, the Cucumber, etc.

The exquisite colouring and finish of these drawings is most remarkable. The woodcuts of *La Clef des Champs* did but scant justice to the fine drawings of Le Moyne, but his worth as a plant artist is now substantiated. These drawings of his show a keen love and perception of the delicate beauties of plants, and were undoubtedly painted direct from nature. They bear out his own words in the preface to his book, where, in speaking of the purpose of his drawings, he says they "*pourront servir à ceux qui aiment à dévoter d'apprendre choses bonnes et honnestes*."

These drawings have been removed from the album in which they have remained so long, and are to be placed in the Prints and Drawings Department at the Victoria and Albert Museum. It is hoped that the authorities will see their way to allow these unique specimens to be exhibited for a time in the galleries at the Victoria and Albert Museum, South Kensington. *N. Savage.*

MESEMBRYANTHEMUM AND SOME NEW GENERA SEPARATED FROM IT.

(Continued from page 22.)

LITHOPS, N. E. BROWN.

VERY dwarf succulent plants, in nature growing buried in the ground with their tops scarcely, or not at all, rising above the level of the surface, consisting of a single growth or of two to many growths in a clump. Each growth a more or less obconic or rarely compressed-cylindric body with a transverse fissure across the top dividing it into two short lobes, flat or convex on the top when adult, but in a juvenile state with only a central orifice at the top, as in the genus *Conophytum*. Flower solitary, from the centre of the fissure. Calyx exserted from or partly included in the fissure, more or less compressed, without a tube above the ovary, 4-7 (usually 5-6) lobed. Corolla without a tube; petals numerous, widely spreading. Stamens numerous, collected into an erect column. Style short, sometimes almost absent; stigmas 4-7, filiform.

The above generic name which I give to the plants I now separate from *Mesembryanthemum* is formed from the Greek words *lithos*, a stone, and *ops*, the face, on account of their resemblance in colour and appearance to the stones and pebbles they grow among. The remarkable resemblance of these plants to pebbles is well demonstrated by an account given by Dr. R. Marloth in the *Transactions of the South African Philosophical Society*, Vol. 15, p. 100, in an interesting description of the manner in which plants imitate the ground and stones they grow among. Dr. Marloth states that Mr. Hammond Hook (? W. Hammond Tooke), "During a stay in the Karroo had often used a certain footpath which passed for some distance over bare ground merely covered with pebbles. One day, however, he saw some of these pebbles bearing bright yellow flowers, one on the top of each stonelet. The number of these flowering pebbles increased every day until there were hundreds of them on the otherwise bare veld. It was *Mesembryanthemum truncatellum*, Haw., which occurred rather plentifully in this locality." The resemblance to pebbles must be very great for anyone to frequently walk over the ground on which they grow without discovering that they were not stones until flowers appeared. But Dr. Marloth is quite wrong in his identification of the plant, which I have no doubt whatever is a species of *Lithops* unknown to me at present. For *M. truncatellum* grows in tufts, does not resemble pebbles, but is glaucous-green and dotted, and has light straw-yellow flowers that only open in the evening. I have given an account of the resemblance of these plants to stones on p. 250 of Volume LXX., and have also there stated and explained that they all belong to the small group known as "windowed plants." The window, however, is sometimes quite obscured by coloured pigment, which acts as a screen to soften the light, yet does not prevent it from penetrating into the interior of the plant and reaching the chlorophyll layer (see Fig. 112, p. 251, Vol. LXX.).

When these plants are very young and have only a central orifice, there is nothing in their external appearance to distinguish any of them from the genus *Conophytum*; compare, for example, Fig. 84, R, with 84, O, on p. 207, and with Fig. 97 on p. 223, Vol. LXX. But when the adult condition with a fissure all across the top is assumed, or the plant flowers, the distinction between the two genera is very obvious. While, in any of its stages, if a longitudinal section through a plant is made, the peculiar disposition of the chlorophyll layer, as shown in Fig. 112, p. 251, Vol. LXX., will at once serve to distinguish this genus from *Conophytum*, in which the chlorophyll layer covers the whole surface.

Although in nature these plants grow buried in the soil with the top level with or just rising above the surface, they often refuse to grow in that way in this country. For if planted with their tops just above or level with the soil, I have found that the first new growth that is made in most cases rises far above the

ground level, doubtless due to the absence of such intense light as they get in their own country. On the contrary, I have one plant of *L. Lesliei* that I planted over two years ago, with its top level with the earth in the pot, that has in no way changed or made any attempt to develop a new growth since it was planted, but has remained plump and healthy all that time, and has not flowered. But planting them level with the earth in this country is to risk their loss by rot, as I have found from experiment, for it is very difficult to know when the moisture in the soil is greater than the plant will endure at any particular season. For, as I have previously stated, the watering of these plants is an art requiring special knowledge. If insufficiently watered at the proper season they do not flower, and if overwatered they rot. The thermometer and dryness of the atmosphere should also be consulted as guides to the amount of water that should be given and how often it should be applied; for a tablespoonful may be enough for three weeks in June or December, yet not more than enough for two or three days in August. I have found *L. fulviceps* and *L. optica* to be especially sensitive to a little too much water at the wrong season.

The plant I described in the *Journal of the Linnean Society*, Vol. 45, p. 68, as *Mesembryanthemum locale*, and associated with species of this genus, may belong here, but it is only known from an imperfect, dried specimen, and cannot be properly placed until the living plant from near the Gamka River is obtained, for after re-examining the specimen I am now inclined to think that what I supposed to be a transverse fissure may be only a furrow due to shrivelling. *N. E. Brown.*

(To be continued.)

THE GREAT DROUGHT OF 1921 AND ITS EFFECT ON GARDEN PLANTS.

(Continued from page 32.)

CUMBERLAND.

THE summer of 1921 was remarkable in north-west England for its abundant sunshine, and also for the drought in the early summer months, which was not so prolonged here as in the south. August provided many refreshing showers, and we enjoyed an exceedingly fine autumn. This combination had a very marked effect on vegetation, many plants flowering a second time. The common Holly was in some instances literally covered with its flowers, and wild Roses were abundant late in the season.

During the middle of October the writer gathered 125 sorts of wild flowers and 21 grasses. When walking through Holker Hall Gardens, the home of many interesting plants, I found some plants anticipating early spring, such as the lovely Chilean *Crinodendron Hookeri*, with its dark green, glistening, linear leaves and loveliest crimson, campanulate flowers. Another Chilean plant, *Berberidopsis corallina* did well, and *Osmanthus myrtilifolius* produced its small white flowers. *Spiraea confusa* had even finer flowers than in May. A noble plant of *Yucca rostrata* bore its pyramidal spikes of creamy white flowers, and near by a small reservoir a fine group of *Phormium tenax* bore spikes carrying black seeds. *Laurus nobilis*, with a perfume not unlike that of Lemons, carried plenty of its oval, yellow or green seed-pods. *T. R. Cuckney, Arnscliffe, Carnforth.*

HADDINGTONSHIRE.

The year 1921 was remarkable for its weather and for the manner in which vegetation adapted itself to the changes, good and bad. The autumn was glorious, and there was no winter—if the occurrence of frost and snow make winter. Bitter weather in late spring was followed by lengthened summer's drought and a high temperature; in August there was abundance of rain, which, unhappily, left some localities unrefreshed. The effects and results of the drought have demonstrated once more how little we know of Nature's ways, and how what were deemed unshakable facts were mere opinions. How is one to account for the non-flowering of a num-

ber of large specimens of *Agapanthus*, white as well as blue, in tubs and planted out, while small plants of both have flowered? My own opinion is that the former had received no check to growth owing to the previous abnormal autumn and winter.

Serious inflictions of insect pests were not unexpected, yet vegetation was singularly free from them. Violets were seriously weakened by red spider in 1920, but in 1921 there was no difficulty in controlling that pest. So with Grape vines; not a leaf was attacked by any insect during the whole period of intense heat and excessive drought, while sometimes in seasons of alternate dryness and wet red spider has appeared. The reason would seem to be that a period of dull and wet weather predisposes the foliage to attack, when a spell of hot sunshine follows—a condition that had softened the leaves. Another point regarding Grapes is that White Muscats here had reached the flowering stage when fuel ran out, and knowing from experience that Muscats set more perfectly in a high temperature than a low one, a deficient set and clusters of diminished proportions were anticipated. Nevertheless, I do not remember a better

quite so fine. More fruit dropped during August, however, than usually is the case. The promise for another year, if clean and perfect foliage may be taken as an indication, is good indeed. Up to the beginning of August the expectation of securing Strawberry runners was low, yet new plantings were made as usual of healthy, nicely rooted plants.

The transformation in vegetables was equally remarkable. Cauliflowers were expected to button, and lo! fine heads were abundant for weeks. But the excitement was not beneficial in every instance. Seedling Cabbages grew so fast they had to be planted a fortnight earlier than usual, which necessitated a later planting to make sure of a crop.

A disturbing element of the great heat was the early maturing of crops. Plums were from three to five weeks earlier than usual, and so with Figs, while Apples matured and were gathered two to three weeks before the normal time.

A curious circumstance in relation to Potatoes was brought to my notice. On lifting there was nothing but mops of fibrous roots and tiny tubers, the size of Peas, just commencing to grow. This was doubtless due to very imperfect

piece of Fig or a Grape impaled on a "Nipper" trap proved a certain bait. It is probable the open winter of 1920-21 was responsible for such a plague as these proved. It is fortunate they eat only a few select things, otherwise nothing would escape their voracity. *R. P. Brotherston, Tynningham Gardens, Prestonkirk.*

(To be continued.)

NURSERY NOTES.

A KENTISH FRUIT NURSERY.

No Kentish Man or Man of Kent entertains the slightest doubt that his county is the premier fruit district of Great Britain, a corner of England so specially favoured by nature in climate, soil and situation as to be called "The Garden of England." With rich scenery goes a fertile soil, so that rural industries flourish, and, in the higher branches, such as market-gardening, flower-gardening and fruit-growing, Kent growers—who are luckily favoured with a near market in the metropolis with its teeming population—are pre-eminent.

Some of the finest fruit-growing land is met



FIG. 23.—GOLD MEDAL COLLECTION OF HARDY FRUITS EXHIBITED BY MESSRS. G. BUNYARD AND CO. AT THE ROYAL HORTICULTURAL SOCIETY'S FRUIT SHOW OF 1921. (See page 46.)

set, due no doubt to the heated external atmosphere at the time of flowering. It was only at the end of the coal strike when rain came and the berries began to crack that heating had to be resorted to in order to stop cracking. One hears of splendid Grapes produced without applied heat, and even the presumption that every particle of sun heat needs to be conserved in order to meet the requirements of the vines has been proved to be erroneous. One, indeed, hears of failures, due probably to a system of over damping and under ventilating.

Plum trees on walls facing west cropped very lightly, or not at all, but on an east aspect, where as a rule the trees are less fruitful, seven out of nine carried much larger crops than usual. This was very marked in the case of a Greengage, a Washington, and a White Magnum Bonum.

The rain caused an extraordinary transformation in the appearance of Apples. From undersized fruit for the time of year, Apples, in the course of a few weeks, attained proportions rarely seen. Cox's Orange Pippin, Ribston Pippin and James Grieve were, perhaps, never

cultivation. It is impossible to make people with small gardens comprehend the importance of deep cultivation. Year after year the Potatoes are planted in the same ground, a few inches of the surface soil alone being turned over, with results always poor, and, in the present instance, yielding nothing. The crop here turned out well. Many Potatoes were as large as those of 1920, when it was thought the season was responsible for overgrown tubers. Some growers lifted up to 14 tons to the acre. Such results I am certain are due to deep cultivation, deep planting and getting the crop planted in February, so that the drought had only a slightly deterrent effect on growth. In half a ton lifted here there was only half a cwt. of small size.

An unusual amount of damage was done by voles assisted by two species of mice. The former commenced early in 1921 by eating through the stems of young Brussels Sprouts, and by an attack on young Perpetual-flowering Carnations. They destroyed also whole beds of Picotees. No bait either in trap or as poison tempted them, and it was not until fruit began to ripen that they were reduced in numbers. A

with in the valley of the Medway, and the centre of the fruit-growing industry may be regarded as Maidstone, with Sittingbourne for Cherries.

Maidstone is at once associated in the gardener's mind with one of the most famous fruit nurseries in the kingdom, for various circumstances have contributed to make the name of Bunyard, of Maidstone, a household word in horticultural circles. Bunyard's nursery has been known to successive generations of gardeners, for it was in the closing years of the eighteenth century that it was established by Mr. James Bunyard, who, like many other successful pioneers in the nursery business, was a private gardener. James Bunyard was succeeded in the business by his son Thomas, but it was the latter's youngest son George—one of the greatest of English pomologists, and the author of valuable works on fruit growing—who raised this famous fruit growing establishment to the very forefront of its prosperity.

It was during Mr. George Bunyard's proprietorship that the first three acres of land were acquired at Allington, a village just outside the

town of Maidstone, and these three acres formed the nucleus of the celebrated Allington nursery, which has since been enlarged to 165 acres. The two sons of Mr. George Bunyard—Mr. E. A. Bunyard and Mr. G. Norman Bunyard—worthily carry on the traditions of the firm, and in September last we accepted an invitation from them to visit the Allington nursery. Although still a young man, Mr. E. A. Bunyard has a wide reputation as a pomologist, and he has placed fruit growers under a debt by publishing at considerable expense, out of his own pocket, *The Journal of Pomology*, a monthly periodical dealing with their special interests, besides giving them the useful *Handbook of Fruits*, which is as reliable as Hogg's *Fruit Manual*. Mr. Norman Bunyard is as interested in plants and flowers as his brother is in fruit, and under his special care this branch of the business has become second only in importance to that of tree growing.

The first thought that arises in the mind of the visitor to a fruit nursery of this extent is the vast number of young fruit trees that must be planted annually in gardens of this county, for quarter after quarter is filled with young Apple, Pear, Plum, Cherry, Peach, Nectarine, Apricot, and other kinds of fruit trees, in all styles of training, and how well the soil suits them is evidenced by their splendid condition. In one part are seen four or five acres of standard Pears, in another equally large areas planted with bush Apples, in another, flat-trained Peaches and Nectarines, and so on. Thirty-thousand standard trees in one batch of such popular Apples as Lane's Prince Albert, Bramley's Seedling, Newton Wonder, and Allington Pippin, show the extent to which fruit trees are propagated at Allington. In addition there are large stocks of Gooseberries, Currants, Raspberries, Loganberries, Almonds, Walnuts, Medlars, Mulberries, hardy Grapes, and other kinds, together with everything else such a nursery is called upon to supply.

The older Apple trees in fruit were the feature of the place at the time of our visit, for the Apple crop in every part of Kent during the past season was the greatest within living memory, and Allington had its full share. The most remarkable trees were large, bush-trained specimens, that were almost replicas of those in the upper orchard at Wisley. This is certainly a profitable method of training the Apple, and may be likened to a series of cordons radiating from a main stem, for the side shoots are pruned closely to obtain spur growths the whole length of the branches. Trees of this type were to be seen at the Noddy, Welwyn, where Mr. Pateman had to use props to support the weight of fruit, and this notwithstanding the crop had been thinned drastically.

A few remarks on certain varieties of Apples that specially appealed to us may be of interest to readers. Royal Jubilee, a comparatively modern variety, is a most reliable cropper, whilst the large, conical, golden fruits are of beautiful appearance and splendid for cooking. The tree has a characteristic flat-headed habit of growth, the shoots forming a drooping canopy supported by the stem. It is amongst the latest of Apples to flower, from which fact it frequently escapes injury by frost. Hector McDonald, one of the numerous Apples raised by the late Mr. Chas. Rose, is of the Lane's Prince Albert type. The trees were bearing a profusion of exceedingly handsome fruits. Sanspareil is useful for either culinary or dessert purposes, and keeps until April without shrivelling. The yellow fruits with red stripes are very pleasing in appearance. James Grieve is a good September dessert Apple with a Cox's Orange Pippin flavour; it is a reliable bearer and last season cropped profusely. Transparent de Croncels is a French Apple of merit, not much grown in this country, but the tree is said to be of great hardiness. The fruits are quite distinct, the colour being almost white with a little dark flushing in places.

Cutler Grieve is a handsome Apple of the Worcester Pearmain type, but keeps much later. It is a vigorous grower and fertile, indeed it has all the necessary qualities looked for in a dessert Apple except rich flavour;

still, it is juicy and very sweet, and is worth growing for market.

By their splendid exhibits of hardy fruits displayed at the principal London and provincial shows (see Fig. 23), the Maidstone firm has done much to encourage fruit growing and to provide the public with opportunities for comparing varieties of Apples and Pears, as well as of ascertaining the correct names of the varieties.

In addition, it should be remembered that Messrs. G. Bunyard and Co. have introduced several fine new fruits, as recorded in our pages at various times. Besides fruit trees, large areas are devoted to Roses, flowering trees and shrubs and herbaceous and alpine plants, so that most subjects required in a garden can be supplied from stock in this extensive and finely kept nursery.

RUSSET APPLES.

In dealing with Russet Apples (Vol. LXX., p. 337), *Pomona* has omitted to include one of the choicest and finest of the type in his list of varieties. The variety in question is St. Edmund's Pippin. I do not know why it is called a Pippin, for it is actually a russet in character. It received a First-Class Certificate from the Royal Horticultural Society in 1875, and it is really worthy of that high award. For some reason it has never made much headway in popularity, and it appears to be unknown to the average writer when recommending a list of high-grade Apples to prospective planters.

This general lack of appreciation is certainly not founded upon lack of quality nor yet upon any difficulty in the way of fertility, for it is a good grower and an almost certain annual cropper.

I have to thank Mr. Charles E. Pearson, of Lowdham, for my introduction to this fine Apple. I was on the hunt for varieties of really outstanding merit in regard to quality when Mr. Pearson kindly sent me a couple of trees of St. Edmund's Pippin, with the remark that the variety would certainly have to be included in a half-dozen of the best flavoured Apples in cultivation. I entirely agree with Mr. Pearson, and I go a great deal further in my own appreciation of this variety. I have a fairly large collection of Apples, over a hundred varieties in all, and I put St. Edmund's at the top of the list for quality. It is in season in October and November. I cannot understand why this Apple is not more popular.

There is another Apple of a decided russet type, and which is very finely flavoured. It is Reinette de Canada. It is in season from November to March, and a reliable cropper. It like St. Edmund's Pippin, is a favourite where it is known.

These two varieties, with the addition of Gravenstein and Roundway Magnum Bonum, are the finest flavoured Apples in my collection. All four are superior to Cox's Orange Pippin in my experience. It may be heresy to write thus of what is regarded as the finest British Apple, but the point is this: Have Apple growers in general tested any of the four sorts which I have named as fully as they have done Cox's Orange Pippin? The latter is so often written about as the finest Apple in cultivation that I am afraid prospective growers accept it on that valuation only. It is, of course, a remarkably fine variety, but I prefer my St. Edmund's Pippin and my Roundway Magnum Bonum season after season. It is not a question of soil, for I do not confine my criticism to the locally grown Cox's Orange Pippins. I have sampled fruits from several English counties.

Tastes differ, undoubtedly, but I find that several worshippers at the shrine of Cox's Orange Pippin have become converts to St. Edmund's, whilst several doughty champions of Cox's Orange Pippin whom I have met—and who call it the finest British Apple—had never heard of St. Edmund's Pippin! *George M. Taylor, Edinburgh.*

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Doubling in Stocks. Mr. G. R. Sargeant states (p. 10) that he is a young student of Mendel, and as such he ventures to express the opinion that the Lothian methods of saving Stock seeds in order to produce a maximum number of seedlings possessed of double flowers are a perpetuation of the abnormal. My reply is simply this. The Lothian methods are founded upon years of practical experience and give, undoubtedly, the best results. If Miss Saunders, or any other scientist, can demonstrate a method which will give equal results in regard to a high percentage of doubles in the seedlings, without the ageing of the mother plants, then Mr. Sargeant may condemn the Lothian methods and deservedly so. The doubling of the Stock has always been a puzzle to the Mendelian student. I have a great admiration for the research work already done by Miss Saunders, but I believe she has a long way to go before she finally puts the fact of doubling upon a valid basis. The fact of single Stocks producing double-flowered seedlings from the first saving of seed is nothing new. Miss Saunders gets an average of about 56 per cent. Horticultural literature of three quarters of a century ago shows that growers got seed from one-year-old plants that produced practically cent. per cent. doubles, and the question of the perpetuation of the strain became an acute difficulty. But what was the type of those old Stocks? They were not, and could not possibly have been, East Lothians—the robust and hardiest of the race. Mr. William Guthbertson, Chairman of the Wisley Garden Development Committee, has interested himself in this matter, and at his request I have sent seeds of what I regard as the true form of the East Lothian Stock to Wisley for trial and experiment. I am not aware that there is any mystery in any statement I have made in my contributions to the debate on this subject, but if Mr. Sargeant is under that impression and will inform me upon what point he has any difficulty, I shall do my best to enlighten him. *George M. Taylor, Edinburgh.*

What is Fragrance?—Not many botanists go into details concerning the scents of the plants they describe; but, when they do, they are sometimes at great variance with the modern idea of fragrance, especially the older botanists. In the case of the Mints, Sole nearly always gives his idea of their particular odour. Concerning his *Mentha villosa*, he says, the whole plant has a disagreeable goatish, minty smell; and of *M. v. secunda*, that it smells much like Spearmint. Both these are forms of *M. sylvestris*, concerning which Babington says, scent sweet. Sole's *M. sylvestris* is really *M. rotundifolia*, and he describes it as having a strong, volatile mixed smell of amber, camphor, and Mint. Babington states it is acrid. It is the Apple-scented Mint of modern writers, and was everywhere grown in our grandmothers' gardens for mixing with cut flowers for the sake of the scent. Sole's *M. rotundifolia* was *M. alopecuroides*, and he stated the smell resembled Spearmint, but not so strong. Under Spearmint (*M. viridis*) he states, "The whole plant has a most fragrant and refreshing smell." Most people whom I have consulted consider it has an acrid smell; and the *Students' Flora* records, "It may be distinguished by its pungent smell." Sole describes his *M. palustris* as having a goatish, minty smell. He says that Peppermint has a most agreeable odour of pepper, and speaks similarly of *M. odorata*, *M. gracilis*, *M. pratensis*, *M. rubra*, *M. gentilis variegata*, *M. cardinea*, *M. paludosa* and *M. arvensis agrestis*, adding the word aromatic to several of them. He seems to contradict himself somewhat when he states that *M. rivalis* has a heavy, mixed, goatish smell of Peppermint; while *M. piperita sylvestris* has a disagreeable goatish smell of Peppermint. His *M. aquatica* major had a "smell like a rosy chimney in a wet summer,

where wood fires have been kept in winter-time"; while *M. arvensis* had "a strong, full-some, mixed smell of mellow Apples and ginger-bread." This author may be compared with Harvey, who wrote some volumes of the *Flora capensis*. The last eight of his species of Pelargonium he describes as foetid, although they are reckoned amongst the sweetest-scented of the species by modern cultivators. J. F.

Apple Calville Blanc.—A correspondent mentions this Apple on p. 11. I have often wondered why Calville is masculine, and not feminine. According to the rules for the determination of French genders, this name ought to be Calville Blanche. *Le Jardinier Solitaire* gives that form. The Pomological Section of the National Horticultural Society of France gives the masculine, with the feminine form as a synonym. But, surely, grammatically it ought to be feminine. C. H. P.

"Isabelle."—I agree with C. H. P. (page 23, that the term "dove colour" in English parlance indicates soft, pearly grey. But if he will look up "isabelle" in a French-English dictionary he will find it translated "dove colour," the reference, as I mentioned in my note, being to the fawn-coloured breast of the turtle dove, not to the blue-grey plumage of our rock doves and cushats. The French have named another colour from the rock dove, namely, *gorge-de-pigeon*, from the iridescent plumage on the neck of the rock dove. Herbert Maxwell, Monreith.

Damage to Fruit Trees by Voles.—Mr. Hawkes (page 34) does well to draw attention to the damage done to his fruit trees by voles. I recollect a similar occurrence taking place at Pencarrow during the time the late Mr. H. Jones was in charge of the gardens. Vines had been planted in an outside border, and the borders covered with leaves and stable litter. During the vines resting period an unobserved colony of voles took possession of this covering, and wrought destruction by severing each vine stem near the surface of the border. This reminds me of damage done to vines by frost, which I may here be allowed to refer to. Soon after taking charge of the Hendre Gardens, and in the early days of the phylloxera scare, I paid a visit to Mr. J. Roberts, at that time in charge of the gardens at Gunnersbury Park, who showed me vines attacked by this troublesome pest, and pointed out its effects. I noticed that the unsatisfactory symptoms were similar to those in the Hendre vines, which were perplexing me at that time, and on reaching home I had no difficulty in finding that we also had attacks of the phylloxera to contend with. At that time it was generally considered that this insect was harmless in this country to vines planted in outside borders, and so we replanted the vineries in this manner. In the late spring of the second year after the vines were planted and had made considerable growth, a severe frost occurred, followed by bright sunshine in the early morning, and upon entering a Muscat vinery I found the vine leaves hanging down—the result of the vine stems having been frozen through. The young growths were killed. Had the freezing of the stems been discovered, and had they been thawed, the sap might have been liberated before the sun gained power, and probably no damage would have been done. This points to the advisability of protecting the stems of vines planted in outside borders, particularly in low situations similar to that of the Hendre Gardens. Thos. Coomber, V.M.H., Lansdowne House, Lydney.

Are Plants Aware of Time?—The article by Mr. Lynch (on p. 31) is extremely interesting to all lovers of Nature. May I ask him to kindly explain what a "klinostat" is? I have searched all my dictionaries without obtaining any information, and I want to test a Dandelion. There are many interesting facts connected with plants which one does not find in books, and all interested in plants will welcome any more notes on similar unusual subjects. W. H. Divers, Westdean, Hook, near Surbiton.

Exochorda Albertii.—In reply to A. B. H. (page 10) I beg to state that I have a fine plant of this beautiful shrub growing in the sunniest exposed corner I can afford it in a garden in East Lothian, not far from his own. It has been established for six years, but has not yet borne flowers. As a result, however, of the fine summer of 1921, I am pleased to note that its branches are set with a fine crop of bloom buds, which should give a good display later on in the season. Fortunately, my plant has not behaved like his, and its buds are still dormant and in proper seasonal condition. George M. Taylor, Edinburgh.

Gentiana lutea.—A yellow Gentian seems to appeal to some lovers of this exquisite race as it is represented by the numerous blue species some of which are of almost transcendent beauty. But those who know it do not need to expect to find in *Gentiana lutea* a yellow-flowered companion to our *Gentianella*, *G. acaulis*, or to that newer and delightful introduction, *G. Farreri*. On the contrary, it founds its claims upon the gardener by its nobility of mien and the boldness of its corrugated foliage rather than the brightness of its yellow flowers, which some call "golden," but do not always come up to that description, being duller in hue. In the garden it is possible that we have not made enough of *G. lutea*. It would appear to be a flower which ought to be planted in bold masses, with the plants not too close together, so as to show their true attractions. A wild garden would seem to afford scope for a plant like this, especially if planted in good, strong, rich soil, where it might reach its full stature of 3 to 4 feet and carry its clusters of starry, yellow flowers. In cultivation in the border it is not always so free-flowering as it should be. S. Arnott.

SOCIETIES.

ROYAL SCOTTISH ARBORICULTURAL.

THE annual business meeting of this society was held at 5, St. Andrew Square, Edinburgh, on January 20th. His Grace the Duke of Atholl, K.T., president, occupied the chair, and among others present were Lord Lovat, chairman of the Forestry Commission; Viscount Novar, honorary secretary of the society; Sir John Stirling Maxwell, one of the Forestry Commissioners; and Mr. John Sutherland, Assistant Forestry Commissioner for Scotland.

The report by the council stated that the net increase of membership for the year was 42, and that the total membership was now 1,724. The statement of accounts showed a balance of £152 8s. 2d. over expenditure, making, with a balance of £45 7s. 3d. at the credit of the capital account (of uninvested funds), and £175 2s. 4d. at the credit of the Education Fund, a total balance at the close of the accounts of £372 17s. 9d. The total invested funds amounted to £2,212 2s. 3d.

The following office-bearers were elected:—President, Duke of Atholl, K.T. (re-elected); Vice-President, Mr. A. Spiers, Edinburgh; Councillors, Messrs. J. H. Milne-Home, Jas. F. Hardie, David Keir, Wm. Leven, and Peter Leslie, B.Sc. Mr. Robert Galloway, S.S.C., was re-elected Secretary and Treasurer, and the various honorary officials were also re-elected.

Various topics were discussed, including the adverse influence of high railway rates on home-grown timber; the society's essay competition by pupils in rural schools on forestry subjects, in which no fewer than 1,359 essays were sent in, and for which 26 prizes and 307 certificates were awarded; and the Government grants for forestry in connection with the relief of unemployment.

At the close of the business a discussion was initiated by Mr. G. U. Macdonald, Haytown, Peebles, on "Economic Planting," in which Lord Lovat stated that investigation had showed that 4½ ft. seemed to be a reasonable planting

distance for Scotch Pine, while this might be extended to 5½ ft. in the case of Larch and 6 ft. in the case of Douglas Fir.

ROYAL CALEDONIAN HORTICULTURAL.

THE annual general meeting of this society (with which is now incorporated the Scottish Horticultural Association) was held at Dowell's Rooms, George Street, Edinburgh, on January 11th. Mr. David King, the president, occupied the chair.

The report by the council stated that the first year's working of the combined societies had been successful, and that the monthly meetings were well attended. The scheme for the institution of Certificates in Horticulture for practical gardeners had been completed and the first examination fixed for April next.

The financial statement showed that the balance of revenue over expenditure was £6 10s. 9d., and that the increase in the funds for the year was £242 12s. 8d.

The Duke of Atholl, K.T., was elected honorary president; Mr. David King was re-elected president, and the following were elected to the other vacancies: Vice-president, Mr. W. J. Thomson; Councillors, Messrs. W. Lamont, J. H. Alexander, and Robert Fife.

BRITISH FLORISTS' FEDERATION.

THE plague of influenza was responsible in some measure for the comparatively small attendance at the fifth Annual General Meeting of the British Florists' Federation, held at the Connaught Rooms, Great Queen Street, W.C., on Wednesday, the 18th inst. Fortunately, the room in which the meeting was held was an extremely pleasant one.

The minutes of the previous Annual General Meeting having been read and signed, correspondence was read, which was chiefly in the nature of regrets from members unable to be present.

The Report of the Committee for the year 1921 and the Financial Statement were then presented. In the former, reference was made to the new offices of the Federation at the offices of *The Gardeners' Chronicle*; to the opening of the new home of the Chamber of Horticulture at Bedford Square, in which event the Federation took a notable part; to co-operative advertising, in which, apparently, retail florists are not willing to join with the growers and salesmen; to growers' difficulties, especially with reference to *Lygus pratensis*, a pest that does a great deal of harm to *Chrysanthemums*, and which is being investigated on behalf of the members; to salesmen's problems, with special reference to the French flower trade; and to traders' troubles, notably the disabilities under which members suffer in connection with the transport of pot plants by passenger train, and concerning which Mr. F. W. Ladds and other members are working continuously to secure better terms. The Statement of Accounts showed a turnover of £337 16s. 11d., with an income from subscriptions of just over £250, and £43 derived from advertisements in the *Florists' Bulletin*. A cash balance of £6 17s. 1d. is carried forward.

Mr. Alfred W. White, the president, who occupied the chair, moved the adoption of the Report and Financial Statement, and referred briefly to the principal items therein, pointing out that there had been some slight falling off in membership during the year, owing, probably, to the fact that no great difficulties had arisen, but he expected that, as soon as a difficulty arose, wherein the assistance of the Federation was needed, there would be an increase of members. The Federation was working in close and happy relationship with other bodies of similar character, and a large amount of useful work was being done in a quiet way. The motion was seconded by Mr. John Collingridge and carried.

A vote of thanks to the Officers and Committee for their services during the past year was accorded on the motion of Messrs. R. Coryton and Mr. A. Bird. Mr. W. E. Wallace

proposed the re-election of Mr. A. W. White as President. This was seconded by Mr. W. A. Cull; both proposer and seconder paid high tribute to the services Mr. White had rendered to the Federation. Mr. White was unanimously re-elected, and suitably acknowledged the honour conferred upon him. All the retiring members of committee were re-elected on the proposal of Mr. G. Shawyer, seconded by Mr. W. Robins, and on the motion of Mr. D. Ingamells and Mr. George Shawyer, Messrs. Cobley, Kay and Co. were re-elected honorary auditors.

At the close of the formal business several members referred to the rumours concerning the proposal of the Covent Garden Estate Company to raise the rents of the stands in the Flower Market. At the invitation of Mr. White, the Secretary, Mr. C. H. Curtis, referred to this matter, and stated that it was already being dealt with, and that a meeting of all the stand-holders would be called to consider the proposal and, if desirable, to consider counter proposals. Mr. G. Shawyer referred to the inspection restrictions upon bulbs imported from Holland, and thought that bulbs for forcing might be exempted from the conditions now imposed. This matter was referred to the Bulb Committee.

Later in the evening, members and friends, including ladies, dined together at the Connaught Rooms under the presidency of Mr. Alfred W. White. The tables were pleasingly decorated with Carnations, Tulips, and Narcissus, provided by several of the members, and a capital programme of music was carried out under the direction of Mr. A. Bird, who also contributed several items. Speeches were few and brief, the only toasts being those of "The King," "Success to the British Florists' Federation," "The Ladies," and "Flowers and Florists." In addition to the President, the chief speakers were Mrs. A. W. White, Mr. George Monro, Mr. J. Collingridge, Mr. W. G. Innes, and Mr. D. Ingamells.

ROYAL HORTICULTURAL Scientific Committee.

JANUARY 17, 1922.—*Arbutus Unedo* in Flower.—MR. MARSDEN JONES showed a flowering branch of *Arbutus Unedo* and a variety (?) with very narrow leaves.

Begonia Gloire de Lorraine Damaged.—Plants of this *Begonia* were received with the foliage badly disfigured through the attacks of thrips, especially evident along the veins.

Winged Seeds of Lilies.—Seeds of *Lilium* × sulphurgale were exhibited to show the wing which is not found in *L. regale* itself.

Obituary.

W. H. Bavin.—Many gardeners in the southern counties will regret to learn of the death of Mr. W. H. Bavin, who passed away on Sunday, the 15th inst., after a prolonged illness. Mr. Bavin had represented Messrs. William Cutbush and Son for a long number of years, and was well known in the horticultural world, and especially at Tonbridge, where he lived. He was held in high esteem by all who knew him, and the deepest sympathy is being extended to Mrs. Bavin and her two sons in the great loss they have sustained.

REPLY.

BULBIL PRODUCING BEGONIAS.

In reply to *Coombe*, bulbils are produced in the axils of the leaves of *Begonia discolor*, preferably called B. Evansiana. These bulbils are produced at, or soon after, the time of flowering, that is, when growth is checked. As a bud producing *Begonia*, the most extraordinary species is *B. phyllomaniaca*, which at all seasons produces buds on the stem, leaf stalk and leaf surface. *Coombe* would probably be

interested in the root stock of *Begonia socotrana*, which is quite unique, although it does not perhaps come under the terms of his inquiry; trusting to recollection, I think it may best be described as a cluster of scaly buds—bulbils, in a broad sense of the word. R. I. L.

NEW HORTICULTURAL INVENTIONS.

LATEST PATENT APPLICATIONS.

973.—Atyeo, W. W.—Mowing machines.—January 12.

1084.—Bennett, G.—Vegetable, flower, etc., frames and lights.—January 13.

1222.—Jones, G. H.—Handle for spades, forks, etc.—January 14.

867.—Purser, A. J.—Watering devices for hose pipes.—January 11.

408.—Butes, E.—Edging for garden paths.—January 5.

238.—Jennings, W. T.—Supports for plants.—January 4.

SPECIFICATIONS PUBLISHED LAST MONTH.

173276.—Mollasine Co.—Artificial manure or fertiliser.

173188.—Inkpen, R. S.—Hoes, hand cultivators, and similar gardening implements.

ABSTRACT PUBLISHED LAST MONTH

Sterilising Soil.—Patent No. 168710.

A process and apparatus for sterilising soil by steam pressure has been invented by Mr. T. R. Bean, of Northland Vale, Guernsey.

Soil and other substances are sterilised by subjecting them to a temperature above 212° F. by means of steam exerting a pressure above atmospheric pressure. The apparatus comprises a tapered receptacle mounted on trunnions and adapted to be tipped to discharge the contents; the lower end of the receptacle is provided with a fire-box and a water container having a steam space communicating with the soil container by one or more perforated pipes. The cover of the receptacle rests on a rubber band, and is secured by screw clamps. It may be lifted by means of a winding drum and a chain. The apparatus is mounted on a wheeled frame and is provided with a mud-hole and chimney, and means for preventing it from swinging in such a way as to tip the fire out. In a stationary form of the apparatus, steam is supplied to the soil-container from a detached boiler.

This list is specially compiled for *The Gardeners' Chronicle* by Messrs. Rayner and Co., Registered Patent Agents, of 5, Chancery Lane, London, from whom all information relating to Patents, Trade Marks, and Designs, can be obtained gratuitously.

Messrs. Rayner and Co. will obtain printed copies of the published specifications and forward them post free for the sum of 1s each.

ANSWERS TO CORRESPONDENTS.

CORRECTION: Mr. P. R. Murton writes asking us to state that his new appointment (see p. XIII. January 21) is at Carclew and not Carslew, as printed.

CHRYSANTHEMUM RAYONNANTE AND ITS SPORTS: A. H. There is already one sport of *Chrysanthemum Rayonnante* on the market, and apparently it is very similar to, if not identical with, the one you have obtained. The sport referred to goes under the two slightly dissimilar names of Mrs. Guy Harewood and Miss Gina Harewood, and it is described as light rosy fawn, which is evidently much the same shade of colour as the pinkish orange of your description. Of this sport there is plenty of stock in this country.

EARLY-FLOWERING CHRYSANTHEMUMS: T. H. Six first-rate early-flowering varieties of *Chrysanthemums* for disbudding, including two white sorts, for cultivation for market, are Sanctity, white; Framfield Early White, white; Cranfordia, yellow; Almrante, bronze;

Betty Spark, pink (September); and Cranford Pink, pink (October). The formula you suggest for use for top dressing *Chrysanthemums* in pots would no doubt be suitable for that purpose, but we strongly recommend you to use a well compounded organic manure unless you are in a very large way of business.

LAPAGERIA ROSEA: H. S., India. A correspondent kindly informs us that you can obtain seeds of *Lapageria rosea* from Mr. S. P. Chatterji, nurseryman, 78, Marcadanga, Main Road, Calcutta.

NAMES OF PLANTS: A. N. 1, *Abies concolor*; 2, *Quercus Turneri*; 3, *Quercus acuta* var. *bambusaefolia*; 4, *Osmanthus rotundifolius*; 5, *Osmanthus ilicifolius*.—W. M. B. 1, *Stauntonia hexaphylla*; 2, *Vitis striata*; 3, *Escallonia illinita*; 4, *Genista hispanica*; 5, *Viburnum rhytidophyllum*; 6, *Elaeagnus macrophylla*.—W. L. *Billbergia nutans* (Brazil).—G. R. 1, *Cordyline australis lentiginosa*; 2, *Nephrolepis exaltata superba*; 3, *Pteris serrulata cristata*; 4, *Adiantum scutum*; 5, *Pteris cretica albo-lineata*; 6, *Pteris serrulata maxima*; 7, *Adiantum Pacottii*; 8, *Cordyline australis*; 9, *Kentia belmoreana*.—A. J. N. The *Begonia* is *B. President Carnot*. The Orchids are: 1, *Cypripedium Leeatum*; 2, *C. chrysotoxum*; 3, *C. Boxallii*; 4, *C. Calypso*; 5, *C. venustum*; 6, *C. calophyllum*; 7, *C. insignis*.—F. S., *Gawsworth*. *Chimonanthus fragrans*.—Lenton Sands. *Pteroma macrantha*.

PLANTS FOR TUFFA OR STONE POCKETS: G. S. It is rather difficult to state what plants would succeed in the dry corner of your fernery. The moist atmosphere of a fernery would hardly suit Cacti, or any class of succulent plants, as they must have dry atmospheric conditions, especially during the winter. Among Ferns, those most likely to succeed are *Nephrolepis exaltata*, of which there are many fine forms, and they are really not very particular where they grow. You might also try some of the strong-growing forms of *Begonia Rex*. If you have water laid on, you might connect the supply pipe to a perforated pipe at the top of your rockery and thus provide a ready means of watering your plants, more or less, according to the weather and their needs.

RABBITS EATING FRUIT TREE STEMS: N. W. H. The only satisfactory way of preventing rabbits from "barking" the stems of young fruit trees is to erect a rabbit-proof fence round the orchard. At least 6 inches of the netting should be laid flat on the bottom of a shallow trench all round the orchard, while the fence proper should be a little over 3½ feet high. Wire netting 4 feet wide will serve the purpose, and should be attached to stout posts set not more than 3 yards apart. A point of the utmost importance is that the buried portion of the wire netting should be turned outwards to prevent rabbits from burrowing under the fence. A detailed description of this method of fencing was given in our issue of January 31, 1920 (Vol. LXVII., page 55).

ROMAN CYPRESS: G. The Cypress that is such a great feature of many South European gardens is the Upright Roman Cypress (*Cupressus sempervirens*), and from the description we suspect that this is the species meant. Although it is not commonly met with in this country, there are good examples in certain of the older gardens of the home counties and elsewhere.

SECOND-HAND BOOK: A. C. W. You would most likely be able to procure the work you mention from either Messrs. Wheldon and Wesley, Great Queen Street, W.C., or Messrs. H. Sotheran and Co., 140, Strand, W.C.

WINTER-FLOWERING BEGONIAS: W. W. W. We believe you will be able to obtain plants of the various winter-flowering *Begonias* from Messrs. Stuart Low and Co., Enfield, Middlesex, or Messrs. Clibrans, Altrincham.

Communications Received.—J. J.—R. T.—G. K. P.—H. B. M.—R. S. B.—W. A.—W. H.—E. B.—J. S.

THE

Gardeners' Chronicle

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 37.9.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock street, Covent Garden, London, Wednesday, February 1, 10 a.m.: Bar. 29.9; temp. 46°. Weather—Fine.

The Fellowship of the National Institute of Agricultural Botany.

The Council of the National Institute of Agricultural Botany has taken a wise step in establishing a system of Fellowship whereby all who are in sympathy with the aims of the Institute may, on certain conditions, become Fellows and take a part in promoting its work. The conditions of Fellowship are set forth in a brochure issued by the N.I.A.B., containing a brief summary of the aims and activities of the Institute. The aims are, succinctly stated, the improvement of yield and quality of farm crops and the present work of the N.I.A.B. consists of three branches. One, devoted to crop improvement, provides facilities for the introduction and field-testing of new varieties of agricultural plants. Another consists in the official seed Testing Station, and the third is concerned with the carrying out on behalf of the Ministry of Agriculture of the Potato immunity trials at Ormskirk, the object of which is to ascertain which varieties, and particularly which new varieties of Potato, are resistant to Wart Disease. This immunity-testing work, long conducted with marked benefit to Potato growers by the Ministry, has now been extended and includes maturity trials and the investigation of synonyms. Horticulturists need no convincing as to the importance of all these branches of the Institute's work. They are aware that there is no finality to the improvement of varieties, and they are also aware that, of new varieties put on the market, many are called but few are chosen. In the case of Potatoes, it is well that new varieties should be ex-

amined by drastic tests at the time of their introduction as to their immunity from or susceptibility to Wart Disease, and it is no less important that the place of each new variety in the Potato world—whether early, mid-season or late—should be determined, for in the case of "earlies," at all events, a difference of days in the time of maturing is of decisive importance in determining the use of a variety for market purposes. The National Institute proposes to keep its Fellows in touch with the work which it is doing at Cambridge and at Ormskirk, both by means of periodical meetings, at which the work of the Institute will be described and discussed, and by appointing to the Council representatives of the Fellows. Although the Fellowship scheme has but recently been launched it has already met with a wide response. The first Fellow to be enrolled was the Prime Minister, who, in a letter to the Chairman of Council, Sir Lawrence Weaver (see p. 26), expressed his whole-hearted sympathy with the objects of the Institute and his earnest hope for the full attainment of those objects. The terms of Fellowship are such as should, and, we are sure, will secure a large membership. The annual Fellow's subscription is one guinea—with an entrance fee of one guinea—and candidates may either become annual Fellows, or by a limited composition of seven guineas may enjoy ten years of Fellowship or become life Fellows by payment of a subscription of fifteen guineas. The excellence of the work already done by the Institute is an earnest of the success which will attend its efforts, and that success, needless to say, will be hastened and enhanced if, as is to be hoped, a numerous body of Fellows comes into being. The help which they will give is both moral and financial. Every guinea subscribed by a Fellow will be the means of ensuring the Institute a larger measure of financial aid from the Development Commission and, moreover, every Fellow, by taking an active interest in the work done by the Institute, helps in a very real manner to make that work more effective, for a science remote from the general life and affairs of a people is a sterile science, but one which is part of their life and enters into their affairs is fertile and twice blessed—blessing him that gives and him that takes.

Imperial Fruit Show.—An Imperial Fruit Show will be held this year at the Crystal Palace on approximately the same dates as last year's show. There will be a United Kingdom section, an Overseas section, and a British Empire section, and it is expected that tropical and sub-tropical fruits will be displayed, in addition to Apples and Pears. Matters relating to finance and organisation will be left entirely to the staff of the *Daily Mail*, while technical matters will be decided by a Trades' Committee. The decision to hold this show was made at a meeting of the Imperial Fruit Show Advisory Committee held at the Ministry of Agriculture.

National Chrysanthemum Society.—The annual general meeting of the members of the National Chrysanthemum Society will be held in the Floral Committee Room of the Royal Horticultural Hall, Vincent Square, Westminster, S.W., at 6.30 p.m. on Monday, February 6, when the report of the committee and the statement of accounts for 1921 will be presented and officers elected.

A New *Gladiolus* from S. Africa.—Mr. A. E. Kunderd, the well-known American *Gladiolus* specialist and former President of the American *Gladiolus* Society, in a paper on the *Gladiolus* read to the Wisconsin State Horticultural Society, on December 15, referred to a new species of *Gladiolus* received from his brother-in-law, Dr. Hall, in South Africa. He did not

disclose the name, but described the plant as having tall, slender and graceful foliage and stems. It bore on the main stem upwards of forty blossoms, and four of its branches developed more than thirty blossoms each, so that the plant produced about 175 individual flowers. Mr. Kunderd described the work of the Canadian raiser Groff as monumental, and he paid a tribute to such pioneers as Lemoine, Childs and Max Leichtlin. Mr. Kunderd is himself a successful raiser of *Gladioli*, and commenced hybridising this flower about 35 years ago.

The Royal Gardeners' Orphan Fund.—The annual general meeting of the subscribers to this Fund will be held at "Simpson's," 100, Strand, London, W.C., on Thursday, February 9, 1922, for the purpose of receiving the report of the Committee and Statement of Accounts for the past year; to elect officers for the ensuing year; to elect four children to the benefits of the Fund; and to transact such other business as may arise. The chair will be taken at four p.m.

Food Exhibition at Olympia.—The International Trade Exhibitions, Ltd., and The Trades Markets and Exhibitions, Ltd., are combining to organise a great food exhibition, to be held at Olympia from September 6 to 26 this year. This exhibition should provide a most fascinating object-lesson with regard to the sources from which our principal food supplies are derived. We understand that many foreign Governments propose to make large displays at the exhibition. Vegetable products will occupy a large area, but all other kinds of food materials will be exhibited.

Spraying Trees from an Aeroplane.—The *American Florist* records the spraying of fruit trees in America from an aeroplane. The experiment was conducted by the Ohio Department of Agriculture in co-operation with an airman of the United States Army, who fastened a container filled with arsenate of lead to the side of his machine, and, arising to the proper altitude on the windward side of a badly infected orchard, released the powder with such effect that the insects were all killed. The operation from the time of releasing the powder until landing lasted only 51 seconds. In America, where Apple orchards are of very great extent, it is anticipated that an extensive use of this method of spraying will be adopted by growers.

Temporary War Buildings in London's Parks and Open Spaces.—We are very pleased to notice that at last a decided clearance is being made of some of the war-time huts in the London parks and open spaces. The beautiful Embankment Gardens were almost entirely covered with temporary buildings, which are now in process of removal, and the site will probably be cleared in about three weeks time. The huts in Tower Gardens, Millbank, have also been taken down, and it is expected that the ground there will be completely cleared at the end of next week. The Admiralty huts in St. James's Park will take about four or five weeks to remove, and the demolition of the Passport Office, in that Park, commenced on Tuesday last. Several of the store huts in Regent's Park have also been demolished, and the ground cleared. It is to be hoped that all these eyegores in London's most beautiful spots will be removed at the earliest opportunity, and the grounds restored to their legitimate purpose of pleasure and recreation.

A Canadian Impression of the Imperial Fruit Show.—The *Canadian Horticulturist* makes adverse observations on the judging at the Imperial Fruit Show, held at the Crystal Palace in October, 1921, and published an illustration of three of the twenty boxes of Newton Wonder Apples staged by the Spalding and District Bulb Growers' and Market Gardeners' Association, that won the first prize in the culinary class of the British Empire section. Our Canadian contemporary states that the fruits were not graded uniformly, there being Apples on the faces of the boxes ranging in diameter from $\frac{3}{4}$ to $\frac{5}{8}$ inches. "The packing was decidedly amateur-

ish, rather than commercial, many boxes having a solid layer of three rows across on the faces and four rows in the tiers beneath." It is recognised by the critic that the judges had a difficult task on account of the high standard of excellence of the exhibits in general, and he excuses them because they were not familiar with the ideal box pack, but states that some of their decisions would be impossible at an Apple show in Canada or in the United States. The writer claims that the boxes were not of the standard required and that the twenty boxes that won the principal awards were 20 by 11 by 10 inches and not 18 by 11½ by 10½, as required. The criticism is further made that by the system of packing adopted, the Apples would not "carry safely." The critic, however, was much impressed with the good quality of the Newton Wonder Apples, and with their well-grown appearance. Remarking on the exhibits in the overseas section, he states that the second prize exhibit for King of the Pippins lost the first place because the quality was "too good" that is, too highly coloured, and blames the judges for misinterpreting the Canadian Fruit Marks Act, both in regard to this and other varieties. The criticisms are made by a well-known Canadian expert who, it is stated, on three occasions won the sweepstake prize at the New York State's show for the best box of Apples grown in America.

A Late-fruiting Blackberry.—Mr. W. Crisp, of 22, Pretoria Road, Halstead, records in a letter to *The Field* the discovery of a late-fruiting Blackberry during a country walk on November 15. He was enabled to gather 10½ lbs. of fruit, and could have obtained more had he the time to gather them. To quote from the letter, the berries "were red, like a Raspberry, and they make quite excellent jam, the flavour being like that of the Loganberry. It is a great bearer of fruit in long bunches and a strong grower. It comes in about six weeks after the ordinary Blackberries, and when all soft fruits are over. It would pay to plant in woods both for fruit and for game cover. It also produces abundant food for pheasants, and will keep them in the wood at a time when they are given to wander far afield for acorns." It is to be hoped that Mr. Crisp will take measures to secure suckers from such a valuable wilding in order that the plant may be propagated and distributed; it should prove specially valuable for purposes of hybridising and raising a race of late-fruiting Brambles. There is just a possibility, however, that the fruits were a second crop that found the season exceptionally favourable for them to ripen, for it is well known that the early blossoms of Brambles are sometimes all sterile and that the plants are then enabled to develop secondary growths which flower later in the same season.

Allotments.—The report of the Departmental Committee appointed by the Ministry of Agriculture and Fisheries and the Secretary for Scotland, to investigate the present position as regards provision by local authorities of allotments in Great Britain has been issued, and may be obtained at His Majesty's Stationery Office, Imperial House, Kingsway, W.C., price 7d. post free. The report has been compiled on the evidence of various societies, organisations, and authorities connected with the allotment movement, which apparently originated in the nineteenth century at the time of the development of the industrial system and the growth of towns. The greatest number of allotments under cultivation was in 1918, when they totalled 42,277, representing an acreage of 2,551, but the 41,756 allotments in 1919 represented a slightly larger acreage, namely, 2,641 acres. The chief recommendations of the Committee are that local authorities should purchase land for allotments wherever practicable; that schemes under the housing and town planning acts should provide for the preservation of sites for allotments; that loans for the purchase of lands for allotments should be excluded from the debt of local authorities; that county councils should be empowered to let land direct for allotments; that co-operative allotment associations should be empowered to obtain loans for

the purchase of land from the Public Works Loan Commissioners; that the principle of State assistance in the encouragement and development of the provisions of allotments already conceded in Scotland should be extended to England and Wales; that six months' notice should be required to terminate a vacancy, and that where less than six months' notice is given, the tenant should be compensated for his crops and unexhausted manures. We hope to refer in more detail to the report in a subsequent issue.

Mr. H. Markham.—The genial head over the Earl of Strafford's gardens at Wrotham Park, Barnet, has had a wide and varied experience, consequently he is well known to gardeners in many parts of England and Wales, while his eminently practical gardening notes, which have appeared in our pages over a long period of years, have extended his reputation. In his earlier years he was employed in the gardens at Hornsea House, Hull; Ivy Bank, Burnley; Bodrhyddan, North Wales; Burghley House, Stamford; and Longford Castle, Salisbury. After serving several years under the late Mr. Richard Gilbert, at Burghley, Mr. Markham was sent by that famous gardener to Longford Castle, where he remained three years under the late Mr. H. W. Ward. It was on the recommendation of Mr. Gilbert and Mr. Ward



MR. H. MARKHAM.

that Mr. Markham took over the charge of Mereworth Castle Gardens, where Lord Falmouth at that time took a great interest in choice fruits, especially Peaches and Nectarines, and gave Mr. Markham every encouragement to acquire a collection and produce large crops of fine fruits. Thirteen years later, there was a general agreement among those best qualified to give it that the Peach and Nectarine trees at Mereworth were among the finest trained specimens to be found in this country. From Mereworth Mr. Markham went to Wrotham Park, Barnet, where he makes a special feature of fruit culture, but also keeps the other departments of the garden in first-rate condition. He is proud to have charge of the old vines planted at Wrotham by the late Mr. William Thompson in 1848-9, as well as the ancient specimen of Black Hamburgh planted in 1785, said to have been from a stock originally received from Holland in 1710, and from which Mr. Markham cut and exhibited fine bunches in September, 1921 (see p. 141, *Gard. Chron.*, September 10, 1921). Mr. Markham has for many years been a member of the Royal Horticultural Society's Fruit and Vegetable Committee. Apart from business matters, Mr.

Markham is a musician of no mean order and a delightful raconteur.

Potato K. of K.—In view of the fact that other Potatoes have been sold under the name of this variety, the Ministry of Agriculture directs the attention of sellers of seed Potatoes to the description of the variety of late or main crop Potato known as "K. of K." which is as follows:—"Shape, oval; eyes, shallow; skin, white, splashed crimson, more pronounced round eyes, especially at rose end; flesh, pale yellow; colour of sprout, rose; haulm, upright; foliage, light green with small corrugated leaves; flowers, mauve in colour, tipped with white. The variety does not flower freely." This description has been approved and recognised by the Ministry. The variety is immune to Wart Disease. Growers and dealers who sell Potatoes of a different variety under the name "K. of K." are liable to a penalty under the Seeds Act, 1920.

New Secretary of the National Dahlia Society.—At the annual meeting of the National Dahlia Society, held in the Royal Horticultural Hall on Tuesday last, Mr. A. C. Bartlett was appointed hon. secretary in succession to Mr. Gerald Hillier, who was accorded a hearty vote of thanks for his services during the past year. Mr. Bartlett is well known in the horticultural world both as a writer on gardening and a skilful cultivator of plants.

Accident to Mr. E. M. Holmes.—The numerous gardening friends of Mr. Edward Morell Holmes, for many years Curator to the Pharmaceutical Society's Museums, Bloomsbury Square, will be sorry to learn that he has met with a serious accident, necessitating the amputation of a leg. The injuries were received as the result of a motor accident, and, following an action in the King's Bench Division, Mr. Justice Salter has awarded Mr. Holmes £1,000 damages, with costs. Mr. Holmes is a recognised authority on medicinal plants, and the results of his experiments in their cultural requirements have been published in *The Gardeners' Chronicle* and other journals from time to time. In 1915 Mr. Holmes was awarded the Hanbury Medal, which was first struck in 1881 to perpetuate the memory of Daniel Hanbury, the eminent pharmacognosist.

Appointments for the Ensuing Week.—Monday, February 6: National Chrysanthemum Society's annual meeting at R.H.S. Hall. Tuesday, February 7: Royal Caledonian Horticultural Society's meeting; Bournemouth Gardeners' Mutual Improvement Association's meeting. Wednesday, February 8: East Anglian Horticultural Society's Meeting; Sheffield Chrysanthemum Society's meeting; Wimbledon and District Gardeners' Society's meeting. Thursday, February 9: Bristol and District Gardeners' Association's meeting; Hornsey and District Chrysanthemum Society's meeting; Royal Gardeners' Orphan Fund annual meeting and election at Simpsons, 100, Strand, W.C., at 4 p.m. Friday, February 10, Paisley Florists' Society's meeting; Royal Horticultural and Arboricultural Society's Council meeting. Saturday, February 11.—Ringswood Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Double Stocks.*—The cause of the production of double flowers in Stocks seems to be a disputed point. I gave a friend part of some seed of 1843, of my own saving, and I sowed from the same parcel, both in the autumn of 1844 and the spring of 1845; in both seasons the produce was double; but my friend informed me that his flowers were nearly, if not all, single. The soil on which the plants producing single flowers grew was warm, gravelly material; the other was a stiff loam, well worked; this, I imagine, clearly proves that the nature of the soil has great influence in the production of double flowers. In saving the seed, I paid no regard to the parts of the flower, but merely saved some of the single from among double flowers.—J. L., Deptford, *Gard. Chron.*, January 31, 1846.

THE BULB GARDEN.

CROCUS AERIUS AND C. VITELLINUS.

CROCUS AERIUS (see Fig. 24) is one of the most lovely of spring-flowering Crocuses and a flower of much beauty in every respect. It is a native of Asia Minor. It often blooms in March, but sometimes earlier, and is one of the species which has secured for itself high favour in the eyes of specialists in these flowers. The bald description that it has "medium-sized flowers of bright lilac or lavender-blue with a yellow throat" fails to convey the lovely shades and gradations of the interior of the flower. It varies a great deal in size and shade, and selected varieties are occasionally offered; the variety *C. aerius major* is a charming sort. I have heard of a white variety, *C. aerius albus*, but have never met with it. In my experience *C. aerius* requires a warm, sheltered, sunny place in light soil, and the corms should be planted from 1½ to 2 inches deep.

In *Crocus vitellinus*, which has for a synonym *Crocus syriacus*, we have a pleasing little *Crocus* which, unfortunately for some of us, blooms from November to March, and is, consequently, liable to fall an easy prey to the vagaries of our winter season. Those who are fortunate enough to possess a garden in an exceptionally mild and equable district may succeed well with it in the open, and the writer can recall flowers of *C. vitellinus* sent him to name which were growing in a garden in an exceptionally mild part of the north-west of England and near the sea. These were blooms culled from large quantities of this *Crocus* planted in the grass and giving great pleasure almost every year in the dead of winter. But to most of us this gratification is denied, and we must content ourselves with sheltering our clumps of *C. vitellinus* which are planted in the garden under a hand-light, cloche, or frame, or, better still, grow them in pots in a cool greenhouse or alpine house, where, screened from the weather, the flowers may expand without fear of untimely destruction. Small though they are, they are very pretty, being bright orange-yellow, with scarlet stigmata to add to their attractions.

The variety *graveolens* is not so acceptable. Its flowers are smaller, and the strong and rather offensive odour, which has given rise to its varietal name of *graveolens*, lessens its value. Its flowers are striped or flushed with black.

C. vitellinus, so far as culture is concerned, is as easily grown as any other *Crocus*. Its protection from rough weather is only called for in order that its beauty may be revealed and retained under favourable conditions. *S. Arnott*.

BRODIAEA HOWELLII.

ALTHOUGH I greatly prefer September and October for planting the *Brodiaeas*, the work may be done as late as February and March, if the weather is open. The corms, however, require to be kept properly, lest they become partially shrivelled and therefore weakened by being too long out of the soil.

Brodiaea howellii is one of the best garden species, and it has been more appreciated through its variety, *B. howellii lilacina*. Both the type and the variety have long leaves and scapes about 12 to 18 inches tall, and carrying umbels of funnelled flowers, each about half an inch in diameter. Those of the variety *lilacina* are more numerous than those of the type, and often exceed 18 or 20 in number. The flowers of *B. howellii* are of a pretty porcelain white streaked or flushed with blue. Those of *B. howellii lilacina* are delightful in their colouring of delicate lavender-blue or lilac, with the segments of white.

In order to succeed with *B. howellii*, it must have an open, light, well-drained soil, that should be made fertile by the addition of decayed manure. A sunny place should be selected for planting, and the surface be kept rather loose, in order to allow the heat of the sun to penetrate the ground. Two to three inches is a suitable depth at which to plant. *A*

ORCHID NOTES AND GLEANINGS.

NEW CYPRIPEDIUMS.

CLIVE COOKSON, Esq., Nether Warden, Hexham (gr. Mr. W. J. Stables) sends flowers of four handsome *Cypripediums*, two of which are new crosses.

C. Carina (*Lecanum Clinkaberryanum* × *Villma*) is a large flower with white dorsal sepal having a broad claret band up the middle and some small rose lines, the petals and lip being pale yellow tinged with red-brown.

C. Gniqua (*Gracae* var. *J. W. H. Page* × *Lawrenceanum*) has a white dorsal sepal tinged with rose, the large lip being light brownish rose.

C. Bantam, Cookson's variety (*Hera Euryades* New Hall Hey var. × *C. nitens* Drewett's variety) is a model flower with white dorsal sepal bearing large claret-crimson blotches ascending from a small, emerald-green base, the broad petals and lip, with shining surface, being dark chestnut red.

C. Georgius Rex var. (*Minos Youngii* × *Alciades illustre*) resembles a large form of *C. Minos Youngii* in a great degree.

SOPHRO-LAELIO-CATTELEYA EILEEN.

MESSRS. STUART LOW AND CO., Bush Hill Park, Enfield, and Jarvisbrook, Sussex, send the first flower of a finely formed and brightly coloured cross between *Cattleya Moira* (*Fabia* × *Mantini*) and *Sophrolaelio heatonensis* (*L. purpurata* × *S. grandiflora*). All the segments are broad, of firm substance, and flatly arranged, the petals especially being broader than long.

The sepals of *S.-L.-C. Eileen* are purplish rose; the petals tinged with violet on white ground on the inner halves, the outer parts dark red with a gold shade, the blending of the colours having a glowing effect. The lip is ruby-crimson with a reddish orange base; the column fleshy, pure white. The flower, it is said, was taken from a very small plant, which, when matured, will probably give a still more remarkable bloom.



FIG. 24.—CROCUS AERIUS; FLOWERS LILAC PURPLE.

NEW HYBRIDS.

(Continued from January 14, page 20.)

Name.	Parentage.	Exhibitor.
Brasso-Cattleya Peace	<i>C. Dusseldorfei</i> Undine × <i>B.-C. Digbyano-Mendelii</i> Fortuna	Duke of Marlborough.
Brasso-Laelio-Cattleya Gatton	<i>C. chocoensis</i> × <i>B.-L. Mrs. Gratrix</i>	Sir J. Colman.
Orange		
Brasso-Laelio-Cattleya Pink Pearl	<i>B.-L.-C. Everest</i> × <i>C. Trianae ignea</i>	Sanders.
Brasso-Laelio-Cattleya Our Princess	<i>L.-C. Thynne</i> × <i>B.-C. Digbyano-Mossiae</i>	Flory & Black.
	Alexandra	
Cattleya Pharaoh	<i>Adula</i> × <i>Fabia</i>	Sanders.
Cymbidium Erica	<i>Pauwelsii</i> × <i>grandiflorum</i>	Sanders.
Cypripedium ambergense	<i>Lady Dillon</i> × <i>Mrs. Mostyn</i>	H. Green, Esq.
Cypripedium Challenger	<i>Curtmannii</i> × <i>Beryl</i>	A. Hamner, Esq.
Cypripedium Grey Friar	<i>G. oregonum</i> × <i>Tracyanum</i>	Dr. R. N. Hotley.
Cypripedium Blanchette	<i>niveum</i> × <i>Psyche</i>	C. Cookson, Esq.
Cypripedium Carina	<i>Lecanum Clinkaberryanum</i> × <i>Villma</i>	C. Cookson, Esq.
Cypripedium Griaux	<i>Gracae</i> var. <i>J. W. H. Page</i> × <i>Lawrenceanum</i>	C. Cookson, Esq.
Cypripedium Idaho	<i>Mrs. F. Sander</i> × <i>Muriel Hollington</i> var.	C. Cookson, Esq.
	Venus	
Cypripedium Leonora Cook	<i>Earl Tankerville</i> × <i>Mrs. Godman</i>	Mrs. Bruce and Miss Wintley
Cypripedium Piccanini	<i>insigne</i> var. <i>majesticum</i> × <i>Leander</i>	H. Green, Esq.
Epidendrum Gatton Lilac	<i>keownense</i> × <i>evectum</i>	Sir J. Colman.
Epidendrum Lilac Queen	<i>stanfordianum</i> × <i>Boundit</i>	Sir J. Colman.
Laelio-Cattleya Bronze Prince	<i>L.-C. Ophir</i> × <i>C. Fabia</i>	Sir J. Colman.
Laelio-Cattleya Yellow Hammer	<i>Hippolyta</i> × <i>Canhamiana</i>	Sir J. Colman.
Laelio-Cattleya Lumbalis	<i>L.-C. Lumbalis</i> × <i>C. amabilis</i>	Sir J. Colman.
Odontioda Ganesa	<i>Oda Brewii</i> × <i>O. President Pincare</i>	Charlesworth.
Odontioda Hemera ... ..	... ..	Charlesworth.
Odontioda Hera ... ..	... ..	Charlesworth.
Odontioda Janet ... ..	... ..	Charlesworth.
Odontioda Jupiter ... ..	... ..	Charlesworth.
Odontioda Karoa ... ..	... ..	Sanders.
Odontioda Lakonia ... ..	... ..	Charlesworth.
Odontioda Louisa ... ..	... ..	Charlesworth.
Odontioda Maureen ... ..	... ..	Charlesworth.
Odontioda Mercia ... ..	... ..	Charlesworth.
Odontioda Moyna ... ..	... ..	Charlesworth.
Odontioda Narada ... ..	... ..	Charlesworth.
Odontioda Orithia ... ..	... ..	Charlesworth.
Odontioda Priola ... ..	... ..	Charlesworth.
Odontioda Priscilla ... ..	... ..	Charlesworth.
Odontioda Ramona ... ..	... ..	Charlesworth.

The Week's Work.

THE ORCHID HOUSES.

By J. T. BARBER, Gardener to His Grace the
DUKE OF MARLBOROUGH, K.G., Blenheim Palace,
Woodstock, Oxon.

Odontoglossum.—The various members of the genus *Odontoglossum* will now be in all stages of growth; some just starting, others in full growth, whilst many are sending up their flower spikes. The latter should be carefully and neatly staked as they attain sufficient length. Flowering plants are best placed by themselves in the lightest position in the house, where they may be examined from time to time for the presence of slugs, which devour the spikes and do irreparable harm. Full exposure to the light, combined with moderate heat, is a great assistance in the development of flowers. Small or weakly plants should have their spikes removed as soon as they are observed, as the production of flowers may mean the death of the plant.



FIG. 25. POTATO KATIE GLOVER (SEE P. 53).

Weakly, unhealthy plants are very precocious in the production of flower spikes, which, if allowed to develop, never produce satisfactory flowers. Should any plant be in need of fresh rooting material, and its new growth in the desired condition, that is some few inches long, and about to send out fresh roots, it may be repotted. The condition of all Orchids that need repotting should be closely studied, for if the work is done when the plants are about to make roots, they will receive only a very slight check. It is much easier to keep a healthy plant growing than it is to nurse an unhealthy plant back to a vigorous condition again. Most plants appreciate fresh material, especially at the season when they are developing fresh roots. A compost consisting of equal portions of peat fibre, and A1 fibre of a soft nature, with *Sphagnum*-moss, to which some broken leaves may be added, will be found suitable for *Odontoglossums*. Newly-potted plants need to be watered with extreme care at this season, as the plants will not produce fresh roots in a saturated compost.

HARDY FRUIT GARDEN.

By H. MARKHAM, Gardener to the EARL OF STRAFFORD,
Wrotham Park, Barnet.

Apricots.—As Apricot trees bloom early, the pruning and regulating of the branches should be done before the buds are far advanced. If the trees were given proper cultural attention last summer very little pruning will now be required, beyond shortening fore-right shoots and stopping young branches that are needed to fill bare spaces or to replace unsuitable branches, etc. Examine the ties and remove any that are faulty, using fresh ones where needed, allowing ample space for the swelling of the bark during the coming season. Young trees that made rather strong growths last year will need to have these shortened to ripened wood, and the suitable shoots for filling bare spaces and building up a goodly shaped tree carefully secured to the wall or trellis as desired. Top dress the roots of older, fruiting trees, after removing a portion of the top soil, with a mixture of fibrous loam, old brick mortar, and a little well-rotted manure.

Cordon Apples.—As cordon Apples are useful for a variety of purposes, such as covering fences, walls, and arches, and usually bear good crops of fruits early, they should be planted

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir C. NALL-CAIN, Bart
The Node, Codicote, Welwyn, Hertfordshire.

Cineraria.—A batch of the earliest plants may be brought in from the frames and placed in an intermediate house; by treating the plants in this way a long succession of bloom may be obtained. The leaf-mining maggot is sometimes troublesome, but occasional spraying with a nicotine emulsion will do much to prevent the appearance of this pest and also keep green fly in check. A little soluble plant food mixed in the water about every tenth day will be found very beneficial for feeding the roots at this stage of growth.

Allamanda.—These climbing plants should be cut hard back without further delay. Where they are grown in pots, they should be repotted into larger receptacles if this appears desirable, or a portion of the surface soil may be removed and new material added. Allamandas may be trained on wires, and will be found to make fine specimen plants during the summer months. Cuttings may be inserted now in sandy soil in a fairly high temperature, when they will soon root.

The Conservatory.—Every effort should be made to keep the conservatory as bright as possible. Fresh batches of various kinds of bulbs and Azaleas should be brought on in the forcing quarters, so as to maintain the display. These subjects, with *Cyclamen* and *Primula*, will give a pleasing effect. Watering must be done carefully at this period.

Ferns. At this season of the year Ferns are generally in a dormant state, and may safely be potted into larger receptacles. Where good turfy loam is available for this work, a mixture of equal parts loam and peat, with clean, finely broken crocks, and silver sand added to assist good drainage, will form a very suitable compost for most kinds and varieties of Ferns.

THE FLOWER GARDEN.

By EDWIN BECKETT, Gardener to the Hon. V. L. ARY
GIBBS, Aldenham House, Hertfordshire.

Lawns and Drives.—As they form important adjuncts to the pleasure grounds and gardens lawns and carriage drives should be kept thoroughly clean and tidy, and rolled on all suitable occasions. New walks should be prepared at this time of the year, and grass verges trimmed where necessary. Clean, well-rolled drives and walks add greatly to the appearance of a well-kept garden.

East Lothian Stocks.—To provide beds of these lovely, sweet-scented, early flowering plants, the seeds should now be sown in heat and the young plants pricked off into boxes. Great care should be exercised when watering these plants, and they should not be sprinkled overhead, as this would cause the plants to rot off at the base. Autumn-sown plants that are being wintered in cold frames should also be protected from an excess of moisture for the same reason. They are fairly hardy subjects, and it will not harm them if a little frost delays their progress. Sharp frost may harm them, but a few degrees will be beneficial.

Sweet Peas.—Modern practice tends to the raising of Sweet Peas in pots during the autumn and wintering them in cold frames. This is not, however, practicable everywhere, and where plants are required for early flowering seedlings should be raised in gentle heat, so that they will be ready for planting out in April. Sixty-sized pots should be employed, and filled with a good, sandy compost. Sow three seeds in each pot, and thrust the seeds down into the soil to a depth of about $\frac{1}{2}$ to 1 inch. A temperature of about 60° will secure rapid germination. When the seedlings are well through, place them in cold frames, after hardening off, and protect them from frost during severe weather. At a later stage, when they have become well hardened, afford ample ventilation when the weather is suitable, but steps should be taken to protect the young plants by means of netting, when the frames are open, as birds are very partial to them. Guard also against damage by mice.

freely. The borders should be thoroughly prepared and the drainage made good, especially where the soil is of a heavy nature and resting on a great depth of clay. Either single or double upright cordons will quickly make useful fruiting trees, and may be used for filling bare spaces on walls or fences. Plant at a sufficient distance from the wall to allow ample space for the thickening of the stems as the trees increase in size. The following is a select list of useful dessert Apples that will give a supply of excellent fruits over a long period: Ellison's Orange, Cox's Orange Pippin, Egremont Russet, Allington Pippin, Maidstone Favourite, Ribston Pippin, Wyken Pippin, Duke of Devonshire, May Queen, and Adams's Pearmain.

Espalier Pears.—When pruning these trees thin out the old spurs where they are crowded in order to encourage strong and fruitful buds to develop all along the branches. Timely attention in this respect will greatly improve both the fruitfulness of the trees and the size and quality of the fruits.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

The Orchard House. A few trees of such varieties as Cardinal and Early Rivers' Nectarines, with Duke of York, James Walker, and Duchess of Cornwall Peaches, will have been started. Another batch of these trees should now be introduced to gentle warmth, with a few Peregrine Peaches in addition. Select well-rooted trees in moderate-sized pots, trees with short-jointed wood, full of buds. Allow plenty of time for the plants to develop slowly in a moderate temperature of 43° to 48°. Encourage the trees to grow as much as possible during the daytime when sun heat is available, as little or no fire heat will be necessary, except in severe weather. Plunge the pots, where this is possible, and renovate the fermenting material in the earlier houses, as recommended for pot vines.

Cucumbers. Plants raised from seed sown as recommended in a previous calendar will now be ready for planting out. See that the pits are clean, and make up a bed of leaves and litter, on which place small mounds of soil, about four feet apart, composed of two parts loam and one part each of old Mushroom-bed manure and leaf-mould. Set out the plants as soon as ready, when the mounds have become warmed through. Maintain a humid atmosphere by lightly syringing the plants and damping the paths and other surfaces. Let the temperature remain at present similar to that recommended on p. 28 in the issue of January 21.

Melons.—Although the weather has been fairly mild, it has been almost sunless, and young plants are consequently weak, no matter how suitable the houses or pits. A few more seeds should be sown to raise a batch of plants that may have to take the places of those which persist in remaining weak. These new plants, when once they root freely, make rapid progress as the days lengthen.

THE KITCHEN GARDEN.

By JAMES E. HATHAWAY, Gardener to JOHN BRENNAND, Esq., Baldersby Park, Thirsk, Yorkshire.

Mustard and Cress. Sowings of these salad plants should be made once a fortnight in shallow boxes. The seed should be sown on a flat soil surface without any covering. When a crop has been cut it is not necessary to empty the box; if the surface is skimmed off and a little fresh soil added another sowing may be made at once. Young Onions for salad use may be raised in a similar manner.

Mint. Roots should be lifted and placed in boxes eight to ten inches deep; the roots can be cut out in squares the size of the box, dropped in and slightly covered with soil; if placed in a temperature of 60° a supply of fresh Mint will be forthcoming.

Seakale.—To obtain supplies of Seakale over a long period, roots should be introduced into warmth every fortnight. A Mushroom house is a suitable place for forcing Seakale, also underneath plant stages where the light can be excluded. The roots should be well moistened with the syringe twice a day. A temperature of 50° to 55° is sufficient, for in a higher temperature the growth develops weakly. In taking up the crowns save the smaller roots for propagating; these should be cut in lengths of 6 inches and placed in boxes filled with soil just sufficient to cover them, and placed in a cold frame. These prepared roots will be ready for planting in the open in April.

Seakale in the Open.—Plants in beds in the open may have pots placed over them, and if the pots are covered with fermenting material good blanched stems will soon be available for use.

Rhubarb.—Roots of this vegetable should be regularly introduced to a warm dark place and treated very similarly to Seakale. A stock of crowns should be lifted when the weather is open, so that in frosty weather there will be no difficulty in maintaining a constant supply of leaf stalks.

POTATOS.

For a number of years past I have presumed to offer, in your columns, some advice regarding the new varieties of Potatos as they were put on the market. To-day there is a slump in Potatos, nevertheless several new varieties are before the public, and are being taken up by keen growers, if not in large quantities yet sufficient to carry out experimental trials. Messrs. Sutton and Sons are offering their new early Dunvegan, which is a white round, immune to wart disease. I was privileged to see it lifted at the Ormskirk trials in July, and its appearance and crop then delighted every one. One of the largest growers present asked Mr. Lasham (Messrs. Sutton's Potato expert): "What price 10 tons, Mr. Lasham?"

Katie Glover (see Fig. 25) is one of Findlay's introductions, and received an Award of Merit at Ormskirk. It is a second early round, of a pinkish colour, and may have a future before it. It will be in the running at Ormskirk this season for a higher award. K. of K. is also one of Findlay's; the tubers somewhat resemble those of Katie Glover, but with a most distinct haulm, producing very many stems of a

Edward and Arran Chief, which are not immune to wart disease, is bound to bring about a new condition of things, and tend to the spread of wart disease, I think. It is up to the growers to help in suppressing any outbreak of wart disease that may occur as a result of this concession.

The Board of Agriculture for Scotland has just published the acreage under each variety of Potato in Scotland in 1921, and it is interesting to note that among earlies Epicure heads the list with over 9,000 acres; Eclipse (including Sir John Llewellyn) is next, and Duke of York (including Midlothian Early) is third, but both these are under 2,000 acres. Sharpe's Express has 887 acres. These are all susceptible to wart disease. Edzell Blue, Dargill Early, and Witch Hill are the immunes, and of these the last is the Potato for the connoisseur. In the second early group Great Scot is easily at the top with 13,196 acres. Mr. Chittenden, Director of the R.H.S. Gardens, at the International Potato Conference in 1921, stated that he considered this the "best all-round Potato." Arran Comrade comes next with 5,607 acres. For garden culture and for exhibi-

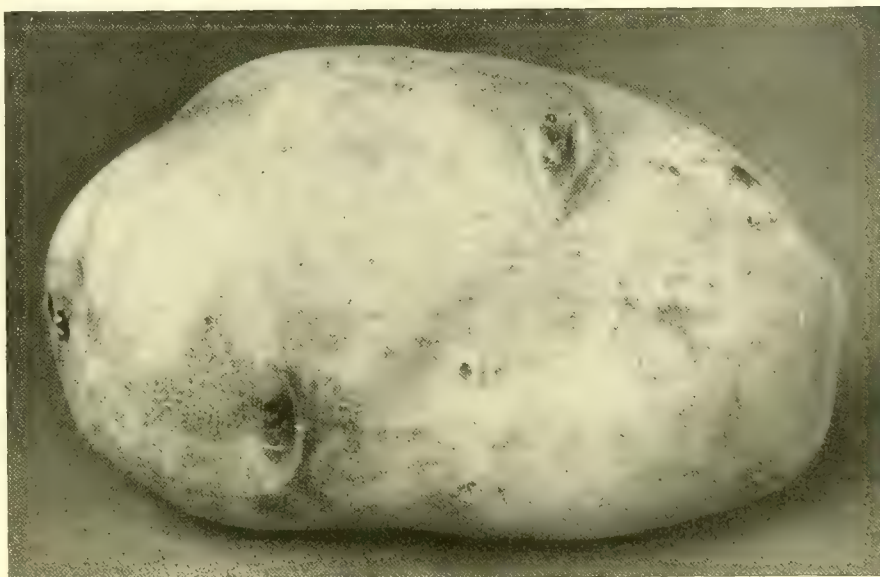


FIG. 26. —POTATO DI-VERNON.

rather thin, wiry growth, Katie Glover, on the contrary, having an ideal "top."

Di-Vernon (Findlay) (see Fig. 26) is a thick kidney in shape, splashed with purple at the eyes. My experience of it two years ago was as follows:—I paid Mr. Findlay five guineas for 1 lb. of tubers, which I cut up into single eyes and planted in my private garden. The yield was 56 lb. I was doubtful of its being popular on the early market on account of its colour, but Sir Matthew Wallace and Mr. T. Scarlett assure me if it is early enough the colour splashes will not be prejudicial.

Crusader (the late Dr. Wilson) is a late kidney variety, not unlike a refined Golden Wonder in appearance, which is being distributed widely for the first time this season. Unlike the first two preceding sorts, which cost the purchaser some eight or ten shillings a pound, Crusader may be had for seven or eight shillings a stone—quite a reasonable price for a new Potato.

Rhoderick Dhu (S. T. Farish) is a late round variety that obtained Lord Derby's Gold Medal at Ormskirk in 1920, but the season of 1921 did not suit it so well as previous ones. Given a normal season, it will yield a great crop of tubers which cook splendidly and keep well. The changed policy of the Ministry of Agriculture, which will again allow varieties like King

for exhibition purposes I think it is the best of the second earlies. This Potato and Great Scot are both immune. British Queen is represented by 5,592 acres. King George and The Ally have both decreased acreage. King George from 5,540 in 1920 to 2,327 acres in 1921. I am not surprised at this, as it always, in my estimation, lacked quality and is apt to go black when cooked. Arran Chief has a great place. It is at the top of the main crops, with 28,223 acres; King Edward is next with 14,038 acres; Kerr's Pink, 11,809; Golden Wonder, 5,305; Up to Date types, 4,665; Tinwald Perfection, 4,179; Majestic, Abundance types, Langworthy, and the old Champion, which is still grown in the north of Scotland, have each a record of over 2,000 acres.

Among the immune varieties Tinwald Perfection and Majestic are in very good demand. Kerr's Pink has lost some of its popularity on account of developing much second growth last season, but where weight of crop is wanted it must be considered. My friend, Mr. G. W. Leak, Managing Director of Messrs. R. H. Bath, Wisbech, tells me he raised 46 tons of Kerr's Pink from 2½ acres of ground last season! Where Golden Wonder will grow, and it will succeed in most places if it has very generous treatment, my advice is to plant some ground with it, as there is no late Potato that has ever been raised to equal it in quality on the table. H. Cuthbertson, Duddington, N.B.

EDITORIAL NOTICE.

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Editors and Publisher.—Our correspondents would oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

A SEEDSMAN'S BROADSIDE.

THE earlier history of most great industrial concerns is largely made up of odds and ends, many of which, lightly regarded at the time, have been destroyed. Those which, by some curious accident, still exist, have become of the highest documentary value. Buckle, in his *History of Civilisation in England*, and Macaulay in his *History and Essays* found much of their most valuable data in the flotsam and jetsam of literature; and no branch of commercial activity is more dependent for its history on what may be regarded as *ephemerides* than that which deals with the history of the dealer in seeds and plants. Carlyle has declared that "ten histories of kings and courtiers were well exchanged against the tenth part of one good History of Booksellers"; and the same, I think, might be said of the seedsman and nurseryman.

The history of botany has been told many times, but little credit has been given to those who have done so much to import and distribute garden plants of all kinds. Unfortunately, those who have had the knowledge and some of the material have not had the time to compile an adequate history of the nursery and seed trade. It would not be an easy task, but it would be its own reward.

Meanwhile, it is interesting to deal with some of the many points in its history, and one of these seems to suggest itself in a very curious and unusual broadside which I have had the good luck to add to my modest collection—an advertisement in the shape of a broadside issued by the historic and world-esteemed house of M.M. Vilmorin et Cie., of Paris. The most ancient British firm of seedsman is, I think, that of Dickson and Co., of Edinburgh, which has had an uninterrupted existence since 1729—nearly two centuries; I have one of their catalogues dated 1794. But that firm no longer includes among its partners anyone of the name of Dickson.

M.M. Vilmorin, however, continue to direct the firm which has been in their family for over two centuries, and which, in a sense, goes back much farther, for they absorbed in the 18th century the business of one Le Febvre*, which existed prior to 1692 on the Quai de la Mégisserie, Paris. This, as its name indicates, was a very important centre when distribution of merchandise was solely confined to road coaches. The founder of the Vilmorin-Andrieux branch of the business, so far as can be definitely ascertained, was one Pierre Geoffroy, who died on June 2, 1728, and whose widow, Jeanne Diffotot, continued it after her husband's death, and she was succeeded by her daughter Claude Geoffroy. The business was then, as now, on the Quai de la Mégisserie, formerly called Quai de la Ferraille. In 1745,

Middle. Geoffroy married Pierre Andrieux, whose knowledge of plants procured him the appointment of Botanist to the King, Louis XV. — *le bien aimé*; and M.M. Vilmorin still possess the actual orders to Pierre Andrieux from the King for seeds and trees to be supplied for the gardens of the Tuileries.

Pierre Andrieux and his wife had one daughter, Adelaide, who, on July 14, 1774, married Philippe Victoire Lévêque de Vilmorin. M. de Vilmorin was born on September 22, 1746, at Landrecourt, near Verdun of imperishable memory; he was the youngest of ten children of a nobleman greatly reduced in circumstances by the wars, and, an orphan at 13, he went to Paris at an early age, intending to take up the medical profession. He became acquainted with Antoine Nicholas Duchesne (1747—1816), the eminent botanist, and, among others, also with Pierre Andrieux, whose daughter, as already stated, he married, he then became a partner in his father-in-law's business, which changed its title to Andrieux et Vilmorin, and afterwards to that of Vilmorin-Andrieux; and as such it has always remained. In common with other business houses, the establishment had its sign, which was originally *Au Coq de la bonne Foy*, which was altered in 1747 to *Au Roi des Oiseaux*. But during the

how to make it. The broadside concludes with the following: *Les curieux qui voudront choisir eux-mêmes leurs arbres, plantes et arbustes, pourront aller au jardin du sieur Vilmorin Andrieux*. One wonders where in Paris M. de Vilmorin's nursery garden was at that time situated.

The broadside derives a special interest from the little account which is written on the back, evidently by a clerk, but signed by the head of the firm himself. The account is as follows:—

Du 1er decembre, 1769	liv.	sols.	den.
Lotier dorant ...	1	—	—
4 Jacintes doubles ...	1	4	—
3 Narcisses id. ...	—	9	—
3 paq. de Coloquintes ...	—	12	—
4 autres paquets de fleurs à 6s.	1	4	—
Pour Monsieur Chaussée			
12 paquets de fleurs à 6s.	3	12	—
	8	1s	—

Reçu Comptant
Vilmorin-Andrieux.

It was probably Pierre Philippe André Lévêque de Vilmorin, who was born in Paris

AU ROI
DES OISEAUX,
ET A LA RENOMMÉE,
Ci-devant AU COQ DE LA BONNE-FOY,
Quai de la Mégisserie.
(N° 45.)
(Vous êtes prié de faire attention à ne pas confondre l'Enseigne :)
la véritable est le ROI DES OISEAUX.

FIG. 27.—TITLE HEADING OF MESSRS. VILMORIN'S BROADSIDE OF 1769.

Revolution, when anything with the name *not* was anathema, M. de Vilmorin discreetly changed his sign to *A L'Oiseau National*, and thus probably escaped molestation.

It would appear from our broadside that the partnership with Pierre Andrieux was entered into by M. de Vilmorin before his marriage to the daughter, if the year given, 1774, is correct, for the interesting bill written on the back and signed by the head of the firm as Vilmorin-Andrieux, is dated 1769. In this broadside M. de Vilmorin describes himself as *Gendre et unique successeur du feu Sr. [Sieur] Andrieux, précédemment au coin de l'Arche Marion, Marchand Grainier Fleuriste et Botaniste ordinaire du Roi*. From this it is clear that Pierre Andrieux died before 1769, and that his son-in-law had succeeded him in his royal appointment. The broadside, of which the upper portion, serving as a title, is here reproduced (Fig. 27), is a kind of handbill or catalogue of the seeds and plants in which the firm dealt. It offers all kinds of seeds, bulbs and shrubs, particularly *graines et plantes servant à la médecine, à la pharmacie, aux distillateurs et aux teinturiers*.

One notes, among other things, *Ray-Grass d'Irlande* and *gros navets d'Angleterre*. But special emphasis is placed on the *semences nouvelles, propres à la composition du Batafai des sept graines*, and then follow directions

on November 19, 1776, and who, elected to the French Académie des Sciences in 1844, died at Barvies (Loiret), March 21, 1860, who raised his firm from a comparatively small affair into one of world-wide renown. He is described by J. C. Loudon (*Gardeners' Magazine*, February, 1831, p. 16) as "an accomplished gentleman and scholar." "We are proud," Loudon goes on to say, "to reckon him among the number of our friends," and most happy to have an opportunity of acknowledging the hospitality and kindness which the British author received at his hands. M. de Vilmorin was a great agriculturist, Editor of the long-lived *Bon Jardinier*, and a prolific author of books on gardening and allied subjects. "M. Vilmorin, the celebrated French seedsman," Peter Lawson and Son tell us in their *Synopsis of the Vegetable Products of Scotland*, 1851 (p. 12), "introduced St. John's day or midsummer rye into France from Tuscany." His name is commemorated in Vilmorinia, introduced from Domingo in 1826.

Probably our broadside, with its interesting personal touch in the way of an account, is the only surviving relic of its kind issued by this firm in the earlier years of its existence as Vilmorin-Andrieux; of how and when it crossed the Channel no one can tell, and its very preservation was probably a mere accident. W. Roberts.

* "Le Sieur Le Febvre, sur le quai de la Mégisserie, a un grand assortiment de graines et légumes de Jardins," recorded A. de Pradel in *Le Livre Commoade des adresses de Paris pour 1692*, and Dr. Martin Lister, who accompanied the Earl of Portland on his Embassy to Paris, of which he published an account in 1698, speaks of this same Le Febvre as a seedsman, of his nursery and of his particularly fine Tulips.

THE DROOPING-FLOWERED GLOXINIA.

THE figure of the hybrid Gloxinia, on page 8, recalls a strain of Gloxinia that was grown at Chiswick in the gardens of the Royal Horticultural Society in the early 'eighties of last century. The flowers were tubular, drooping, and of an unattractive shade of blue purple. They appeared at a time when the transition from the drooping and irregular to the erect and regular flower was not complete; and formed a marked contrast to the fine strains with erect flowers in those days.

The small and almost invisible mite mentioned by Mr. Heal was destructive even then. One large batch was ruined. The next year the Gloxinias were placed under the care of the late Mr. A. Hemsley, and he found the plants going wrong just as they were coming to their best. He brought a plant to me to see if I could tell him what was the matter. I soon showed him the mite. He then thoroughly syringed each plant with soft soap and water, kept the house close and steamy for two or three days, and the plants completely recovered. J. F.

CULTURAL MEMORANDA.

RAISING PERENNIALS FROM SEED.

MANY perennial flowering plants may be raised from seed sown at this time of the year, and this work forms a most useful occupation on days that are unsuitable for operations in the open. Seeds of such plants as hybrid Pentstemons, Michaelmas Daisies, Phloxes and Delphiniums may be sown, and the seedlings raised in gentle heat; when large enough to handle comfortably, the plants should be pricked off into well-drained boxes containing a suitable compost, and grown on for a short time in a warm temperature until established, after which they may be hardened off and placed in cold frames where they can be protected during adverse weather until such time as they may safely be stood out of doors prior to planting time.

One great advantage of this system of raising seedlings is that over and above having plants to replace old ones, and possibly worn out plants on the borders, the seedlings will in all probability flower at a later period than the permanent plants, thus maintaining a longer season. Ed. Beckett.

MESEMBRYANTHEMUM AND SOME NEW GENERA SEPARATED FROM IT.

(Continued from page 44.)

THE following are all the species at present known to me, of which I have all but two in cultivation. For brevity in the synonymy the generic name *Meembryanthemum* is indicated by the letter M.

A.—Surface minutely puberulous, smooth and velvety to the touch.

(1) *Lithops Friedrichiae*, N. E. Br.—Growths up to 1 in. high, 10 lines broad, and 8 lines thick, dull red, or brownish-green, with the convex top of the lobes greener, without spots, and reflecting light like a looking-glass, although puberulous. Flower not seen, stated to be yellow.—*Friedrichiae*, Dinter, *Neue und wenig bekannte Pfl. Deutsch-Südwest Afr.*, p. 41. Great Namaqualand, near Warmbad.

AA.—Surface glabrous, opaque, not reflecting light (to the end).

B.—Flowers yellow

C. Top of the lobes tuberculate or with a more or less evident network of slight furrows or with slightly raised dots

(2) *L. turbiniformis*, N. E. Br. (Fig. 23).—Growths solitary or 2-4 in a clump, up to about 1 in. high, 1½ in. broad, and 1 in. thick, flat at the top, which is either distinctly tuberculate or marked with a sort of network of slight furrows varying from light rusty ochreous to a dark ironstone colour, with the furrows of

a darker tint, not spotted. Calyx unequally 8-lobed, stout, compressed; lobes 8-10 mm. long, 4-5 mm. broad, oblong or ovate-oblong, obtuse, green with reddish tips. Corolla about 1½ in. in diameter; petals 50-60 in about 2 closely overlapping series, widely spreading, 6-8 lines long, about 1 line broad, linear, tapering towards the base, bright yellow on the inner face, whitish on the back. Stamens collected into a column about 4 lines long; filaments yellow, fading into white at the base; anthers orange-yellow. Ovary slightly convex at the top. Stigmas usually 6-7 (sometimes 5), finally 6-7 lines long and exceeding and curving over the stamens, filiform, yellowish. Capsule somewhat compressed, 4½-6 lines in diameter, 6-7-valved. Seeds smooth, brown.—*M. turbiniforme*, Haw. Rev. p. 84 (1821); Burchell, *Travels*, Vol. 1, p. 310; D. C., *Prodr.*, Vol. 3, p. 417; Don, *Gen. Syst.*, Vol. 3, p. 126; Berger, *Mesemb.*, p. 291; M. Hookeri, Berger, *Mesemb.*, p. 283 and

been misled by Sonder's union of these two species in the *Flora Capensis*. For not only are they two utterly different species, but one is a *Lithops* and the other a *Conophytum*, and grow about two hundred miles away from each other.

(3) *L. fulviceps*, N. E. Br.—Growths solitary or 2-4 in a clump, up to 1 in. high, 1½ in. broad, and 1 in. thick, nearly flat or slightly convex at the top, which varies from bright fulvous to dingy pinkish-rust colour, thickly sprinkled with rather large, round, dark green dots, which are usually slightly raised, but sometimes almost even with the surface, and scattered among the dots are few or several inconspicuous slender dark orange-red irregular lines or dots, usually placed in slight depressions of the surface, so that the latter is usually very slightly tuberculate-rugulose to the touch. Calyx 4-6-lobed; lobes 2½-5 lines long, 1½-3 lines broad, linear-oblong, obtuse, brownish or brownish-fulvous, sometimes tinted with pale violaceous, dotted.



Photo by T. N. Leslie.

FIG. 23.—LITHOPS TURBINIFORMIS (SYN. MESEMBRYANTHEMUM HOOKERI AND M. TURBINIFORME). NATURAL SIZE.

284, f. 64, copied from *Bot. Mag.* (1908). *M. truncatellum*, Hook, f. *Bot. Mag.*, t. 6077, not of Haworth.

Prieska Division, at Zand Vlei, Burchell, Pole Evans. This species was the first that was discovered of these very remarkable "mimicry" and "windowed" plants, but as I have already given some account of its discovery and rediscovery on p. 250, Vol. LXX., I need only add here that the above description was made from the living plants that were so generously sent to me by Dr. I. B. Pole Evans, and the figure is reproduced from a photograph kindly sent to me by Mr. T. N. Leslie. This figure represents the tuberculate form, but I also have other forms that are very much smoother with only a coarse meshwork of slightly impressed lines upon the top of the plant.

In his very interesting account of plant-mimicry, Dr. Marloth (*Trans. N. Afr. Phil. Soc.*, Vol. 15, p. 99), remarks that Burchell, "in his travels through the Karroo found a species of *Meembryanthemum* which he named *M. turbiniforme*, thinking it to be undescribed. As a matter of fact it had been found by Thunberg, who had named it *M. truncatum* from the shape of its leaves." Dr. Marloth has in this

Corolla 10-14 lines in diameter, expanding between 3 and 4 p.m. (Greenwich time), and closing at night, lasting about a week, odourless; petals 40-45, in about 2 series, 4-5 lines long, and less than 1 line broad, linear, subacute, the inner bright yellow on both sides, the outer whitish with a faint pink tinge on the back, with the tips often becoming more or less red on both sides. Stamens about 3 lines long; filaments deep yellow or ochreous fading to pale yellow at the base; anthers yellow. Style short, up to 1 line long, stigmas 4-6, about 3 lines long, slightly exceeding the stamens, filiform, rich ochreous yellow.—*M. fulviceps*, N. E. Br., in *Kew Bull.*, 1914, p. 167; *Bot. Mag.*, t. 8776a, an extremely bad figure of the plant. Great Namaqualand, Great Karasberg Range, on sandy plains at South Narudas, 4,500 ft. above sea level, Pearson 7812!

Described from living plants sent to England by Prof. H. H. W. Pearson. In my original description I stated that this plant is smooth on the top; that statement was based upon a single specimen which probably was nearly smooth, but numbers of others examined since were as above described. N. E. Brown.

(To be continued.)

THE GREAT DROUGHT OF 1921 AND ITS EFFECT ON GARDEN PLANTS.

(Continued from p. 45.)

SURREY.

FROST, as well as the abnormally dry season, caused much damage to plants. On December 13, 1920, we registered 27° of frost, and this frost had a very serious effect on many plants, some of which were recovering nicely when they had a further setback by more frost and snow, for all the young growths were expanding in a most promising manner. This was on April 15 and 16, 1921. The previous days had been warm and sunny and the temperature as much as 70°. Many beautiful Azaleas, Acers and Magnolias (notably *M. parviflora* and *M. Watsonii*) were badly damaged, and these and the choice Acers never really recovered all the summer, as the frozen young leaves and points were visible all the season. The choicer forms of Azalea amoena were showing flower, and these were all spoilt. They looked as if they had been baked—or boiled—but these recovered splendidly during the summer. Roses were breaking, and many of these were badly injured, and the first flowers ruined, but they recovered splendidly and we had a fine display later. Many Primulas were killed outright; Spiraeas were showing bloom, and these were partially spoilt, as also were some of the Himalayan Rhododendrons and Abutilon vitifolia. These shrubs recovered partially, but were again harmed by the severe drought, which has lasted up till the time of writing.

Laurel hedges and Arbor vitae suffered very much in this district and even Pine trees. Raspberries, Strawberries and Black Currants were among the fruits that suffered most, for many bushes were killed outright, and it was difficult to replace the Strawberries. Apples were small generally—King of Tomkin's County, Bismarck, Ribston Pippin, Lane's Prince Albert, Sturmer Pippin, Lady Sudeley were among the best. A good deal of the Pear blossom was killed by frost and snow. Violas were killed (scorched) by hundreds during August. Peas suffered after the first and second earlies were over; the late varieties were roasted and watering was no use. Brussels Sprouts were all but a failure, in fact, all Brassicas were difficult to arrange for successions. Scarlet Runner Beans were excellent indeed. I never had better pods. Cauliflowers were sad turning in in the open before they were any size. Potatoes looked well, but the tubers were very small. Lettuces in partial shade were excellent, two outstanding varieties being Carter's Hothorn Standard and Continuity. These did remarkably well where others failed.

In the rock garden, Saxifragas were the worst sufferers, and perhaps Primulas next. Small Rhododendrons and Azaleas needed water every day to keep them alive in shallow quarters. Our soil is sandy and only nine inches to a foot in depth. W. A. Cook, Dagenham Gardens, Wallington Thames.

SUSSEX.

It will be interesting to see what influence the abnormal drought will have on the fruit season of 1922. Most growers seem to expect that Apples will be a very light crop, and there certainly appears to be every reason to anticipate that the biennial bearing habit to which Apples are liable will be even more pronounced than usual. Carrying a heavy crop in such a dry season must have been an exceptional strain on the trees, and it hardly seems possible that they can have had food material to spare for the development of fruit buds. They appear to be full of buds, it is true, but it is probable that these buds are weak, and that much of the bloom will not set. But this should not apply to many of the younger trees which bore only a light crop last year. I shall certainly look to these to give a good account of themselves this season, particularly as they have managed somehow to make a fair amount of growth and appear to be in excellent health. The leaves hung on them till very late in the autumn, which I fancy is a favour-

able sign. Plums and Pears, which yielded very little last year, should certainly do well if they escape frost at blooming time. Some of my oldest Plums have quite refurbished themselves with growth in the absence of fruit.

One thing is certain—whatever after-effects of the drought may show themselves in the coming season, it can hardly fail to be an improvement on the last, the passing of which was regretted by very few growers. Financially 1921 was by far the worst year I have had since the war. There was practically nothing to sell but Apples, and those were mostly cheap, owing to the heavy crop throughout the country and the frequent glutting of markets by windfalls, which were exceptionally plentiful, as a result of the drought and high winds. At the same time expenses were higher than ever. I look forward very hopefully to a much more successful season in 1922. Most of the grower's requirements, including labour, are at last becoming cheaper, and there is the prospect that a general improvement in trade conditions will produce a better demand for fruit. A substantial reduction in railway rates would be more helpful than almost anything else. E. M. Bear, Magham Down, Hailsham.

(To be continued.)

RAISING CONSERVATORY PLANTS FROM SEED.

WHEN making the seed order in spring, one realises how much the conservatory depends for its brightness, the year round, on plants which may be raised from seeds. At this season of the year especially, excepting for bulbs, practically all the dwarf plants in flower were raised from seed included in last year's order. Cyclamen, for instance, although they are generally classed amongst those to be raised in autumn, are no less satisfactory if raised from seed sown in a brisk heat very early in February, since the plants have no dull days to contend with, like those raised in autumn, and it is surprising the difference this makes. In fact, in July, when both are ready for their flowering pots, there is little, if any, difference between the two batches. I have also had occasion to purchase young plants from boxes in March, and where there is not sufficient heat to warrant sowing now, it is a plan to be commended.

Primulas of the sinensis type will shortly be at their best from seed sown in April and May, 1921. Simple as is the raising of these flowers, December tries them, unless there is a free circulation of warm air in the growing house, and extra care is taken, when watering, not to wet the collar of the plant. Primulas should not be taken into the conservatory until they are nearly in full bloom, otherwise the trusses will not develop evenly. *P. stellata* will do with much cooler conditions than the ordinary type of *P. sinensis*, as the plants are not so subject to damping as are the older varieties. *P. obconica* is the least fastidious of all green-house Primulas, and it is worth going to a little trouble to obtain seeds from those who have exceptional strains. *P. malacroides* and *P. kewensis*, amongst the smaller types, are useful. All these may be sown at the same time. Likewise Cinerarias, which from January to May are indispensable to any show house. In addition to the large-flowered and Stellata types, Sutton's Feltham Beauty, with a habit much similar to the last-mentioned varieties, but with large flowers, is worth including.

Herbaceous Calceolarias merit attention, and few plants are more showy. June is early enough for sowing the seed. *C. Chirani* bears the same relation to the herbaceous type as the Star Cineraria does to the large-flowered form. The flowers are clear golden yellow. A variety, however, is assured if the hybrids are sown. Amongst these the John Innes strain is very rich in mauve and cream shades. Although

the foregoing plants will keep the house gay to the end of June, autumn-sown annuals come in early in May, and add considerably to the effect. Some of the strains of *Schizanthus* are exceptionally fine, while Clarkias, in orange shades particularly, combine to make a most effective group. Y. G.

(To be concluded.)

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

Isabelle (see pp. 3, 23, 47).—The correct use of the word is evidently desirable. The following information is taken from Littré's *Dictionnaire*, than which there can be perhaps no higher authority: (1) Originally noun, signifying a kind of stuff in colour midway between white and yellow; "les isabelles pâles et dorées seront teintes avec un peu de raucourt (rocou)" (1669), Rocou, Rocourt, Raucourt or Rancourt (Mod. Brazilian-urucu) being a dyeing material obtained from Bixa Orellana, and used to produce a yellow or golden yellow on silk, etc. (2) Adjective use, whence, for instance, "cheval isabelle," a pale yellow, self-coloured horse became simply an isabelle or cream, as we should say. Littré does not regard the ascribed derivation from the archduchess as having any foundation. The tint given by the well-known vegetable dye should fix the matter. H. E. Durham.

Prevention of Wilt in Melons.—Wilt or canker in Melon plants may be due to several causes, including bad ventilation, the use of the knife, and by a too frequent use of the syringe. From the seedling stage to ripening of the fruit, the plants need an adequate and continuous circulation of fresh air, without creating a draught or reducing the temperature; this will prevent moisture from condensing, and the plants will develop strong, leathery leaves, capable of resisting red spider, and so do away with the necessity for the syringe. Continuous and timely attention to stopping and pinching with the thumb and finger-nail will prevent the production of superfluous leaves and largely obviate the use and consequent wounds of the knife. John Bates, Meaford Gardens, Stone, Staffs.

Cedrus Libani. We have a group of four magnificent trees of Cedrus Libani, the largest of which is 25 feet in circumference, at 3 feet from the ground. These Cedars are reputed the largest in England and the age variously computed at from 450 to 1,000 years. They almost strip themselves of "needles" every third or fourth year, and are very slow growing. Cedrus atlantica glauca is also very fine here. Could any reader kindly give me information respecting Cedrus Libani, the introduction of the tree to this country, and the reputed ages of specimens. G. W. Stuey, The Gardens, Chesham Wood Cedars.

Begonias Forming Bulbils at the Axils of Leaves (see pp. 36, 48).—Having grown Begonia martiana for the past five seasons, my experience of it is that bulbils are formed in the axils of leaves and flower stalks at the time the flowers commence to open, and are ready to drop when the flowers fade, as a slight shaking then will practically clear the plant of them. I believe that *B. martiana* is a variety of *B. grandis*. It is a very fine subject for the conservatory during August and September. The plant requires a warm temperature and a peaty soil, with a liberal quantity of silver sand. I find that the tubers decay at the end of the second season, but as the plant is easily raised from the bulbils, if sown the same as seed, at the end of April, there is no difficulty in keeping up the stock. This beautiful Begonia should be more widely grown for indoor decoration. Four plants in an eight inch pot make a fine bush about 3 ft. high and 18 in. through, as laterals develop from every joint. G. Horne, Craighead House, Co. Down.

SOME EXPERIMENTS WITH STRAWBERRIES.

It is fate, but none the less unfortunate, that the origin of the garden Strawberry is quite unknown. It is a descendant of the Pine variety, which may or may not be *Fragaria grandiflora*. This Pine came from Holland to England, but where it was found in the first place history apparently fails to relate. There is an old romance that it came from Surinam, which is about as probable as the somewhat older story that there were unicorns in Florida, and, in consequence, lions, as animals were supposed to be found next to their natural enemies. A more probable suggestion is that the Pine is a sport from *F. illinoensis*, but it is past belief that the Americans should have failed to reproduce it, for a native fruit with "some" flavour would have had volumes written about it.

Eight or nine years ago I self-fertilised a Pine obtained from Cambridge Botanical Gardens. It produced too mixed a progeny to be ranked as pure. A cross with *F. chiloensis*, which I self-fertilised, gave various forms of foliage and many sterile degenerates. One of these degenerates was quite new to me; it started as a monophylla and gradually developed more leaflets till at one time it had young leaves with one, two, three, four and five leaflets, all of about the same age, and distributed just anyhow about the plant. My Pine may not be a warranted genuine article, but I doubt if a letter could be found; there are many forms of Pine to-day, including a fluctuating variegated form, which is sometimes green, sometimes mottled or splashed with white.

In all the crosses I made with the Pine variety I found nothing in the nature of the Mendelian equality ratio, in any simple character. My work on simple characters has been limited to such things as white and red fruits, white and pink flowers, double and single flowers, runner making and bush, hairy leaf-stalks and hairless, with a few other experiments of an obvious type, so it is quite possible some cross of Pine $\times$ *F.* species may have produced a simple 1:1 ratio which I neglected, but I do not think this likely.

The fact that there are probably multitudes of characters in foliage was very clearly demonstrated in a cross, *F. chiloensis* $\times$ *F. elatior* (Hautbois); the first generation was uniform in all respects, except sex and structures dependent upon sex. Unfortunately, the degree of female sterility has been so great that I have failed to raise a plant from a self-fertilised or brother-fertilised female, but the cross-back *F. chiloensis* $\times$ (*chiloensis* $\times$ *elatior*) has produced a family with no two plants alike in foliage, and, further, it is impossible to grade the leaves, starting at one end with *F. chiloensis* and ending at the other with *F. elatior*.

Whilst endeavouring to obtain some light on the Pine by analysis, I have carried on parallel work of reconstruction, based on the supposition that the garden Strawberry is the outcome of a series of crossings between species well known in England and Holland in the eighteenth century and earlier. Here I have wasted much time through ignorance on the subject of fertility and sterility, a subject which I can but say I consider has been grossly neglected in the past. With the gleam of light I have very recently obtained on this subject I hope to make better progress in future.

The value of unfinished work is frequently less than that placed on it by its originator, but the storing of facts in inaccessible places is not a habit to be encouraged, accordingly, I trust the following may be acceptable:—

On a large-scale I crossed *F. vesca* and *F. virginiana*, using both plants as male and female parents. The results were two families of plants alike in character and uniform in all respects except sex. The majority of these plants were female sterile, and no well developed fruit has been obtained from them, either by hand pollination or by chance. From hermaphrodites, which set occasional seeds, I have grown nine plants, all rather closely resembling one another and

their parents. From this I suggest that the female, containing all the *F. virginiana* and *F. vesca* factors, when crossed with pollen containing all the *virginiana* and *vesca* factors, can only produce seed when certain combinations of factors are formed, the same as, or similar to, the original cross. That the chances of pure *F. virginiana* ovules meeting pure *F. virginiana* pollen are so remote that the appearance of a pure *F. virginiana* grand-child is not to be expected (the same also applies to a pure *F. vesca* grand-child). That, as above stated, the problems of sterility and fertility have been neglected too long. The foliage of this cross resembled that of *F. virginiana* in colour, and was intermediate in shape and texture, many plants producing multi-foliate leaves.

Continuing, I crossed *F. chiloensis* with a (*virginiana* $\times$ *vesca*) grand-child. The progeny flowered in the summer of 1921, and fruited to some extent, though the prolonged drought seriously affected the crop. The size of fruit was too dependent on the amount of seed set to grade the fruit, but there were distinct indications that some plants, under favourable pollination, would produce fruits about the size of those of *F. chiloensis*, whilst a majority would be about midway between *F. vesca* and *F.*

GOLD MEDAL EXHIBIT OF HARDY FRUIT AT WORCESTER.

The display of fruits on the occasion of the Worcestershire Root, Fruit, Grain and Flower Society's exhibition held in November last, at the County Hall, Worcester, was certainly the finest of its kind ever seen in that old City. In all the classes entries were numerous and filled with excellent produce, the competition being exceptionally keen in the sections for Apples and Potatoes. In the fruit section the principal class was for a display of hardy fruit arranged on a table 8 feet by 4 feet, and decorated with hardy foliage. The first prize in this class was a Challenge Cup, value forty guineas, together with a Gold Medal. W. J. Gresson, Esq. (gr. Mr. T. Parry), Stoke House, Severn Stoke, Worcester, won the premier prize with a superb exhibit (Fig. 29) decorated with great taste. Most of the better known varieties of Apples and Pears were represented and the specimens were of good size and bright colour. Quinces, Medlars, Walnuts and Red Currants were also exhibited, the whole making a grand display of nearly sixty dishes. Mr. Gresson had to compete against



FIG. 29.—FIRST PRIZE EXHIBIT OF HARDY FRUIT AT WORCESTER SHOW.

virginiana. The *F. vesca* flavour appeared both in the large and small fruit in about half the plants that fruited. The leaves are nearly always multifoliate and vary greatly in shape, colour and texture. The plants resisted the drought exceedingly well. A sample of these plants will be tested for fertility this year. A batch of seedlings is being raised from self-fertilised plants in the meantime.

The *F. chiloensis* $\times$ *F. elatior* cross, mentioned above, has been used as pollen parent to *F. virginiana* and the plants grown have scarcely developed sufficiently to enable any conclusions to be drawn. My hope is to unite a plant with fair-sized and *F. elatior* flavoured fruit to a plant of the *F. vesca* $\times$ (*virginiana* $\times$ *chiloensis*) cross, with fair-sized and *F. vesca*-flavoured fruit; then, if all goes well, I should have a reconstructed Pine variety, with a pedigree of a kind to rely upon. Even supposing the Pine does not appear (it is long odds against it doing so) there will be a flavour or flavours ready to pass to the race of modern giants, which, like all giants, seems to be docile and, from the hybridist's point of view, obliging.

All this experimental work has been conducted by me at the John Innes Horticultural Institution, Merton, under the kind supervision of Professor Bateson, and with the assistance of his able staff, to whom I owe a deep debt of gratitude. C. W. Richardson.

four other exhibitors. It may be added that Mr. Gresson was also successful in the leading class for a display of Potatoes arranged on a table space 5 feet by 4 feet, and here he won a Silver Cup, value fifteen guineas, and a Silver Medal. Exhibits from Stoke House Gardens also won many prizes at the National Potato Show held in Birmingham in 1920. Visitor.

FRUIT REGISTER.

APPLE ISLE OF WIGHT PIPPIN.

In mid December a gentleman sent me a box of specimen Apples for naming, and I was delighted to handle a sort well known to me in my boyhood days, Isle of Wight Pippin.

Trees of this old, useful sort are, I believe, prevalent on the island after which it is named. The fruits are useful both for dessert and cooking purposes. The tree is most productive, and by keeping the fruits in a cool atmosphere its season may be extended to the end of December. The fruits are of second or medium size; the skin is coloured rich yellow and covered with a russet shading on the shaded side, giving the whole a luscious appearance. Trees of this useful pippin may be obtained from nurserymen in the South of England, and if only grown for productiveness would be well worth planting. Pomona.

SOCIETIES.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

JANUARY 5.—Committee present: The Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, B. J. Beckton, J. Birchenall, A. Burns, D. A. Cowan, J. C. Cowan, J. Cypher, A. G. Ellwood, A. Hammer, Dr. R. N. Hartley, J. Howes, A. Keeling, D. McLeod, F. K. Sander, E. W. Thompson and H. Arthur (Secretary).

AWARDS.

FIRST-CLASS CERTIFICATES.

Cypripedium Gratrixii.—The large, flat, dorsal sepal is white suffused with rose and heavily spotted with dark red; the petals and pouch are bright reddish brown. *C. Cyclops Weston-birt var.* A beautiful flower of large size, and perfect shape. From Mrs. GRATRUX.

C. Bourtonense (Harefield Hall × Blanche Moore).—A well-shaped flower; the dorsal sepal is green with deep white margin, the green covered with brown spots; the petals and pouch are light brown.

C. Hestra var. Empress of India.—The dorsal sepal is heavily spotted with deep purple; the petals and pouch are dark brown. All from S. GRATRUX, Esq.

C. Melene (Lord Wolmer × Silene).—The dorsal sepal is white with small green base and a few black spots; the petals and pouch are light green; *Laelio-Cattleya Elysian var. Solaris* (L.-C. Myrrha × L.-C. Smilax). A large flower; the sepals are deep orange and the petals orange-crimson; the lip is deep crimson, and throat veined with orange. From D. SMITH, Esq.

Odontonia Charlesworthii Bedford's var., from Dr. F. BEDFORD.

AWARDS OF MERIT.

Cypripedium Dulciora splendens (Helen II. Wellesleyae) and *C. Lord Wolmer var. Arenea*, from the Rev. J. CROMBLEHOLME.

C. Conquest var. compactum, and *Odontoglossum crispum Noel* from S. GRATRUX, Esq.

Cypripedium San-Actaeus var. giganteum, *C. Asmanii* (*Esion giganteum* × *Beckmanni*), from P. SMITH, Esq.

C. Alma var. Hildegard, from Mrs. GRATRUX.

C. Argo var. March Along, from B. J. BECKTON, Esq.

Odontoglossum leightmense (Rossii × *promerens*), from Dr. R. N. HARTLEY.

GROUPS.

S. GRATRUX, Esq., West Point (gr. Mr. J. Howes), staged a group for which a Gold Medal was awarded. It included *Cypripediums* in great variety. Silver Medals were awarded to Mrs. BRUCE and Miss WRIGLEY, Bury (gr. Mr. A. Burns, the Rev. J. CROMBLEHOLME, Clayton-le-Moors (gr. Mr. E. Marshall), and Messrs. CYPHER AND SONS, Cheltenham, for collections.

NORFOLK AND NORWICH HORTICULTURAL SOCIETY.

THIS old society (dating back to 1829) held its annual meeting on the 28th ult. The report was not such a favourable one as could be wished. Owing to financial loss, the committee has decided not to hold a spring show this year. The Rose Show will be held on the last Thursday in June in the grounds of Bracondale Woods, Norwich, and the Chrysanthemum and Fruit Show in the latter part of November.

J. E. T. POLLARD, Esq., who was hon. secretary for many years, was elected president, and Mrs. Hoffman, Blickling Hall, kindly consented to accept the vice-presidency. As the hon. secretary, Mr. R. J. Preston had notified his wish to retire, it was agreed, upon the suggestion of Mr. H. Perry, that a paid secretary should be engaged. For this position, Captain Sandys Winsch was elected. He is Parks Superintendent of Norwich, and his office is at St. Peters Street, Norwich.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

JANUARY 26.—We were glad to notice a very considerable increase in the attendance at the annual meeting of this excellent horticultural charity over that of recent years, although there is every truth in the frequent contention that a small meeting betokens great confidence in the management. Regret was voiced by all present that the chairman and hon. treasurer, Sir Harry J. Veitch, was absent on the advice of his doctor, thus breaking the long sequence of his presidency at these annual gatherings of friends and supporters of the Institution. We are happy to state, however, that Sir Harry is not seriously indisposed, but keeping to his room as a precaution, in view of the unsettled weather and prevalence of illness. Amongst those who attended we noticed Messrs. P. C. M. Veitch, John White, H. G. Cox, A. Bullock, Owen Thomas, John Heal, H. M. Veitch, Leonard Sutton, R. Frogbrook, George Monro, C. H. Curtis, P. R. Barr, Geo. F. Tinley, J. F. McLeod, E. Monro, Donald McDonald, J. Linford, W. O. Hieble, J. R. Pulham, D. Inganells, A. R. Lake, R. W. Wallace, C. R. Fielder, T. Passmore, and Percival Etheridge.

On the motion of Mr. P. C. M. Veitch, Mr. Leonard Sutton was appointed chairman, and after the secretary had read the minutes of the previous annual meeting, the annual report of the committee for 1921 was presented, of which the following are extracts:—

EXTRACTS FROM THE REPORT OF THE COMMITTEE FOR 1921.

In presenting their 82nd Annual Statement, together with the Accounts (as audited) for 1921, the Committee are pleased and thankful to report that, owing to the means so kindly placed at their disposal by the friends of the Institution, they have been enabled to maintain the work during the year without any curtailment of efficiency or benefits, although they cannot conceal their great anxiety for the future, in view of the unsettled financial state of the country, which must necessarily affect the income of all charities, and they therefore very earnestly appeal to their friends and well-wishers to do their utmost to continue their support and interest in this National Horticultural charity.

At the beginning of the year there were 250 inmates on the list—men and widows receiving £20 and £16 a year respectively. During the year several have passed away, three of whom, having left widows whose circumstances being in every way deserving, were placed on the funds in succession to their late husbands in accordance with Rule III. 13, and to-day the Committee recommend that 20 applicants from an approved list of 48 candidates be added by election in addition to one candidate who has been nominated to receive the "Arthur W. Sutton Pension."

The Annual Festival Dinner in aid of the funds, which was held on May 27 at the Hotel Victoria,

under the Presidency of His Royal Highness the Duke of York, K.G., proved very successful, and the eloquent advocacy of the Royal President on behalf of the claims of the charity resulted in a much valued addition to the amount required towards carrying on the work.

The Committee have the great pleasure to announce the following very generous gifts: one of War Loan from Arthur W. Sutton, Esq., F.L.S., J.P., V.M.H., to found an "Arthur W. Sutton Pension"; and another from Mrs. Monro, J.P., Major E. G. Monro, Geo. Monro, Esq., and Bert J. Monro, Esq., to found a "Geo. Monro Trust" in memory of the late Geo. Monro, Esq., V.M.H., who was a member of the Committee for 45 years. It is needless to say how welcome these gifts are and how much they are appreciated.

The Committee desire to offer their thanks to the ladies and gentlemen who have again so kindly allowed their beautiful card-tables to be opened to the public on behalf of the funds.

Reference is also made to the kindness of Sir Harry J. Veitch (treasurer), Mrs. Monro, J.P., Geo. Monro, Esq., and Bert J. Monro, Esq., in providing an allowance of £10 each to four unsuccessful candidates at the last election.

The Auxiliaries still prove very valuable adjuncts to the Institution, each having materially added to the funds yearly, the Worcester Auxiliary having raised the largest amount during the past year since it was established.

The Committee have the sad duty to announce the loss by death of many valued friends and supporters, whose passing away will be deeply felt. Amongst them may be mentioned The Earl of Duce, P.C., The Lord Balfour of Burleigh, K.T., The Lord Mount Stephen, Major-General Sir Edward Coates; The Rt. Hon. Sir Ernest Cassel, P.C.; Lady Veitch, Mrs. Adair; W. L. A. Burdett-Coutts, Esq., M.P.; C. S. Hunting, Esq.; J. C. Galsbrecht, Esq.; and Walter Speed, Esq., V.M.H.; also Geo. Paul, Esq., J.P., V.M.H., for 50 years a warm friend of the Institution; and R. G. Waterman, Esq., Hon. Secretary to the Liverpool Auxiliary, a devoted worker for the cause.

HARRY J. VEITCH, Treasurer & Chairman of Committee
GEO. J. INGRAM, Secretary

The Chairman moved the adoption of the report and statement of accounts and proceeded to offer a few remarks on the Fund. He congratulated the committee on a satisfactory year's work and considered that much of the success was due to the efforts of their hard working Secretary, Mr. Geo. Ingram, and their Hon. Treasurer, Sir Harry Veitch. No fewer than 250 homes were benefiting through the Institution, and although the amount allotted to each individual was small, it made all the difference in the world to those people who received it, and was especially valuable to poor people in their declining years. The Fund was to be congratulated on having for its President the Prince of Wales, and the Institution was honoured by having the Duke of York as Chairman at the Annual Festival Dinner last year, and he hoped that His Royal Highness's presence was an inspiration to all the younger members of the company present on that

RECEIPTS AND PAYMENTS OF THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

FOR THE YEAR ENDING DECEMBER 31, 1921.

RECEIPTS.		£	s	d	£	s	d
To	Balance with Bankers, January, 1921	—	—	—			
	On General Account	1,198	10	3			
	On Deposit Account	200	0	0			
	Do. Wolfe Legacy and Interest	891	17	6			
	Balance with Secretary, January, 1921	7	9	5			
	Annual Subscriptions	1,213	18	0	2,297	17	2
	Donations	2,571	8	1			
	Schröder Annuity	20	0	0			
	Additional Residue Miss Hillman's Estate	4	17	0			
	Dividends and Interest (less tax)	847	1	6			
	Income Tax refunded	222	4	3			
	Deposit Interest (Wolfe Legacy)	24	11	7	4,914	0	5
	Arthur W. Sutton Esq. Gift of 4½ per cent. War Loan (per contra)	—	—	—	635	0	0
		</					

(Signed) G. H. COBLEY, KAY & CO. (Honorary Auditors).

Chartered Accountants.

*£1208 is required to meet the quarterly payments due on December 31, 1921.

occasion. The paragraph referring to the deaths of prominent supporters of the charity included many distinguished horticulturists, and their loss showed the need for fresh supporters to carry on the useful work that had extended over eighty years. Mr. Etheridge, in seconding the adoption of the report, stated that nothing gave him greater pleasure than to help institutions of this kind. Although not attached to horticulture in a commercial sense, he loved his garden, and knew the strain and stress gardening involved and the worry all are experiencing in these times of reduced finance. The Institution was doing most laudable work, but he considered that funds should be forthcoming to support not 250 annuitants, but 500. He paid high tribute to the committee, to Sir Harry Veitch and the excellent Secretary, whose work had been second to none. Mr. Etheridge advocated obtaining many more small subscriptions, and he would like the committee to accept them as low as 5s., so that means of help would be within the reach of all. We were living in most strenuous times and he considered that the financial strain was far greater now than at any time during the war; we must retrench, not with regard to these poor pensioners, but rather go forward and build up a much larger subscription list.

At this stage of the proceedings, the Chairman read a telegram from Sir Harry Veitch as follows: "Very sorry not to be with you. Cordial greetings to all friends." It was decided to send a telegram to Sir Harry thanking him for his message and wishing him a speedy recovery.

The election of officers was next proceeded with. Sir Harry Veitch was re-elected Treasurer on the proposition of Mr. Owen Thomas, seconded by Mr. George Monro. Mr. Geo. Ingram was reappointed Secretary, and the retiring members of the committee were all re-elected. The Hon. Auditors and Arbitrators were also re-elected and the Scrutineers of the ballot appointed. The meeting was then adjourned until the declaration of the poll. The successful twenty candidates were as follows:—Thomas Jones, 5,276; Henry J. Godfrey, 4,943; Aaron Rawle, 4,858; Thomas East, 4,447; John G. Bristol, 4,311; Thomas Leslie, 4,172; William R. Baker, 3,681; Martha Chudleigh, 3,489; James Dougall, 3,453; William Hunter, 3,286; Thomas Cranham, 3,219; John Dey, 3,197; James Taverner, 3,103; Emily S. Whiting, 2,923; Elizabeth A. Wilson, 2,834; Elizabeth A. Trussler, 2,653; Selina A. Martin, 2,651; Emma Woodhatch, 2,615; Elizabeth Rye, 2,658; and William Hill, 2,602. In addition to the above, Mr. Joseph Mallard was awarded the Arthur W. Sutton Annuity, and sums of £10 each, being one year's allowances, were given by Sir Harry J. Veitch, Mrs. Geo. Monro, Mr. Geo. Monro, Mr. Bert Monro, and Mr. Leonard Sutton to five unsuccessful candidates.

ROYAL HORTICULTURAL.

JANUARY 31.—A bright and attractive exhibition was held in connection with the meeting of this date, and although it was not such an extensive display as many Fellows anticipated, it was a most interesting one, consisting chiefly of Orchids, Carnations, Primulas and early hardy flowers, the latter including numerous Daffodils, Hyacinths and Crocuses gently forced into bloom. Novelties were few in number and the Floral Committee made no awards at all to new plants.

Orchid Committee.

Present: Frederick J. Hanbury, Esq., in the chair, Messrs. Jas. O'Brien (Hon. Secretary), R. Brooman White, Walter Cobb, Arthur Dye, S. W. Flory, J. T. Barker, Chas. H. Curtis, J. E. Shill, H. T. Pitt, T. Armstrong, E. R. Ashton, Richard G. Thwaites, C. Cookson, Gurney Wilson, and C. J. Lucas.

AWARDS.

FIRST-CLASS CERTIFICATE.

Odontioda Cordor (Oda Coronation × Odm. Doris), from Messrs. ARMSTRONG AND

BROWN, Orchidhurst, Tunbridge Wells. A grand variety, with a fine spike of ten flowers, equal in size, and form to a good Odm. crispum. Sepals and petals rich red, tinged with mauve. Lip with a dark red blotch in front of the yellow crest, and white front, spotted with red.

AWARDS OF MERIT.

Odontioda Antinous (Oda. Coronation × Odm. exultans), from Messrs. ARMSTRONG AND BROWN. Flowers perfectly formed, deep violet, tinged with red. Lip, lilac colour, with violet blotch in front of the well-defined yellow crest. The plant bore three flowers.

Odontoglossum crispum Hero, from Messrs. CHARLESWORTH, Hayward's Heath. Probably the finest of the grand strain of Odm. crispum raised true by Messrs. Charlesworth. The plant bore a noble spike of large and finely-formed pure white flowers, the sepals having each one reddish blotch.

Brasso-Cattleya Ruby var. Rosetti (B.-C. Mrs. J. Leemann × C. labiata), from Messrs. STUART LOW AND CO., Jarvisbrook. One of the brightest and most richly coloured of the section. Flowers deep rosy-mauve. Crest of the lip chrome-yellow with gold lines from the base. The spike bore three finely-formed flowers.

GROUPS.

Messrs. SANDERS, St. Albans, were awarded a Silver Flora Medal for a pretty group, most effectively arranged in green moss, each plant standing out distinctly. The back was of Cymbidiums, including *Alexanderi*, *Pauwelsii* and *Butterfly*, the novelty being *C. Tracynum leopardinum* with a fine spike of large flowers evenly spotted with chocolate red. *Cattleyas*, *Laelio-Cattleyas*, *Odontoglossums* and *Cypripediums*, were well displayed, with several very rare species, including the delicate *Otocilus fuscus*, with a spray of pretty white flowers, the peculiarity in which is the globular gland at the base of the upper sepal, which possibly acts as a nectary. Scarlet *Sophranitis*, with many flowers, and species of *Masdevallia* and allied genera were arranged in the front.

Messrs. CHARLESWORTH AND CO., Hayward's Heath, were awarded a Silver Banksian Medal for a select group, in which the richly-coloured *Odontoglossum Tityus*, violet with white margin, the snow white Odm. *eximium Virginiae*, and the yellow Odm. *Phillipsianum aureum* with the new Odm. *eximatum* were attractive features.

Messrs. FLORY AND BLACK, Slough, were awarded a Silver Banksian Medal for a group including some *Sophranitis* crosses; the very fine *Odontioda St. Quentin* var. *rotundum* with white flowers marked on the inner part of the segments with light red; *Laelio-Cattleya H. T. Pitt* and *Brasso-Cattleya Floryi*, attractive plants of unusually good colour.

OTHER EXHIBITS.

G. W. BIRD, Esq., Manor House, West Wickham (gr. Mr. H. Redden), showed a fine specimen of his deep purple-tinted *Odontioda Trebizond* (Odm. *Fascinator* × Oda. *Charlesworthii*), which secured an Award of Merit in 1918.

Messrs. ARMSTRONG AND BROWN showed the handsome *Cypripedium Satyr* (Beryl × Hera *Euryades*) with a fine white dorsal sepal, richly blotched with deep maroon.

Messrs. HASSALL AND CO., Southgate, showed a fine plant of the rich red *Oncidioda Cooksonii* with over 100 flowers.

Floral Committee.

Present: Messrs. H. B. May (in the chair), W. J. Bean, G. Reuthe, Reginald Cory, Jas. Hudson, R. C. Notcutt, Hugh Dickson, John Heal, George Harrow, C. R. Fielder, Andrew Ireland, Donald Allan, W. Howe, Charles Dixon, W. B. Gingell, Arthur Turner, H. J. Jones, Chas. E. Shea, Chas. E. Pearson, W. H. Page, W. B. Cranfield, and E. A. Bowles.

AWARD.

A card of Cultural Commendation was awarded to Mrs. A. M. ROBINSON, Eastgate Manor, Chichester, for exceptionally large blooms of *Violets Princess of Wales*, *Marie Louise*, and *Mrs. D. Lloyd George*.

GROUPS.

On a floor space, just inside the entrance of the hall, Messrs. SUTTON AND SONS arranged an exceedingly attractive collection of their noted Primulas. The large exhibit was arranged very skilfully and included particularly well-grown plants, as well as admirable strains. The stellata strain, which included Improved Giant White, bearing large, pure flowers of good texture, and Coral Pink, were especially graceful, and served also to draw attention to the solid value of the sinensis section. Of the latter, Giant Crimson, Reading Pink, and Coral Pink, amongst the single-flowered varieties, were admirable, whilst the double-flowered variety Queen of Pinks bore a profusion of charming flowers. On a table space Messrs. Sutton and Sons had a second exhibit and this was a graceful display of spring bulbs growing in delightful bowls of fibre. Besides many Hyacinths and Narcissi there were bowls of *Lachenalias*, *Anemone blanda*, *Crocuses* and *Lily-of-the-Valley* (Silver-Gilt Flora Medal).

Carnations were of especially good quality. Messrs. ALLWOOD BROS. had an interesting collection of their recently raised Perpetual-Border varieties at the end of a display of Perpetuals and Perpetual-Malmaisons. Of the latter, Mrs. C. F. Raphael, which seems to be always in season, was particularly attractive. The newer Jessie Allwood was also of merit; the yellow flowers were very bright and harmonise well with those of pink shades (Silver Grenfell Medal).

Although good Carnations formed a large part of the contribution by Messrs. STUART LOW AND CO., it was the small plants of the fragrant *Daphne indica rubra* and the various *Mimosas* that attracted most attention. Besides these there were equally well-flowered examples of *Camellias* and *Azalea indica* in variety (Silver Banksian Medal). The varieties of pink shades of colour were very prominent in a collection of Carnations shown by Mr. C. ENGELMANN. Of these the most prominent were Laddie, Delice, Boadicea and Cupid (Silver Banksian Medal).

Several informal little rock gardens added greatly to the variety and interest of the show. Messrs. WM. CUTBUSH AND SON planted theirs with shapely, dwarf Conifers and Ericas, and such alpine as Saxifrages and Sedums. Adjoining the rock garden they had a group of decorative pot plants of *Eucalyptus Gunnii* (Silver Grenfell Medal). Messrs. WATERER, SONS AND CRISP displayed good batches of Irises in their rock garden. The principal sorts were *I. stylosa* lilacina, *I. reticulata* and *I. sindjarensis*. They also had pretty patches of *Scillas* and *Crocus versicolor* Cloth of Silver (Silver Grenfell Medal).

Besides a pleasant little rockery surmounted with dwarf Conifers, *Skimmia japonica*, freely berried, and the like, and planted with *Iris reticulata*, Saxifrages and Sedums, Messrs. J. CHEAL AND SONS showed various Conifers and branches of *Hamamelis* bearing quantities of attractive flowers (Bronze Flora Medal). Mr. DIXON again made a little model sunken garden backed by a low rockery (Silver Banksian Medal).

Amongst a small collection of Conifer branches, Mr. G. REUTHE included several species of *Athrotaxis* and *Pinus*. He also showed other trees and shrubs, alpine, *Iris histrioides*, Christmas Roses and *Eranthis hyemalis* (Bronze Flora Medal).

A beautiful patch of *Saxifraga Burseriana magna* was conspicuous in the low rockery built by Messrs. SKELTON AND HARDY, who also displayed *Saxifraga Elizabethae*, various Ericas and Conifers (Silver Banksian Medal).

Many plants of *Azalea indica* were shown by Messrs. L. R. RUSSELL, LTD., and these were interspersed by several *Bromeliads* and *Begonia manicata*, with a smaller collection of small *Camellias* in full bloom, and sprays of *Prunus triloba* (Silver Banksian Medal). Mr. S. AISH continued his exhibits of unusually late *Chrysanthemum* blooms by showing good examples of such varieties as Heston White, Percy A. Dove and Enfield White.

Fruit and Vegetable Committee.

Present: Messrs. C. G. A. Nix (in the chair), W. Poupert, H. S. Rivers, G. Berry, A. H. Pearson, E. A. Merryweather, Geo. F. Tunley, Ed. Beckett, E. Neal, W. Bates, S. B. Dicks, W. H. Divers, W. Wilks, and S. T. Wright.

There were no groups on this occasion, but several interesting seedling Apples were submitted for awards.

AWARD OF MERIT.

Apple Laxton's Pearmain.—This variety was raised from Wyken Pippin crossed with Cox's Orange Pippin, the same parentage that resulted in another excellent variety, namely, Laxton's Superb. The fruits greatly resemble Cox's Orange Pippin in appearance, but are of a duller red and have a longer stalk; the eye is very much like Cox's. The quality is excellent, although the specimens were about a fortnight past their best condition. The flavour partakes of the Cox's Orange Pippin type and the flesh is a very pale green and not pure white. The raisers inform us that the tree is of very vigorous growth, upright in habit and a very free cropper. Exhibited by Messrs. LAXTON BROS., Bedford.

OTHER EXHIBITS.

An excellent Apple, without a name, supposed to be a seedling raised from a pip of Newtown Pippin, was shown by Mrs. Alice G. HARRISON, Haltondale, Wellingborough. It is probable that the pip was taken from a fruit of Northern Spy, which the Committee considered it so nearly resembled as to be almost identical. The quality of this rather upright, ribbed fruit, with a bright crimson flush at the base, is excellent, and it may prove a more fertile type in this country than the old Northern Spy, which is a very shy bearer in British gardens.

Mr. E. A. BUNYARD brought from the Allington Nurseries specimens of Apples; Ananas Reinette, often known as Pineapple Reinette, is a very highly flavoured variety like a smooth Cockle's Pippin or Coe's Golden Drop; the Pineapple flavour is very pronounced; Reinette Grise de Saintonge is a large russet Apple with firm, solid, juicy flesh, of excellent flavour, and the fruits had the appearance of keeping until much longer. The third variety was William Crump, an excellent late Apple for quality, but said to be so shy in bearing as to be unprofitable for planting.

An Apple named Good's Bushy Grove was submitted on October 5, 1920, and a deputation was appointed to inspect the tree: the report received was favourable, and the Committee recommended an Award of Merit, but the grower will be asked to substitute another name, under which it will be recorded.

Obituary.

Thomas Nutting.—We learn with regret of the death of Mr. Thomas Nutting, gardener at Childwickbury, St. Albans, Hertfordshire, for 36 years. He died on January 24 at Childwickbury Gardens, aged 71 years. The late Mr. Nutting commenced his gardening career at the early age of twelve years in Messrs. Osborne's Nurseries, Fulham, where he remained for five years. From there he went to Danesheld Gardens, where he remained for nearly two years, proceeding thence to Sherborne Castle for a similar period, under the late Mr. Pragnell: he was also at Canford Manor for a year, and subsequently at Wotton Gardens, near Aylesbury. From the last-named gardens he proceeded to Chirk Castle as foreman. His first appointment as head gardener was to Richard Naylor, Esq., Kilmarsh Hall, Northampton, which post he held for a period of three and a half years, when he left to take a similar appointment to Henry Hall, Esq., Alton, Hants, where he remained for a further three and a half years. In 1886 he was appointed gardener at Childwickbury, near St. Albans, to the late Sir J. Blundell Maple, and he remained at Childwickbury until his death, in the service of

J. B. Joel, Esq. Mr. Nutting was a clever gardener, and won many awards as an exhibitor. All who came in contact with him found him of a genial and kindly nature, and were impressed by his fine character and remarkable keenness in all matters appertaining to his profession. No doubt the sad bereavements he suffered in recent days in the death, first of his beloved daughter, and shortly afterwards of his devoted wife, tended to shorten his span of life.

George V. Nash.—A correspondent sends us some interesting particulars of the late Mr. G. V. Nash, who was curator, under the official title of head gardener, of the New York Botanic Garden since 1896. Mr. Nash, who died in the summer of 1921, visited Kew in 1891 for the purpose of examining the collections there, and made a selection of over 1,000 species from duplicates of the indoor plants for the gardens at Bronx Park. He was a most lovable man and took a prominent part in the development of horticultural interests in New York City, for, apart from his connection with the Botanic Gardens, he was intimately associated with the many horticultural associations and the numerous floricultural shows held in that city. He was secretary of the Horticultural Society of New York for 10 years, and held that office at the time of his death. He is described in the American Horticultural Press as "A striking figure; his presence, his practical and systematic knowledge, and his helpfulness will be greatly missed."

Dr. Cecil A. P. Osburne.—We regret to announce that Dr. Osburne passed away on Tuesday, the 24th ult. The funeral took place in the churchyard of Old Catton, on Friday, the 27th ult. Apart from his profession, the doctor was a keen horticulturist, his leanings being towards floriculture. He was always ready to purchase the best varieties of any subject that appealed to him. Perhaps his great interest in his beautiful garden was the collection of Irises he had got together. He had over a quarter of an acre devoted to the Germanica section, and these he attended to personally, trying all the time to find out their likes and dislikes and making experiments to impart vigour and combat disease. He was president for the past two years of the Norfolk and Norwich Horticultural Society, and always exhibited largely at its shows.

TRADE NOTES.

THE Parliamentary Committee of the Chamber of Horticulture has considered a Report from the Transport Sub-Committee, summarising the work done during the past year, the concessions already obtained by direct conference with the railway companies, and the points upon which the Sub-Committee asked for instructions to proceed before the Rates Advisory Committee. The chairman, Mr. G. W. Leak, remarked that the Report was very satisfactory as regards the Chamber's particular case for nursery commodities. The report was adopted and the Sub-Committee given instructions to proceed. The question of the expenses incurred to date, also the cost of briefing counsel to plead the case before the Rates Advisory Committee was then discussed, and it was agreed that Associations concerned should unite in defraying the same.

Major Matthews submitted a letter from the private secretary to the President of the Board of Trade stating that the Board was prepared to receive a statement of a case for horticulture, and also to receive a deputation thereon. This refers to efforts being made with a view to the possible inclusion of horticultural produce in a Bill, which the Board of Trade have stated in the House of Commons, they propose to introduce to amend the present Merchandise Marks Acts. Extended powers of prosecution and compulsory labelling of foreign produce are points likely to be pressed for, and it was agreed that a conference of associations was necessary in order to decide on and draft the various points entailed, also to elect delegates.

ANSWERS TO CORRESPONDENTS.

ADIANTUM FERNS ATTACKED BY GRUBS:

A. E. P. The insects you sent are the larvae of weevils, and these are exceedingly destructive to Ferns. Turn the plants out of the pots and remove as many of the larvae as can be seen by means of a pointed stick. Place the plant in the pot again and make four holes in the soil with a piece of stiff wire and pour a little carbon bi-sulphide in each. This material is very inflammable and due precautions should be taken in using it. If these methods fail, wash all the soil from the roots and repot the plants in soil free from the grubs.

CANKERED APPLE TREE: T. E. H. The plan you propose of cutting the main stem down below the seat of the disease and grafting afresh may be adopted, but such an unhealthy tree is best destroyed and a fresh one planted in the ground it occupies. If you decide to re-graft, adopt the rind or



FIG. 30.—CROWN OR RIND GRAFTING.

crown method, as shown in the accompanying illustration, Fig. 30. Of the sorts you mention, choose either Warner's King, Annie Elizabeth, or Allington Pippin, all of which are vigorously growing varieties.

NAMES OF FRUITS: F. W. Duke of Devonshire.

—*N. G.*: 1, Annie Elizabeth; 2, American Mother; 3, Lane's Prince Albert; 4, Colonel Vaughan.—*Rosamund*: Norfolk Beefing.

NAMES OF PLANTS: H. B. M. Both the Orchids are forms of *Dendrobium nobile*, No. 2 approaching *D. n. nobiliss* in colour.

TREATMENT OF SOIL: F. H. You do not state the area of land, kind of soil, or number of men available. When first working the land, it was a bad plan to remove the turf, as you took away the most fertile portion. It should have been ploughed in, cross-ploughed, rolled, ploughed again if necessary, and harrowed down fine, after being left exposed to the weather. Probably the best thing to do now is to trench as much as possible, say to 3 feet depth, putting in a good layer of manure at the bottom of each trench, after breaking up the bottom. A portion of the area done properly will prove more profitable than the whole only half done. If the soil is heavy, make sure the drainage is efficient. Potatoes form an ideal crop for growing on newly broken pasture land.

Communications Received.—C. D.—E. B. J. E. W. G. W.—Sir D. H.—F. W. R. R. H. C. W. R.—W. B. B.—J. R.—J. V. R. D.—A. R. B.—Dr. P. W. A.

THE

Gardeners' Chronicle

No. 1833.—SATURDAY, FEBRUARY 11, 1922.

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 39.2.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, February 8, 10 a.m. Bar. 30.3; temp. 43°. Weather—Sunny.

Royal Horticultural Society. The most gratifying statement in the Annual Report of the Council of the Royal Horticultural Society for 1921, which will be presented officially at the annual meeting on Tuesday next, is the one referring to membership, which records an increase of no fewer than 1,214 Fellows—a reminder that horticulture is as popular as ever with the inhabitants of this country. The total membership on November 15, 1921, was 16,494—compared with 15,280 on December 31, 1920—the largest total in the history of the Society. The number of fellows elected in 1921 was 2,160 and, seeing that losses by death amounted to so many as 150, the number of Fellows who resigned is much smaller than might be expected in such times of adverse financial circumstances. We understand that 360 Fellows have been already elected this year. With such a large membership it is not surprising to find that the amount received from subscriptions reached the fine total of £23,099 and, in addition, nearly £400 was contributed as entrance fees. Receipts of all kinds, including dividends and interest, income from shows, hall lettings, advertisements, sale of publications, etc., made a grand total of £37,664. With regard to the Society's shows, there was a considerable profit on the one held at Chelsea, but, as usual, the Holland House exhibition resulted in a loss; and there was a deficiency on the exhibitions as a whole, for the cost of the various meetings, conferences, etc., was £6,187 4s. 11d., compared with receipts amounting to £5,925 14s. 3d. The Vincent Square balance-sheet shows a profit of £12,262 os. 10d., but of that sum £7,979 5s. 6d. was required to meet the excess of expenditure over revenue

in connection with the Wisley Gardens, so that the total available balance for the year amounted to £4,282 15s. 4d. The work at Wisley probably represents the most valuable of all the activities of this important Society, and no one will grudge the necessary funds for its efficient maintenance, but the Society may not always be in the happy financial position in which it finds itself at present, and we commend to the Fellows the appeal of the Council for an endowment fund for the gardens and the founding of permanent or the increasing of existing temporary scholarships for the investigation of definite problems, for, as the Council truly states, the future progress of horticulture depends upon the scientific investigation both of plant life and the soil, and their reactions upon one another. We are glad to see that the Society is in negotiation with the National Rose Society for making a Rose trial garden on a part of the new land recently acquired at Wisley, but we are not sure that the soil of these gardens is best suited for Roses, although doubtless the skilful cultivation and great care which all plants receive at Wisley may compensate largely for any deficiency in this respect. The experiment of holding a great exhibition in the autumn of 1922 at the Holland Park Skating Rink will, we trust, be justified; and as the show will be held entirely under cover, there will be little risk of failure owing to inclement weather, which has sometimes spoiled the shows at Holland Park. There are plenty of challenge cups from supporters of the Society, and at the October show in the Holland Park Skating Rink the Gordon-Lennox Cup will be offered for fruit; two Orchid challenge cups presented by trade growers for Orchids; the George Monro Memorial Challenge Cup for the best exhibit of Grapes by an amateur, and one of the Allwood Carnation Bowls for amateur growers of Carnations. In addition to all these trophies the Council is offering silver cups in the various sections of the schedule as well as the Coronation Cup for the best exhibit in the show. A new award has been created by the Society to be known as the Award of Garden Merit, and this will be recommended by the Wisley Garden Committee to plants that are either well known to the Council, Committees and garden staff, or which have been tested at Wisley and proved to be excellent for garden or greenhouse use. Apparently the two days' meetings, instituted for the first time last year, have proved a success, for the Council has decided to extend the period to include March in 1922, and lectures will be held at 5 p.m. during the summer months from April to September inclusive. Nothing is said in the Report as to the publication of Pritzel, but we notice that there is a sum of £859 2s. 2d. invested in India 2½ per cent. stock, representing the amount of the fund on December 31, 1920. As the estimated cost of publication is a very much larger amount than this, the Society will find itself committed to a considerable expenditure from its funds, unless those who have pressed so urgently for the revision contribute in a larger degree than they have done. The Lindley Library received an addition of 129 books during the year and a considerable number of volumes were bound. Although the increase of the library is not so rapid as some could wish, the steady accretion of books from year to year has rendered it necessary to place certain works not in frequent use in a store, and thus relieve congestion in the library. One of the most interesting paragraphs in the Report to professional horticulturists is that dealing with the appointment of new holders of the Victoria Medal of Honour to fill vacancies

caused by five deaths during 1921. The new members selected are the President (Lord Lambourne), Mr. W. A. Bilney, the Rev. Arthur Boscawen, Mr. John Fraser and Mr. William Poupart, and, we believe, the choice will be confirmed by horticulturists generally, for these are all worthy of this high honour. We notice that the name of the late Mr. J. Seden has not been removed from the list of present holders, and we find no one nominated in his place. This is doubtless an oversight. Altogether the R.H.S. has had a very successful year: we look to it to lead in horticultural progress and to lend its powerful aid to those kindred floricultural societies which are actuated by similar motives—the furthering of the interests of British horticulture.

Prof. Henry and Czecho-Slovakia.—We learn that Prof. Augustine Henry has been elected a corresponding member of the Czecho-Slovakian Botanical Society "in recognition of the inestimable services rendered to botanical science in the course of his studies." In August last, Prof. Henry visited the localities of Czecho-Slovakia and Poland in which the Larch occurs as a wild tree. The European Larch, as is well known, is widely distributed in the Alps, but it has besides three out-lying stations, little known to British foresters:—One in the Sudeten Mountains in Silesia, another in the Tatra range of the Carpathians, and a third in the so called plateau of Poland, a hilly district situated to the north of Krakow. In the wild forests of these three regions, it grows mixed with Spruce, in each case over a limited area. The Silesian Larch is scarcely known in cultivation, though a small quantity of seed is reputed to have been imported a few years ago. The Carpathian and Polish Larches have never been introduced into this country. It is possible seed may be obtained this season from all three localities, but the crop of cones has been very meagre, and there are great difficulties in obtaining a supply. The Larch is of splendid growth and the timber in all these forests of fine quality; and in Poland and Silesia descends to a much lower altitude than in Switzerland or the Tyrol. Indeed, in Poland, it descends to the zone of the Oak and Hornbeam, which fringes the Spruce forest. Its natural regeneration is very good. It may interest our readers if, at this point, we record the fact that a copy of *Trees of Great Britain and Ireland*, the well-known work by Mr. H. J. Elwes and Prof. Henry, was sold at an auction of books in Dublin on February 2, for £37.

Silloth Turf for Wimbledon Tennis Courts.—The committee of the All-English Lawn Tennis Club have laid their new courts at Wimbledon with Silloth turf brought from the Solway Firth. This Cumberland turf, which is so highly prized for bowling-greens, is rarely used on tennis lawns on account of its high cost and the expense of carriage. Altogether 12,000 square yards of this Silloth turf have been laid. The turves were cut in foot squares, one inch and a half thick.

The Biology of Waterworks.—This was the title of a lecture delivered to the members of the Gilbert White Fellowship at 6, Queen Square, London, last Saturday, by Sir Sidney Harper, F.R.S. He reminded his audience that in the 'eighties the people of Hamburg had their water taps stopped, and in some cases eels and other animals came through when a tap was turned on. But such were not the only troubles experienced by the waterworks engineers in their endeavours to provide a healthy supply of water. Investigations at Hamburg showed that there was "an El Dorado of animal life" in the water pipes there. The greater part of this water population consisted of polyzoa, which formed gelatinous masses as large as cricket balls: there were also fresh-water sponges, worms, leeches, molluscs and crustacea, as well as the eels aforementioned. The polyzoa flourish during the summer and die in winter, but before doing so throw off "buds," which develop in the next spring. These egg-shaped little "buds," technically known as

"statoblasts," break away from the parent body, and often become attached to birds and are conveyed to other waters, there to start fresh colonies. Fresh-water algae carried into water pipes is also at times a fertile source of worry. At Manchester 700 tons of "pipemoss" were removed, with much labour, from the pipes. As Sir Sidney pointed out, the remedy is efficient filtration, and in this respect it is interesting to know that the sand filter, invented by James Simpson in 1829, has been but little improved on. By forming a film over the surface of the sand minute living things like diatoms, on which the statoblasts feed, give valuable assistance in the filtration.

Legacy to a Gardener.—The late Colonel Walter Morrison, V.D., of Malham Tarn, Yorkshire, and Moor Court, Sidmouth, Devonshire, who left estate provisionally sworn at £2,000,000, bequeathed the sum of £1,000 to his garden, Mr. George Petty. He left a similar sum to his steward, housekeeper and groom.

Wart Disease Attacking the Tomato.—Investigations carried out by the United States Department of Agriculture have proved that Tomatoes are susceptible to wart disease of Potatoes. Out of twenty-eight varieties of Tomatoes planted in a wart-infested garden in Eastern Pennsylvania, twenty-six sorts were found to be susceptible to the disease. The fungus attacks only the stems and roots of the Tomato plants, causing the formation of small warts, and the disease does not appear to reduce the yield of fruit. The investigators state that there is a danger of affected Tomato plants serving to carry over the disease from year to year in the absence of Potatoes, and the complaint may be introduced into localities free of wart disease through transplanting Tomato seedlings that have been in infested soil. Other plants belonging to the Solanaceae were tested as to their susceptibility to wart disease, but, so far, with inconclusive results.

International Commercial Horticultural Conference.—We learn that the Annual Conference of representatives of the Fédération Horticole Professionnelle Internationale will be held this year in Holland, at the Hague, on April 20. Mr. Krelage is the President for 1922, and the Conference is always held in the country of which the President is a national.

A Bill Relating to Allotments.—We are glad to notice from the King's speech at the opening of Parliament on Tuesday last, that the Government intends to bring forward a new Bill relating to allotments. The situation with regard to allotments has been thoroughly considered by a Departmental Committee appointed by the Ministry of Agriculture, and doubtless the chief recommendations of that Committee, to which we referred on p. 50, will form the basis of the new Bill. Under the present conditions, with practically no security of tenure, the majority of allotment holders are unwilling to continue the cultivation of their plots, knowing that their efforts would be wasted, although most of them are as enthusiastic cultivators as ever. Local authorities have the power to provide allotments, yet many are unwilling to move in the matter, and in most places the provision of permanent allotments is regarded as an impossibility.

The Royal Botanic Society's Gardens.—We are glad to notice from the *Quarterly Summary* issued by the Royal Botanic Society, London, that several improvements are to be undertaken in the Society's gardens at Regent's Park, and especially in the provision of new greenhouses. Some of the smaller greenhouses are in a dilapidated condition, and it is proposed to spend the sum of £2,000 on new ones, of which amount £1,300 has already been promised. The large conservatory has been cleared of its former occupants, and is being replanted with beautiful, rare, and interesting plants. Ornamental climbers have been planted at the bases of the iron columns supporting the roof, and the Palms, of which there are many fine specimens, will have more room to develop, and be seen to greater advantage than hitherto. In the out-door garden, the trees and shrubs have been pruned, and

many worn-out specimens removed. The flower beds and borders have been trenched and replanted with choice herbaceous plants, and with bulbs for a spring display. Several new beds have been laid out on the lawn to the left of the Broad Walk. The lake has been cleared of superfluous reeds and flags, and most of the accumulated silt used for enriching the soil of the shrubberies near by. The beds containing representatives of Natural Orders have also been replanted. Large numbers of plants have been contributed to the gardens by the authorities at Kew, Cambridge Botanic Garden, Chelsea Physic Garden, Miss Ellen Willmott, Mr. T. Hay, Superintendent of Regent's Park, and others.

Mr. B. H. MacLaren.—The superintendent of the public parks and gardens of Brighton, Mr. B. H. MacLaren, was educated at Christ's College, London. He studied agriculture, forestry and estate management at Tamworth Agricultural College, and, later, gained practical experience on some of the largest farms in Warwickshire and Wiltshire. But horticulture proved a stronger attraction than agriculture, consequently, Mr. MacLaren served for a considerable period with Messrs. J. Backhouse and Son, of York, where he eventually



MR. B. H. MACLAREN.

became foreman in the landscape department. Having gained a wide experience in the north of England, he came south and joined the landscape department of Messrs. J. Cheal and Sons, Crawley, and while in the service of this firm he obtained the position of Assistant Superintendent of the Brighton public parks and open spaces in 1913. In 1915, Mr. MacLaren joined the Army, and, passing through the School of Military Engineering, obtained a commission in the Royal Engineers and went to France, where he eventually became Company Commander. The excellence of his work secured the appreciation of his superiors, and, finally, Captain MacLaren was mentioned in Lord (then Sir Douglas) Haig's dispatches. Shortly after returning to his old position at Brighton, his former chief retired, and he was appointed Superintendent, a position he now occupies, to the great satisfaction of the Town Council and inhabitants of Brighton. Mr. MacLaren has greatly improved the attractions of the famous sea-side resort, and he has been especially successful in reconstructing the whole of the Valley Gardens, forming boulevards, and improving the surroundings of the Royal Pavilion. Mr. MacLaren's department is a large and busy one, as he has under his control small holdings, allotments, woods, street trees, parks, gardens, sports' grounds, nurseries, open-air markets and the winter gardens. Fortunately, Mr. MacLaren is a young man, and the suc-

cess he has achieved encourages the hope that Brighton may become as famous horticulturally as it is socially.

Guildford and District Chrysanthemum Society.—We are glad to learn that the Guildford and District Chrysanthemum Society, which ceased its activities during the war, has been reconstituted, and will hold an exhibition in the Borough Hall, Guildford, on November 1st and 2nd next. The Secretary is Mr. Walter Miles, Ashbrook, Cadogan Road, Surbiton.

The British Carnation Society.—The Spring Show of this flourishing society will be held in the Royal Horticultural Hall, Westminster, on March 21. In addition to numerous increased money prizes, valuable challenge trophies are presented by Lord Howard de Walden, Reginald Cory, Esq., George Monro, Esq., and others. There are special classes for florists, notably one for a decorative exhibit of Carnations on a table space 15 feet by 6 feet, the first prize in which is the Covent Garden Challenge Trophy valued at £20. Schedules may be obtained post free from the Honorary Secretary, Mr. P. F. Bunyard, 57, Kidderminster Road, Croydon.

Appointments for the Ensuing Week.—Monday, February 13.—United Horticultural Benefit and Provident Society's meeting; Bath Gardeners' Society's meeting; Purley Horticultural Society's meeting. Tuesday, February 14.—Royal Horticultural Society's Committees' meeting and annual general meeting, at 3 p.m.; Cardiff Gardeners' Society's meeting. Wednesday, February 15.—National Dahlia Society's Schedule Committee's meeting, at R.H.S. Hall, at 4 p.m.; Hertford Horticultural Society's meeting. Thursday, February 16.—Manchester and North of England Orchid Society's meeting; Linnean Society's meeting, at 5 p.m.; Wargrave and District Gardeners' Society's meeting. Friday, February 17.—Eastbourne Horticultural Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Carrot Bread.*—The Belgian Carrot mixed with flour makes capital bread, as does also the red Carrot; but the colour is somewhat against the latter, although the bread is superior to that made with the white Carrot, being pleasanter in flavour, moister, and yet firmer, as you will see from the enclosed specimen. Instead of equal quantities of Carrots and flour, only one-fourth of the former is used, a half being found to render the loaf too close in texture. A peck of flour by itself yields three good-sized loaves, but mixed with 7 lb. of Carrots produces four, and of excellent quality. As regards the preparation, I followed the instructions in the *Chronicle* to the letter. Carrots grown on sandy soil are better than those from clayey land, as, when boiled, you may pass a fork with the greatest ease through the former; but those from the clay are hard at the heart, therefore much more difficulty is found in breaking them up. They should be mixed with the flour while warm, a point, as I understand, of considerable importance. In beating the Carrots up, use a wooden bowl and spoon, the wood affording hold which other vessels do not. *F. Nash, Ludlow, February 2.* (The bread was good, but it tasted too much of the Carrot for a fastidious palate).—*Gard. Chron., Feb. 6, 1847.*

Publications Received.—*Roses for Market.* By F. J. Fletcher. Vol. III. and IV., Market Nursery Work Series. Benn Bros., Ltd., 8, Bouverie Street, E.C.4. Price 4s. 6d. each net. *The Genetic Relations of Plant Colours in Maize.* By R. A. Emerson; *Resistance of the Roots of Some Fruit Species to Low Temperature.* By D. B. Carrick; *The Crane Flies of New York.* By C. P. Alexander; *Raising Colts.* By M. W. Harper. *A Modified Babcock Method for Determining Fat in Butter.* By Nelson W. Hepburn. *Working Plan for a Communal Forest for the Town of Ithaca, New York.* By John S. Everitt. *An Economic Study of Farm Layout.* By W. I. Myers. *Some Effects of Potassium Salts on Soils.* By R. S. Smith. All published by the Cornell University Agricultural Experiment Station, Ithaca, New York.

MICHAELMAS DAISY WILT.

A PAPER on this disease was read by Mr. W. J. Dowson at the meeting of the British Mycological Society on the 21st ult. He dealt with it as it occurs at the R.H.S. Gardens at Wisley. The disease was first noted by growers in the early summer of 1920, and is very widely spread. So far, it has only been recorded in the groups *Novae Belgii* and *Novae Angliae*. The obvious symptom to the horticulturist is a wilting of shoots soon after they have reached a foot in height in early summer, *i.e.*, the leaves of an entire shoot are noticed to have turned yellow; they rapidly dry, shrivel and turn brown. Shoots coming up from the ground as suckers behave in the same way. In some instances a variety is soon killed, *e.g.*, Climax; others, *e.g.*, Gladys Donellan, are resistant, as they also are to mildew (*Erysiphe cichoracearum*) and to drought. Examination of shoots with yellow foliage does not reveal mycelium in the tissues in the early stages of the disease. A plentiful mycelium is found, however, at the base of older stems; and on shoots long dead mycelium can be traced all the way up; it is also present in the rootstock. The mycelium, which is very fine, is confined for the most part to the larger vessels of the xylem, and is particularly found in those of the protoxylem. Careful staining shows that the hyphae invade tracheids and medullary rays. Very small microconidia are also seen in the vessels.

At first a *Fusarium* was isolated, but this proved to be non-pathogenic. Finally, a species of *Cephalosporium* was obtained which, when inoculated into healthy plants raised by transplanting rooted suckers, by introducing mycelium or conidia into incisions, caused the characteristic wilt. The fungus produces myriads of microconidia in culture. The fungus apparently differs somewhat from that isolated by Wiltshire at Long Ashton. The inoculations enabled the first symptoms of the disease to be accurately described. In all cases of inoculation at or about ground level, some of the lower leaves became mottled after about three weeks time, and a few days later became yellow. The mottled leaves appeared in no particular order, and the yellowing often started on one side of the midrib and later spread to the other side. It was impossible to find mycelium in the neighbourhood of the mottled and yellowing leaves, and thus it appeared unlikely that the symptoms can be explained by the actual blocking of the water-conducting elements by hyphae. A toxin was therefore looked for. It seemed probable that if the fungus excreted a toxin it would do so in water cultures, and thus the trouble of extracting it artificially would be avoided. The liquid from some of these cultures was filtered through a Berkfeld filter into sterilised flasks, and into these vigorous green shoots of various Michaelmas Daisies were placed. The results obtained were that shoots in the filtered liquid turned mottled in three days and yellow in six, while controls remained green for ten days.

In a dialyser of goldbeaters' skin the active principle passed through the membrane into surrounding sterilised water in three days, and shoots in this acted as in the previous experiment. Mesophyll cells of Aster leaves were set up in suspension in hanging drops of water from the cultures. After twenty-four hours the chloroplasts were seen to migrate slowly to one or both ends of the cells, become clumped together in a mass, and in from three to six days slowly disintegrate, after which the cells were plasmolyzed. It seems, therefore, that a definite substance secreted by the hyphae of *Cephalosporium* at the base of shoots becomes sucked up in the transpiration current, and acts as a poison to the chlorophyll-cells, bringing about the symptoms of wilt noticed in the field.

The research is still in progress, but it is thought that it will be possible to eliminate the disease by striking cuttings from the ends of vigorous suckers so as to avoid the slightest chance of including mycelium.

TREES AND SHRUBS.

A NEW VALUE OF CYDONIA MAULEI.

I would like to put in a good word for *Cydonia Maulei*. In a distant sort of way it reminds me in its garden position of the Love Apple, and the more ancient inhabitant the Scarlet-Runner Bean. No one gives us a better idea of an up-to-date border of annuals in the last half of the eighteenth century than Swinden in *The Beauties of Flora Displayed*. Among the tender ones, which grow from 2½ to 3 feet high, we find "No. 157, Love Apple, Solanum; Yellow: and Red Fruit." With the colon after yellow it must mean yellow flowers and red fruit. It would be easy to multiply instances, but there is very little doubt but that Love Apples were once regarded, like Scarlet Runners before them, as suitable and proper inhabitants of the flower garden. To-day, when we regard their uses as culinary herbs as giving them their chief, if not their only, value, they have been transferred to the kitchen garden. I do not exactly suggest that the same thing will happen with regard to

years ago Henry Bright's son Allan, a successful Liverpool shipowner, sold the old home at Knotty Ash, on the outskirts of Liverpool, and now lives somewhere under the shadow of the Malvern Hills. *Joseph Jacob*.

CEDRUS LIBANI.

In answer to Mr. Stacey's inquiry on p. 56, this tree was probably introduced about 250 years ago. It is not mentioned in Evelyn's *Sylva*, which was written in 1654, and, according to Veitch's *Manual of Conifers*, one of the oldest Cedars in England was that in Bretby Park, Derbyshire, which tree was known to have been planted in 1676. *Cedrus Deodara* and *C. atlantica* are comparative newcomers, both having been introduced during the last 100 years. The Chorleywood Cedars cannot, therefore, be as old as Mr. Stacey says they are estimated to be. Perhaps Mr. Stacey has noticed the Cedar in the grounds of St. Albans Abbey, which people say Queen Elizabeth planted.

It would be interesting if some correspondent could tell us whether the Bretby Park specimen is still alive. *A. Simmonds, Maidstone*.



FIG. 31.—CHIMONANTHUS FRAGRANS LUTEUS GRANDIFLORUS.

NEW OR NOTEWORTHY PLANTS.

CHIMONANTHUS FRAGRANS LUTEUS GRANDIFLORUS.

At the meeting of the French National Horticultural Society, held on the 26th ult., a Certificate of Merit was awarded to an interesting form of *Chimonanthus*, exhibited by Messrs. Vilmorin and Co., of Paris.

The plant is a yellow-flowered form of *Chimonanthus fragrans*, Lindl., but the flowers are much larger than those of the variety *luteus*, introduced many years ago and always very rare in gardens. In fact, the flowers of the variety *C. fragrans luteus grandiflorus* (Fig. 31) are at least as large as those of the *grandiflorus* variety figured in the *Botanical Register*, tab. 451.

The flowers have many segments—twenty, sometimes more—broad and obtuse. The flowers are as remarkable for their rich yellow colour as is the plant for its freedom of flowering. This new variety was raised from seeds collected in 1906 in the district of Zi-ka-wei (Eastern China) by R. P. Ance.

It is certainly a very interesting shrub from a decorative point of view, and very superior to the type generally met with in our gardens. The Verrières specimen is about three metres high and as much through. *A. M.*

Cydonia Maulei, but it is quite on the cards that it might. It is no great stretch of imagination, especially after reading on page 241 of *My Garden in Autumn and Winter*, what Mr. E. A. Bowles has to say about its fruits making a good jelly to "eat with roast mutton as a change from the orthodox Red Currant," to find on my next visit to Myddelton House that he had taken some of the plants from the little hillock on the rock garden and transferred them to a place in the kitchen garden, where their object would be to produce an abundance of those deliciously coloured, scented and tasty pale-orange, tiny, Quince-like fruits which provide a jelly of—so, at least, I think—far higher value than to be classed among condiments. Well-made "Maulei" jelly is every bit as good as any Guava jelly from the East or West Indies. So far as I know, most varieties of *Cydonia* make good jelly. One year, thanks to the kindness of Mr. Bean, of Kew, we had a grand trial of some of them at a tea party given for the express purpose of picking the best. Henceforth, "Maulei" jelly will be connected in my memory with Henry Bright, the author of one of the earliest, most readable and most scholarly of all chatty garden books, *A Year in a Lancashire Garden*, for his daughter was one of the judges who voted in the unanimous verdict of "Maulei" being placed first. That garden, I deeply regret to say, no longer rejoices in the guardianship of a Bright. Two

The Week's Work.

THE FLOWER GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VILLYARD GIBBS, Aldenham House, Hertfordshire.

Border Chrysanthemums.—Plants lifted in the autumn and placed in cold frames will be making good, healthy growth, and suitable shoots should be selected for cuttings. Insert these in good, sandy compost, and place them in mild heat, and, when well rooted, harden them off, and pot them singly as soon as convenient.

Shrubberies, etc.—Advantage should be taken of the open weather to push forward all outdoor work possible, such as moving shrubs and trees, planting fresh specimens, seeing to the necessary staking, and generally renovating the shrubberies. Pruning and trimming should be proceeded with, so that all may be put in first-class order pending the time when rough, boisterous weather puts a stop to work of this nature.

Willows and Dogwoods.—The present is a suitable time to propagate those finely coloured woody subjects, the Willows and Dogwoods. These plants may be used with magnificent effect for winter decoration of the garden, when planted in good stretches by themselves, and especially in close proximity to water, such as a lake or well-tended stream. During the period when flowers are absent from the garden and leaves are few, the bark colours of the Willows and the rich, warm reds and brilliant yellow tones of the Cornuses give a fine effect in the landscape. To raise new plants is quite a simple operation. Cut the old growths into portions about 9 inches long, and insert them in the open to a depth of about 6 inches; make them firm, and thereafter little attention will be necessary, as such shoots form roots readily. The resulting plants should be moved to permanent positions before they are two years old, as they are difficult subjects to transplant successfully. *Cornus alba* and its varieties; *C. sanguinea*, and its varieties; and *C. stolonifera flaviramea* are all finely coloured Dogwoods, whilst *Salix vitellina*, *S. decipiens*, *S. vitellina britzensis*, *S. acutifolia*, *S. daphnoides*, and *S. purpurea* have beautiful coloured stems.

The Weather.—Up to the time of penning these notes we have experienced very little severe weather. There has been one brief spell of snow, very little frost, and, generally during the month of January, damp, muggy days of high temperature. We have had one good rain, and things are becoming advanced beyond their season owing to the genial conditions ruling. In consequence of all this, it is necessary to again urge the necessity of protecting tender plants from the possibility of injury by frost.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir C. NALL-CAIN, Bart. The Node, Codicote, Welwyn, Hertfordshire.

Gloxinia.—The Gloxinia is a useful decorative subject for the warm greenhouse, and to ensure a long succession of flowers a few of the old tubers should be placed in shallow boxes containing leaf-mould and sand. When they have started into growth the plants may be transferred to pots of suitable sizes. Seeds of Gloxinia should also be sown now. The resulting seedlings should make fine plants for flowering in August. It is always advisable to raise a batch of seedlings each year, as such plants are more vigorous in growth than older specimens. Sow the seeds in 6 inch pots filled with equal parts of loam and peat, with a good dash of sand added. Cover the seed as lightly as possible, and place a sheet of glass over the pots, also shade them from bright sunshine.

Palms.—Established Palms of any considerable size should receive attention with regard

to potting or surface-dressing, whichever is considered necessary. Palms seem to succeed best, provided proper attention is given to watering and feeding the roots when they are somewhat restricted in root space. Also, such plants are more serviceable for decorative purposes. Top-dressing of the roots and the use of manure water will be found a great assistance to the plants that are cultivated in small pots. Where it is considered only necessary to surface-dress the plants and the roots are too near the surface of the pot to allow for top-dressing, a band of zinc should be fitted around the top of the pot, several inches in depth, to allow of this being done. For established Palms, good loam, with plenty of sand and charcoal added, constitutes a suitable compost.

HARDY FRUIT GARDEN.

By H. MARKHAM, Gardener to the EARL OF STRAFFORD, Wrotham Park, Barnet.

Bush Apples and Pears.—Young bush trees of Apples and Pears should be very carefully pruned. All shoots not required for building up the tree should be cut out, keeping those best situated and leaving only sufficient to form a well-shaped fruitful tree. The side growth should be spurred back to within a couple or three buds, whilst the leaders, if they are sturdy and well matured, should be retained for quite two-thirds of their length. In the case of



FIG. 32. YOUNG BUSH APPLE TREE, THREE YEARS FROM PLANTING; SHOWING PROPERLY-BALANCED HEAD.

bushes (see Fig. 32), a centre leader is not required. The central main growth of pyramid trees should be encouraged to develop. If the trees were summer-pruned, the chief operation needed now is to cut back the side growths to within a couple of buds of their bases and to shorten the leaders to the length required. Cut out entirely a few of the worst-placed branches in trees that are crowded with growth, and reserve suitable young growths for filling open spaces, if desirable. Top-dress and mulch all fruitful trees to encourage them to develop strength. Bush fruit trees should never be over-cropped. The roots should be fed liberally to assist both the finishing of the fruits and the building up of strong, fruitful buds for the following season's crop.

Espalier trees that have not filled the available space should be very carefully pruned, retaining suitable growths at equal distances apart, to build up an evenly balanced head. In shortening the leaders leave one bud above the two required to form the side branches; the top bud will form the next year's leader and the side ones young branches; repeat this annually till the top pair of branches has been formed. Side leaders should be shortened, more or less, according to their length and strength. As a rule from 10 to 15 inches of growth will suffice.

THE ORCHID HOUSES.

By J. T. BARBER, Gardener to His Grace the DUKES OF MARISSBOURG, K.G., Blenheim Palace, Woodstock, Oxon.

Cypripedium.—Members of the insigne section, also the many hybrids which produce their flowers at the same season, having passed out of bloom, may receive attention as regards repotting, should it be necessary. A suitable compost consists of equal parts of peat fibre, Al fibre, and Sphagnum-moss, with clean loam fibre added. The use of the last material may easily be overdone, especially if the loam is of a heavy nature. The pots should be well drained, and the new material kept slightly on the dry side until the roots have entered it freely. These plants may be repotted as soon as their flowers are cut or faded, and after repotting they may be placed in their growing quarters, where, under proper conditions, they should thrive until their flowers appear again in the autumn.

Zygopetalum.—Such species as *Z. Mackayi*, *Z. crinitum*, and others of this section, should be repotted, if necessary, as they pass out of flower. The roots of the different species and hybrids vary to a considerable extent, some making large, succulent roots, others roots of a thinner and more wiry nature. The nature of the roots of the different plants offers a good guide as to the nature of the compost to be used. Those with thick, fleshy roots, delight in a rough, open compost, which should be placed quite firmly in the receptacles. The strong growing members may be afforded a substantial rooting material, such as fibrous loam, *Osmunda* fibre, and Sphagnum-moss, in equal proportions, cut up according to the size and nature of the plants, and well mixed together. For the more delicate growers the amount of loam fibre should be slightly reduced. Whilst the weather is favourable, a good stock of Sphagnum-moss, and other material, should be obtained, so that when the busy season for potting arrives there may be no delay.

THE KITCHEN GARDEN.

By JAMES E. HATHAWAY, Gardener to JOHN BRENNAND, Esq., Ralderby Park, Thirsk, Yorkshire.

Potatoes.—Potatoes that were planted in December in pots should now be top-dressed. Another batch should be planted in 10-inch pots half filled with good fibrous loam, manure from a spent Mushroom-bed and leaf-mould. The sprouts on the seed tubers should be reduced to three at the most. Place the pots in a vinery or Peach-house, and, as soon as the haulm begins to grow, expose the plants to plenty of light. An excess of fire heat should not be used otherwise the plant will get drawn. The advantage of growing the early Potato crop in this way is that the pots may be moved into cooler houses as required. Potatoes may now be planted in heated pits, and if plenty of space is available it is best to plant for successional cropping. Where heated pits are not available hot-beds should be made and the materials allowed to remain for a week or more until the rank heat of fermentation begins to decline, before putting on the soil. The latter should be at least 8 inches deep, and the sets planted 12 inches apart in rows 18 inches or more apart, according to the varieties used. Sharpe's Victor, Victory, Dargil and Witch-hill are suitable for forcing. Potato sets intended for planting later should be set up in boxes for sprouting, and, if they are backward, a few placed in warmth as required.

Broad Beans.—A sowing of Broad Beans should be made in boxes or in turves in a similar manner as was recommended on p. 16 for Peas. Germinate the seeds in a frame or cool greenhouse. A batch may also be sown in the open as soon as the weather permits. Choose ground that has been well manured and trenched; sow in rows made 3 feet apart and 1 foot wide, placing a double line of seeds in each trench. Arrange the seeds on their sides at a distance of 6 inches apart. For early cropping a sheltered position should be selected.

Asparagus.—Batches of this vegetable should be introduced to warmth as required. The best method is to force the crowns in frames on hotbeds. Place about 4 inches of soil in the frame and plant the crowns in about 3 inches of soil. The temperature of the frame should not be higher than 65° when the roots are put in, and the frame should be well protected in frosty weather.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

Cherries.—These precocious trees had, down to the end of the past year, an excellent time for plumping up their buds, and one began to fear that the unseasonably mild weather might have a prejudicial effect on the flowers. Sharp frosts have now intervened and lowered the external temperature so that a little fire heat has become necessary to maintain a mean temperature of 40° in the house. Those who wish to have ripe Cherries at the end of May and the beginning of June must exercise patience for the present, and hasten the development of the trees when solar heat favours steady forcing. When the buds begin to swell the mean temperature of the house should range from 40° to 45° at night, and 50° to 55° by day, always with a little fresh air admitted, and atmospheric moisture in proportion to external conditions. As the days lengthen more air may be admitted through the top and front ventilators, especially when the pipes are warm, but the heat should be shut off at night for the present unless the temperature falls below 40°. The very early sorts, such as Guigne d'Annonay, Bigarreau de Schrecken, and Early Rivers will make good progress, but at the same time insect pests, such as green and black fly, will become more troublesome, no matter how carefully the trees were cleansed, but these pests easily succumb to one or two mild fumigations, the last of which should always precede the opening of the first flowers. Few fruits do so well or last so long as Cherries, planted in narrow, inside borders, and the majority of growers restrict their varieties to three or four of the best sorts which ripen in succession; but a dozen or more varieties may be grown in pots. Cherries are impatient of fire heat, and many growers fail with these fruits through maintaining an excessively high temperature and keeping the trees too close in the early stages. A body of mild fermenting material placed amongst the pots, whilst of value for providing warmth in the early stages of forcing, will render direct syringing a secondary consideration. A fairly dry atmosphere and a steady warmth from fire heat, with plenty of air to raise the temperature to 60° or 70° with the aid of the sun, will not only insure a good set of fruit, but a mass of most fragrant blossoms.

MESEMBRYANTHEMUM AND SOME NEW GENERA SEPARATED FROM IT.

(Continued from p. 55)

CC.—Top of the lobes entirely without tubercles or slight furrows or raised dots when in a plump growing condition, smooth except sometimes in *L. Lesliei*.

(4) *L. pseudotruncatella*, N. E. Br. (Fig. 33).—Growths solitary to many in a clump, up to 1 in. high and 1½ in. in diameter, flat or the lobes slightly convex on the top, varying from pale grey to brownish-grey with a slight pinkish tinge, covered with numerous branching lines or dendritic markings of a darker colour formed of confluent dots, mingled with some separate dots. Calyx 6-7-lobed; lobes 3-5 lines long, 1½-2 lines broad, oblong or ovate-lanceolate, obtuse, pale greyish-green with a brownish tint. Corolla 1½-2½ in. in diameter, opening soon after mid-day and closing between 6 and 7 p.m. for 6 or 7 successive days, odourless; petals 50-60, in 2-3 series, ½-1 in. long, and about 1 line broad, linear, narrowing to the base, obtuse, bright yellow, with a white base on the inner face,

faintly pinkish-white on the back. Stamens 3-4 lines long; anthers and upper part of the filaments pale orange-yellow, lower part of the filaments white. Stigmas 5-7, free almost or quite to the base, equalling or slightly exceeding the stamens, filiform, pale orange-yellow.—*M. pseudotruncatellum*, Berger, *Mesemb.*, p. 289 and 266, Fig. 4 (1908); *M. truncatellum*, W. Watson, in *Gard. Chron.*, 1900, Vol. 27, p. 211, with Fig., not of Haworth; *M. truncatum*, Dyer, in *Ann. of Bot.*, Vol. 20, p. 123, t. 7 (1916), not of Thunberg.

Damaraland, near Jakalswater, Roossing, Farm Hoffnung and Aus Mountains, Dinter!

Described from living plants raised from seeds sent to Kew in 1903, by Mr. N. S. Pillans, who informs me that the locality "Laingsburg District" quoted for it by Dyer in the *Annals of Botany* is entirely wrong, and that when he sent the plant to Kew on January 11, 1903 (by error dating his letter 1902), he wrote that he was "posting a piece of the plant together with some seeds of *Mesemb. truncatellum* from German South-West Africa," which were given to

part of the afternoon (at Pretoria about 5 p.m., according to Dr. Pole Evans) in bright sunshine only, scentless; petals 50-60, in about 3 series, rather lax, 5-7 lines long and nearly 1 line broad, linear, acute, obtuse or slightly notched at the apex, bright yellow, whitish or pinkish-white on the back. Column of stamens about ¼ in. long, whitish or pale yellow anthers yellow. Style short; stigmas 4-5, about 4½-5½ lines long, as long as the stamens, pale greenish-yellow.—*M. Lesliei*, N.E. Br. in *Trans. Roy. Soc. S. Afr.*, v. 2, p. 369, with fig. (1912). *M. Hookeri*, Marloth, *Fl. of S. Afr.*, v. 1, p. 205, 206, t. 51, fig. B, not of Berger. N. E. Brown, *Gard. Chron.*, 1921, Transvaal: near Vereeniging, Leslie! Gillman! Burt Davy!; near Bloemhof, Burt Davy!; Griqualand West: near Kimberley, Pearson! Pillans! Windsorton, Marloth, Warrenton, Mogg!; near Griquatown, Marloth.

The biological peculiarities of this plant are detailed on p. 250, volume LXX., but I would add that this appears to be one of the hardest species of this type of plant, for in its native locality during winter it is some-

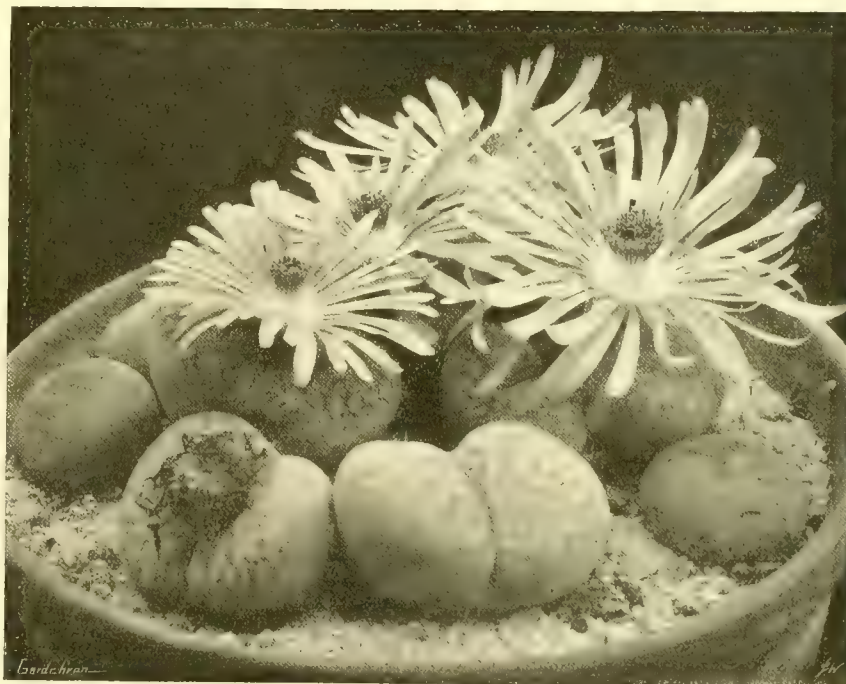


Photo by T. N. Leslie.

FIG. 33.—LITHOPS PSEUDOTRUNCATELLA; NATURAL SIZE.

him by Prof. MacOwan, who probably received them from Dinter. The latter, in writing of this plant (without a name) in the *Gardeners' Chronicle*, 1900, Vol. 27, p. 115, states that "this plant so closely resembles, when not in bloom, the form and colour of the pebbles among which it grows, that it can only be detected by an experienced eye."

The beautiful flowers of this species afford an excellent example of their daily increase in size which I alluded to on p. 290 of Vol. LXX. One that I measured on the first day of its opening was 1½ in. in diameter, on the third day it was 1¾ in., and on the sixth day 2½ in. in diameter. The time of expansion and closing above mentioned seems rigidly adhered to, but only if the sun is shining and the temperature high enough, otherwise the flower will not open.

(5) *L. Lesliei*, N.E. Br.—Growths solitary or 3-4 in a clump, up to 1½ in. high, 1½ in. broad and 1½ in. thick, flat on the top, smooth or slightly harsh or irregular to the touch, but without an impressed reticulation, dark green or olive-green, densely or sparsely covered with dull orange or rust-coloured irregular spots or dendritic markings. Calyx 5-6 lobed; lobes 2½-4 lines long, 1½-2 lines broad, oblong or ovate, obtuse, green or brownish-tinted. Corolla 1-1½ in. in diameter, expanding in the latter

times subjected to 20 degrees of frost at night only, not continuously, the days being warm, and the air and ground are both very dry at that period, the rainfall, varying from 20 to 40 inches, taking place during the summer, which corresponds to our winter, when these plants often want to grow.

(6) *L. terricolor*, N.E.Br.—Growths solitary or few to a plant, two only on each of the four plants seen, 3-1 in. high, 8-11 lines broad, and 6-8 lines thick, with the top of the lobes convex and rounded into the sides, of the colour of dried earth or grey-brown, marked with dark fuscous dots all over or the central area with a dark fuscous patch composed of crowded or confluent dots, and some separate dots on the marginal part. Calyx 5 lobed: lobes about 2½ lines long, ovate, obtuse. Corolla about ¾ in. in diameter, not seen in a fresh state. Stamens, about ¼ in. long, style very short, stigmas 5, overtopping the stamens, filiform, bright yellow.

Laingsburg Division: near Grootfontein, Frith! Living plants of this species were kindly sent to me by Mr. F. Frith, who informs me that the plant "grows on black shale and on gravelly ground, and is very difficult to find." I have only seen withered flowers that were on the plants upon arrival. N. E. Brown

(To be continued.)

EDITORIAL NOTICE.

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MR. REGINALD FARRER'S SECOND EXPLORATION IN ASIA.*

NO 37.—THE MOKU-JI IN AUGUST.

DURING the ten days that I have been up the Moku-ji there were moments when it was clear, with rain; there were hours of cloud without. The flowers all about the camp were a picture of gaiety, but how they are ever going to ripen their seed I am really at a loss to say. Fortunately for fertilisation, the insects up there are of Spartan breeding and indifferent to wet; in the intervals of biting the collector it is to be hoped that they fertilise his flowers. The camp was just about at the top limit of the alpine coppice; above it a steep region of Bamboos and glades intervened before the high alpine scrub was reached. Just below, several lateral streams plunged down in cataracts to join the main waterfall in a gorge; and the opposite bank towered up and up in crags and gullies to the high crests above.

On the way up there had not been anything new to note of any great moment; the dullness of the alpine forest in these ranges is phenomenal. The alpine coppice, however, is more profitable; I am struck by an elegant *Castanea* with true Chestnut-looking fruits, which I hope may also prove to be a true Chestnut indeed, as I am told that its nuts are a favourite food. Two shrubby *Hypericums*, too, began to be pleasant in August, one most graceful, with pendulous Willow-like sprays, and the other coarse-leaved and erect, but with flowers almost as large as in *H. calycinum*. A fat-thyrse *Neillia* also struck me as the most solidly effective of its kind that I have yet seen, and, of course, *Rosa sericea* is the commonplace of all bushy stretches. A little higher and the standing ambition of my heart was gratified by the discovery of a yellow *Daphne*. Desire granted, however, is proverbially disappointing, and I am not, as yet, having sleepless nights about the seed of this species. Of course, one can never tell, either for good or ill, how a plant will develop under cultivation; it is very possible, indeed, that in more favourable conditions in the garden this *Daphne* may reveal much finer characters than it does at the moment. In a narrow region of the alpine zone it occurs quite commonly under the coppice. And there, in the dripping twilight, it cannot do more than make a thin, spindly growth of 18 inches or so, with ill-furnished, inconspicuous heads of Apricot coloured flowers that appear to be scentless. But I did come on one well-garnished plant, and in this the effect was quite respectable.

A remarkable thing about this region, as compared with that of Hpimaw, is the much greater height to which many species ascend. Conspicuous in the glades of the lower alpine region are the occasional snowy inflorescences of *Lilium giganteum*, which in the southern part of the range has never been seen, at least by me, above 5,000-6,000 feet at the most. Whatever other good things these meadow-slopes contain only the later weeks of August will reveal. Even now the huge snow-mass blocks the glen at ten thousand feet, though higher up the last of

these are now crashing to pieces unexpectedly with a rumbling roar like avalanches—and in a few days more the crowded violet-sapphire eyes of *Primula sonchifolia* will be peering baldly from the dank brown earth banks thus revealed. Imagine finding *Primula sonchifolia* still in bloom or bud in August, at any height, on any of the Hpimaw Alps! With it, rarer, and only on the Moku-ji is to be seen the China-blue loveliness of *P. euosma* still; but there is no doubt that both these species are here (I should say) on the northernmost fringe of their distribution. *P. euosma*, indeed, I have always noted as a severely local species, but on the Hpimaw Alps *P. sonchifolia* is universal, magnificent and abundant. Here, though, I have seen it so poor as hardly to be recognisable, down on the Chinese side (only) of the Chawchi, it is only on the uppermost slopes of the Moku-ji that it is to be met with in anything like proper profusion or character.

Of course, *Primula*, on these granitic ranges, cannot be expected to show great prodigality in species, though with *P. nuda*, *P. euosma*, *P. sonchifolia*, *P. serratifolia*, and the new white and crimson, it certainly makes up in quality for any lack of quantity. But these Alps wholly lack the lowland species so conspicuous further south. Below Hpimaw the glens at 6,000-7,000 feet will give you *P. seclusa*, and the open meadows, *P. Beesiana*, *P. limnoica* (F. 823), and *P. helodoxa*. Even about Hpimaw itself, the open slopes at 6,000 feet are blue in April with *P. limnoica*. But here, though many are the lovely and inviting-looking marshes and green lawns between 6,000-9,000 feet, to which I have rushed panting up, in confident certainty of a *Primula*, not one is to be found in any of them, and I have at last sadly learned that in these parts it is useless to hope for a *Primula* under 11,000 feet at least. They do not even have the fringing *P. obconica* so lovely at 8,000 feet on the Shing-rup Chet. Their only exception is the curious little species of which I spoke, as having found it in bud beside a waterfall at 10,000 feet under Shing Hong Pass. On the Moku-ji it fortunately also occurs, and enables me to give its portrait. It always seems to be very occasional and sporadic in the first place; and always to confine itself exclusively to wet vertical faces in the second. Not that too much stress must be laid on these peculiarities, since *P. limnoica*, about Hpimaw, likes the openest, driest banks, and *P. pratensis* (if you please), I myself have never seen, except in the very shadiest depths of the very darkest gorges in the very deepest forest. This new plant, moreover, need not, I think, greatly distress gardeners with its fads. It is a disappointing little species, with handsome sprayed up foliage, and, at the best, a 6-inch scape, with, at the very best, some 8-12 flowers. But these, though of as bright a golden yellow as *P. Palinuri*, have also *P. Palinuri*'s pinched, narrow outline, and are only about a quarter of the size.

Before, however, we attain the camp, I must also draw your attention to the *Thalictrum* of the lower glades, for this is a truly superb species, of which I hope great things, in rich and cool herbaceous borders at home, if only it has not the nasty kink in its temper which has cheated so many of us out of the pleasure that *T. Delavayi* and *T. diptercarpum* ought to have afforded. Perhaps it even is *T. Delavayi*, in an unrecognisable condition of health, for certainly no plant could look more comfortable-natured and easy to satisfy, in any circumstances that also suit *T. aquilegifolium*. It is, however, far larger, attaining 6-8 feet, and so impressive, indeed, that while it was still growing I made sure that its flowers would be dull and green. Instead of which, they turn out to be of a lovely lavender-blue, produced in enormous, showery panicles, far above foliage that matches their enormousness, but has all the delicacy of *T. adiantifolium*'s on a quadrupled scale. The Luk Sang *Thalictrum* of last year had much the same stature, I fancy, and purple flowers; but as that was a calcareous plant of dry, rocky slopes, from only 6,000-7,000 feet, I am not disposed to identify it rashly with this granitic lover of cool alpine glades. *Reginald Farrer*.

GEUM REPTANS.

GEUM REPTANS seems always to remain a rather rare plant in gardens. When I look back, the only really prosperous colony I remember in cultivation was at Backhouse's Nurseries, York, about twenty years ago. There the plant grew in a bed of brown river sand (with probably something to its liking underneath) and there it flourished, flowered, and even increased, by means of its Strawberry-like runners. There is never the least difficulty in finding plants labelled *Geum reptans* in gardens, and, moreover, one can generally pay the price of *G. reptans* for *Geum montanum* labelled as *G. reptans*. Often have I speculated on these lines, offering a good herring only to catch a poor sprat!

Geum reptans always grows high in the Alps, at about 7,000 to 9,000 feet altitude. It is local rather than truly rare, for it is quite widely distributed, and in its chosen stations it is often profusely abundant. Always it is a moraine or a scree plant, growing on deep beds of big coarse boulders, into which it roots deeply. Mature, established plants are extremely difficult and laborious to collect, and it is a mistake to try, for even if one can secure them intact, they are difficult to deal with and difficult to re-establish.

Until 1920, I had somehow always managed to miss *Geum reptans* in the Alps. But in June of that year I arrived at the Lantaret, and then one of the first things I came upon when I walked out of the hotel was *Geum reptans*. There is a great delta-shaped scree pouring down from the heights that face the hospice, less than a mile away. The intervening meadows were a flowered carpet of every alpine loveliness: *Soldanellas*, *Gentiana verna*, *Viola calcarata* of every shape and colour, alpine *Forget-me-not*, *Anemone alpina* and *Anemone vernalis*, Poet's *Narcissus* and many, many others. It was more wonderful than anything even that I have ever seen at Mt. Cenis itself. I splashed up a shallow stream set with numerous islands, each a perfect tiny garden of turf and rock, *Gentians* and *Pansies*, the largest island no bigger than a tablecloth. And so to the great barren-looking scree, of harsh, tumbled stones, which poured steeply from a high neck in the towering cliffs overhead. Directly I got on to it I realised what a vast unmanageable rough-and-tumble it was. The stones ranged from the size of my fist to the size of my hotel.

Very soon, and quite unexpectedly—though these high screes are always good hunting—I came upon the first *Geum reptans*, and after that, far up the slopes, the plant grew by the hundred. From a thick, woody stem there sprouted a tuft, or several tufts, of six-inch feathered leaves of soft, fresh green. Each tuft carried several flowers, often four or five, like very large, rich golden Strawberry blossoms, each set well and boldly up upon its own pink stem. I wandered about over that scree for a long, long time, drawn from one splendid *Geum* to another. There was little else of interest. *Hutchinsia alpina*, *Iberidella*, *Saxifraga oppositifolia*, and a few others, but *Geum reptans* was the most abundant and the most splendid.

Then, despite what I had always read of the difficulties of collecting *Geum reptans*, I settled down lightheartedly to collect it. At ground level I found a thick woody stock, going straight down among the stones. This stock was thumb-thick, or thicker, and its home was like a roadside heap of road-metal, greatly magnified. I took off my coat and sat on it, and settled down to remove stones from around my *Geum*. There was no soil, just big stones. It seemed a simple thing to lay bare the roots of a plant by pulling out stones and tossing them down the slopes, so I tossed stones, big and little, for a very long time, and finally achieved a basin a yard across and some eighteen inches deep. My *Geum* stood up in the centre like a miniature Coco-nut Palm. But still the woody stock descended into the scree, and at 18 inches I had reached no sign of a root.

* The previous articles by Mr. Farrer were published in our issues for June 21, June 28, July 12, August 9, August 23, September 6, September 27, October 18, November 1, November 22, and December 6, 1919; January 3, January 17, February 7, February 28, March 20, April 24, May 29, July 10, July 31, September 4, October 2, December 4, 1920; January 1, January 29, February 19, April 2, April 30, June 4, July 9, August 6, September 24, October 22, November 12, December 3 and December 7 1921.

though at this depth the interstices between the stones were filled with coarse, moist grit. Finally I gave up my first *Geum reptans* as a bad job, slid a barrowful of scree down into the basin I had made, and set out for younger plants. But even such younger ones as I found were very hard to lift. Although a few that I got up had a root or two emerging like leather bootlaces from their trunks, I could get none clean out in such condition as to give me any hope of establishing them at home. They have, however, lived in a grudging sort of way.

Undoubtedly *Geum reptans* is difficult to collect. Obviously, the best way would be to get the Strawberry-like runners. These were pushing out in all directions, questing over the rocks and poking down between the stones in search of a rooting place. But in mid-June these long, slender runners were only just beginning to show signs of developing youngsters at their tips; they were far too immature to be taken off.

The following summer, 1921, however, I returned to the Lantaret in mid-July. I had a horrid shock. The flowers were all gone and the visitors had arrived. Those wonderful meadows of the previous year were like my own doormat at home—with less soil. It was only by going very much higher, on the Galibier Pass, that I found any flowers, and then they were a different set. The stream below the *Geum* scree had shrunk, so that the little island gardens were now flowerless and no longer islands. But *Geum reptans* was there, with even a belated blossom or two, and many silky heads of ripe seed, and, best of all, the runners had developed splendid little plants at their tips, each with a leaf or two; some with young roots sprouting and groping for a foothold down in the deep cavities among the rocks; and the rest with a sort of fleshy callus all ready to burst into roots at the least encouragement. These were delightfully easy to collect, and they travelled home in an airtight tin without distress. Dribbled into pans of soil with an inch-thick "icing" of silver sand, they rooted in a week or two, and have looked very pleased with pot life ever since. The seed, too, which I collected, and sowed with more charity than faith, has surprised me by germinating with almost embarrassing freedom.

Now, having overcome the usual difficulty of securing live plants, with roots, of the true *Geum reptans*, there arises the problem of how to flower them. But I do not think that should be so difficult as is generally supposed. *Clarence Elliott, Stercorage.*

PALMS OF THE RIVIERA.

I SHOULD have mentioned the Chinese Hemp Palm, *Trachycarpus excelsus*, H. Wendl (see Fig. 34), before in these notes, because it is one of the commonest Palms in Riviera gardens, and well known also in the warmer parts of England, where this, the hardiest of all Palms, resists the winters, though it is much finer in the warmer climate of the Riviera. It is a very distinct species on account of the blackish fibres, like thick, long hairs, which densely cover the trunk right down to the soil, surrounding the bases of the dead leaf-stalks, which never fall off, however old the Palm is, and never decay. The long, blackish, hair-like filaments, being rather strong, are used by the Chinese for making ropes. The trunk is rather slender, much more so than the trunks of the other Palms I have mentioned hitherto, and which belong to the same tribe, the Corypheae (*Washingtonia*, *Erythea*, *Brahea*). The rather dense crown of palmatifid leaves, the blades being almost of circular form of one metre in diameter and carried on leaf-stalks of the same length of a beautiful dark green—makes this Palm quite ornamental.

It is quick growing in good, sufficiently moist soil, and will succeed anywhere here in the full blazing sun or in perfect shade and, as usual in this last situation, the leaves become softer and of a deeper green, being

thus of a less stiff appearance than when grown in the full sun. It may, on account of its quick growth, be used very profitably for creating Palm woods or clothing such places as have a northern position, where other Palms do not prosper except, as I said in a former article, *Chamaerops humilis*, a much smaller species. The flower spadices are like those of most other Palms, and develop in a circle from the axils of the older leaves. The

I have very rarely met it coming up spontaneously in really wild places, just as is the case with so many species the seeds of which germinate readily enough in gardens where the soil is loosened by cultivation, but hardly ever where such is not the case. Perhaps, also, the fruits of the Palm are not much appreciated by birds or animals, which might disseminate the seed. The Palm grows some ten metres high, and is thus a species of medium height.



FIG. 34. —*TRACHYCARPUS EXCELSUS*; A PALM HARDY IN THE WARMER PARTS OF THE BRITISH ISLES.

flowers, of light-yellow colour, are followed by a great number of ornamental, bluish-black, kidney-shaped fruits that are the size of an ordinary Bean.

Seeds germinate freely under the plant, and seedlings spring up in great numbers.

The species is quite naturalised here in gardens, and is sometimes seen coming up on rubbish heaps constituted of garden refuse, but

Some other species of *Trachycarpus* have been described, but these are exceedingly rare in Riviera gardens. They differ so little, at least those cultivated here as different species, that I should, up to now, hesitate about their identity. Prof. Beccari, who has described these species, admits himself that the characters are little distinct. I may here state that the Palm which I have raised from seeds received

from India under the name *Trachycarpus Martianus*, H. Wendl, cannot be distinguished from *T. excelsus*, at least up to the present. *T. Martianus*, differently from *T. excelsus*, sheds its leaves and thus has a clean trunk, which is not the case with my plants, nor with such as I have met in other gardens. It is, therefore, probable that the true species may not yet have been introduced, and that the Palm going under the name of *T. Martianus* on the Riviera is either chiefly *T. excelsus* or some other species. The true *Trachycarpus Martianus* grows to a height of seventeen metres, has a thin, gracefully bent trunk, and leaves of the same size as those of *T. excelsus*. I should like to obtain fresh seeds of the true species, which is found in the Khasya mountains in Assam and Northern Burma, as well as of other species of this very hardy genus of Palms, and should be pleased to receive them from anyone who reads these notes.

In parts of India, such as Mount Takil, in Kumaon, other species are found at great altitudes, and these Palms should certainly prove hardy, not only on the Riviera, but perhaps in the milder parts of England; also in Yunnan, China, are found one or more wild species. Dr. A. Robertson Proschowsky, *Jardin d'Acclimatation, Les Tropiques, Fabron, Nice, France*.

RAISING CONSERVATORY PLANTS FROM SEED.

(Concluded from page 56.)

COMING now to seeds for present sowing to carry on the display until November, tuberous-rooted Begonias deserve pride of place. We live in an age of specialists, and where the massive double-flowered varieties are required the best source for the seed is one of the few firms that have built up a reputation for these plants. The new *Narcissus*-flowered type is worth including as a novelty. The pendulous section for hanging baskets is just as easily raised from seed, and few subjects receive more admiration when well grown. *Gloxinias*, under rather warmer conditions, furnish a welcome succession to old tubers in August.

Streptocarpus hybrids show as great an improvement as any greenhouse plants which are habitually raised from seed, and are now quite as useful as *Gloxinias*. Stove treatment was at one time recommended, but intermediate conditions are quite as satisfactory. Although *Clerodendron fallax* requires warm house culture, it may, when in flower, be used in the conservatory, and the large heads of scarlet flowers and luxuriant foliage are welcome, since in their season handsome plants are none too plentiful.

Cannas are never out of place, and young plants revel in a fair amount of heat and moisture. Messrs. Sutton and Sons have a pink variety which associates well with M. Crozy's hybrids. *Browallia speciosa* major is a plant with a neat habit and bright blue flowers. *Exacum affine* produces sweetly scented mauve flowers on bushy little plants 9 inches high.

All the *Impatiens* prove useful during the summer, for they remain in bloom over a long period and give very little trouble in cultivation if fed liberally. Few summer annuals are more attractive than *Statice Suworowi*, with its long spikes of bright rose-coloured flowers, which last well when cut. *Torenia Fournieri* is another profuse-blooming annual with violet-blue flowers. *Gesneras* and *Achimenes*, grown in the same conditions as *Gloxinias*, are useful plants for autumn effect. Although most of the *Asclepias* are of perennial habit, early sown seeds of *A. curassavica* will produce handsome plants in their first season, and the reddish orange-scarlet flowers, borne in erect clusters, are most striking. Blue flowers are not plentiful in the garden in winter, and for its handsome spikes in this shade *Coleus thyrsoideus* should not be overlooked. Another handsome pot plant is *Campanula*

pyramidalis, in blue and white varieties, seeds of which should be sown in August and the plants grown on under cool conditions. *Humea elegans* is another biennial of attractive appearance, and well repays the little extra care needed to grow it.

Amongst indoor plants which are looked upon as more permanent occupants, but which may be raised from seeds, are *Hippeastrum*, yellow-flowered *Richardias*, *Hibiscus Manihot*, *Acacia dealbata*, show *Pelargoniums*, *Fuchsias*, *Solanums*, and several Palms. Y. G.

CYCLAMEN LATIFOLIUM IN THE UNITED STATES.

THE notes on *Cyclamen* in the *Gard. Chron.* of December 24, 1921, by Mr. John Heal, prompts me to send a few remarks on these plants as grown in the United States of America.

Mr. Heal states that the *Cyclamen* is one of the most popular of winter-flowering plants. This applies to the U.S.A. particularly, for since an Order put an end to the importation of *Azaleas*, the *Cyclamen* has been used most extensively in their place. True, good *Azaleas* are now being raised by a few growers here, but it will be years before enough are produced to replace the Belgian stocks; moreover, their cost will never make them a profitable speculation for the average grower of forced plants.

The *Cyclamen*, however, may be grown by everyone if they have the facilities and the interest; those that haven't can buy the plants half-grown and flower them fairly easily.

It is astonishing how the *Cyclamen* has been taken up by American growers during the past two or three years; until the Germans were able to get their crops of seed over here in 1919 there was not nearly enough seed to meet the demand, and as there were only two or three growers in U.S.A. producing seed, the supply of English seed had to go round as far as possible.

Since 1919, German seed has been coming into this country in quantity, and every plant grower up and down the country has tried his hand. Some, especially those who always specialised in *Cyclamen*, have made a great success of the plants, and, incidentally, much money; others have had bad luck with them, and especially this season. Mite is a serious pest, and, in a general way, it is only those with some European experience who have kept this and other pests in check, due, of course, to the fact that they know the importance of cleanliness, and growing the plants in moist, cool conditions.

I may be wrong, but I do not think anyone at home produces such wonderful plants of *Cyclamen* as are produced by a few growers here, including Messrs. Roland, Boston; Craig, Philadelphia; Petersen, Cincinnati; and Lehning, Hackensack. All these growers have had European training, and probably have European trained labour. Thos. Roland is of English birth, and is one of the greatest pot-plant growers in this country. His largest *Cyclamen* plants, well over 2 feet in diameter in 8-inch pots, were retailing this Christmas in New York at \$20, say, £8 each. I may state that for quality of flowers these commercial growers' plants are not so fine as I have seen in England; generally speaking, English seed produces finer flowers, but not such vigorous plants as the German seed.

At least I am informed that this is so, but for all that I have seen plants raised from English seed in March carrying well over 100 flowers, and nearer 3 feet than 2 feet across. These were shown in New York by a private gardener, a Scotchman named Stuart. He is a great enthusiast on *Cyclamen*, and as he was in England this past summer, he made a pilgrimage to Harlington, Middlesex, just to talk *Cyclamen* with the veteran grower of the St. George's Nurseries, Mr. Tom Avery. I often think that had Mr. Avery been in America during the past ten years he would be rolling along the highways in his twin six

motor-car, instead of handling a water-can. I may mention that the commercial growers here mostly sow in flats and transplant the seedlings singly at a fairly early stage of their development. The marvel about the seedlings is that they grow so well in large houses, despite the hot summers here; shading is done with scrim on wires, and watering or spraying by means of a hose. I have never seen anyone using a can, but I assume they do adopt this method of watering when the plants are small.

Ashes are used on the benches, which are rarely solid. I have not met a grower who gives his plants cold frame treatment in the summer, although there are some that do so, even in Canada.

American growers make two or more sowings, the first as soon as the seed is available. In this respect the Germans get in first; moreover, as they have been sending such large quantities, doubtless some left-over stock is utilised; the wise grower prefers such seeds, because it germinates more readily than fresh, but others think of fresh seed only, and therefore do not start sowing before some time in August. Plants from the early sowings in the hands of expert growers begin flowering in October, but there are some who can get good plants in 4-inch and 5-inch pots from March sowings.

I am rather surprised that Mr. Heal recommends the saving of old corms, and especially drying them off. Even in England I thought old corms were more or less taboo; at least those who saved them keep them growing. Treated like seedlings, that is, shaken out after flowering and repotted in fresh soil and brought along as seedlings, old corms make fine plants, but if a 2 ft. specimen can be obtained from seed inside eighteen months, old roots are not worth considering. In this country no one appears to save them.

Regarding potting, plants required for blooming early in winter and for the Christmas trade are in their flowering pots by September or October, but later plants are potted on even so late as December. Repotting, of course, checks the blooming somewhat, but it results in finer and more substantial specimens. If allowed to get pot-bound, the plants do not last long after reaching the buyers' home.

It is rather remarkable that the variegated type, such as St. George and crimson St. George, are not handled by commercial growers here. I have not seen a plant anywhere, yet some of the seedsmen list them. I suppose it is a question of cost; for the average American plant grower is apt to consider price first, and for this reason gives German seed a preference. One German grower here was, I found last year, paying some attention to variegation in the foliage. He had been selecting towards this end. He was quite surprised when I told him that if he kept on another five years he would just about be where the St. George's nursery was ten or twelve years before. Yet several seed lists quote the variegated varieties mentioned, and references have been made to them, and even pictures published in the American trade papers.

American growers are no wiser than those of other nations when it comes to waiting for new plants. Indeed, I might hazard that the general run of commercial growers here are even more chary of trying a new thing than growers in England; they wait until someone reads the way, then all follow suit, Roses and Carnations excepted.

There are probably various reasons for this; many growers are of foreign extraction or foreign born, none too well versed in the English language, and therefore not given to reading much. Others, like some at home, are suspicious, too slow, or too busy to bother about things they know nothing of. And then, of course, there are some who know so much that they do not interest themselves in what others are doing; they assume they are far ahead of the outside world. Luther Burbank once said he was too much concerned with his own work to pay heed to what others were doing. Such people live in a world of their own; there are lots of them everywhere. T. A. W., New York

THE MARKET FRUIT GARDEN

JANUARY was a month of changeable weather, the most cheering feature of which was the substantial rainfall. Here, in East Sussex, rain or snow fell on 21 days, the total for the month being 4.50 in., which is well above the average, and more than was recorded in any single month of 1921. Much of this rain conveniently came at night, so that there was no serious interruption to outdoor work. It soaked away quickly into the dry earth; but drains are running again, and wells that have been dry for weeks are filling at last, which is evidence that we are getting back to normal conditions. There was a good deal of cold east wind during the month, and a blizzard on the 15th, which left the ground covered with snow for three days, on the last of which 14 deg. of frost were registered 4 ft. from the ground. It is to be hoped, therefore, that vegetation has received a wholesome check. It is early to prophesy, but I fancy we shall have a later spring than in the last two years. The first yellow Crocus was in bloom in my garden on the 29th, a fortnight later than last year; and fruit trees do not appear to be so forward. As a late spring is favourable to fruit crops, prospects so far are cheerful.

PRUNING.

The work of pruning is well forward. As a natural result of last season's drought there is less new wood than usual, and in many instances fruit spurs have formed right up to the tips of the shoots. In such cases the pruners are instructed to search for a wood bud lower down, cut to that, and then clear the shoot of spurs for several inches from the end. This, I hope, will set them growing again. There are fewer fresh canker wounds on Apples than usual, but there is a good deal of scab on the young shoots of such varieties as show the winter stage of this fungus, notably Cox's Orange. When the trees begin to show signs of life they will be sprayed with a simple solution of sulphate of copper, 10 lb. to 100 gallons of water. I believe that this is the best preventive we have at present against scab or brown rot. The later the spraying can be done the better the result, but it must not be delayed too long, as the wash is very destructive to foliage. Slight scorching of the outside leaves of the expanding fruit buds, however, appears to do no serious harm, though one likes to avoid it.

NEW FUNGICIDE WANTED.

The East Malling experiments with summer fungicides emphasise the fact that we have no really satisfactory wash of this kind. Bordeaux mixture is the most successful against scab, but the fact that it russets the fruit is quite sufficient to condemn its use in commercial orchards, apart from the risk of scorching the foliage of certain varieties. Lime-sulphur, which many of us have adopted as a substitute for Bordeaux mixture, is less effective against scab and causes a proportion of the fruit to drop before it matures. Ammonium polysulphide is almost useless against scab though valuable for mildew. It seems, therefore, that we are badly in need of a new fungicide. Surely the chemists who worked such wonders during the war could accomplish this. There is an urgent need for a fungicide that is really effective as a preventive of scab without being harmful to the crop or the trees, for nothing does more than scab to lower the quality of our Apples and Pears and make it difficult to place a good sample on the market.

Possibly further investigation will discover a safe formula for Bordeaux mixture. It seems absurd that there should still be in use several formulae for such an old fungicide. The 8-8-100 formula (8 lb. copper sulphate, 8 lb. lime, 100 gallons water) may perhaps be considered as the standard; but it is hopelessly liable to cause russetting and scorching. The 8-25-100 and the 6-20-100 formulae are less harmful, but have not proved by any means free from objection at East Malling. The question is, Can the copper sulphate be still further reduced without impairing the value of the mixture as a fungicide? There is reason to believe that this might be done. A visitor to my farm, who has grown fruit in

Tasmania, where scab is apparently much more harmful than it is here, told me that he has used as little as 3 lb. of copper sulphate in 100 gallons of wash with good results. He believed that the wash could hardly be too weak, provided that the spraying was done at the best time. In Tasmania the best time has been established by careful tests. It is just when the fruit buds are in what he called the "final pink" stage, which would be about at the time when we usually spray for aphids and psylla. There is, of course, no reason why this should be the best stage for spraying to control scab in this country. Some time within a fortnight after the fall of the bloom is generally considered to be correct, though we have no definite evidence.

TASMANIAN STYLE OF PRUNING.

From the same source I gained some interesting information about the system of pruning followed by growers in Tasmania. The trees are grown with about ten branches radiating from a short stem. These branches are never allowed to multiply or sub-divide, but are treated as cordons. So far, the system may not appear to differ much from that followed in a good many English gardens; but the treat-

ment of the laterals is quite different. There is none of the foolish short spurring commonly seen in this country. The laterals are left several inches long, or even full length in the case of some varieties, until they form natural fruit spurs, after which they are shortened to one of those spurs. Quite a lot of temporary wood may be left at the base of the tree, so as to bring it early into bearing, this being gradually reduced as the upper part of the tree comes into fruit. The leaders are shortened annually. Both Apples and Plums are pruned on this system. There is no proof, of course, that the plan would prove to be the best in this country, but it would be worth trying on an experimental scale. Trees so trained have several advantages, the chief of which is that the branches can be bent down for pruning and fruit-picking, thus doing away with the nuisance of steps or the damage of ladders. They are also economical for spraying; and the pruning, once the trees are in bearing, is practically fool-proof.

SILVER-LEAF IN PLUMS.

Without questioning that silver-leaf is caused by the fungus *Stereum purpureum*, there are still mysteries connected with this serious disease of Plums. Why does it attack some orchards and not others? There are old, neglected orchards of Victoria Plum, the most susceptible variety, in districts where silver-

leaf is prevalent, which have not a trace of the disease. Yet in other places it is practically impossible to grow Victoria at all. What are the conditions that favour the disease? Growers hold conflicting opinions on this question. Some think that starved trees fall easy victims, and claim to keep silver-leaf at bay by generous manuring. Others believe that over-luxuriance brings the trouble.

Whatever the cause may be, there is no doubt that the effect is very serious. Many orchards of Victoria have been grubbed, and few are planting the variety, which is our best mid-season Plum. As a result, we are threatened with a gap between the early and late varieties. In some cases this is filled by Belle de Louvain, which suits me very well, but is a very shy bearer in some districts. Probably a better market variety is the Purple Pershore, which is said to be a very heavy bearer and less liable to silver-leaf than many kinds. The Pershore growers were not unnaturally inclined to keep this variety within their own district, but it has leaked out and is being planted extensively in other parts of the country. *Market Grower.*

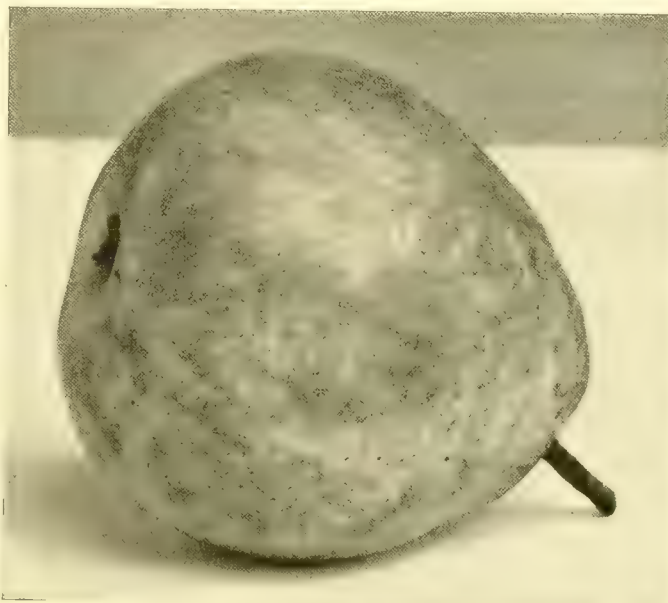


FIG. 35.—PEAR THE BLICKLING.

FRUIT REGISTER.

PEAR THE BLICKLING.

This variety of Pear (see Fig. 35) gained an R.H.S. Award of Merit, January 8, 1907, when exhibited by Mr. William Allan, of Gunton Park Gardens, Norwich, who discovered it some years previously growing in the gardens at Blickling Hall. Mr. Allan has kindly forwarded us specimens of the variety from Gunton Park Gardens, with the remark that he considers it quite one of the finest flavoured Pears in season in January, if not the best. That such a competent fruit grower as Mr. Allan should express such a high opinion of the variety after some fifteen years' acquaintance with it, is high testimony to its merits. It has been described as a late Doyenné du Comice, and it has a similar white, melting, juicy flesh, but there is just a trace of grittiness in the variety which is absent from Doyenné du Comice. According to Mr. Bunyard, in *A Handbook of Fruits*, the variety is said to have been introduced from Belgium by a monastic order, and he describes it as a delicious fruit, rather like a late Comte de Lamy. The tree makes a moderate amount of growth which is of good fertility; in the majority of gardens it would probably succeed best as a wall tree. The specimen illustrated in Fig. 35 is from a photograph of one of the fruits kindly sent us by Mr. Allan.

NOTES FROM WISLEY.

A FEW spring flowers are now beginning to appear at Wisley, the most conspicuous so far being Snowdrops. A few Crocuses are showing, and here and there a *Narcissus bulbocodium*. *Hamamelis arborea* is in flower and near by is *H. japonica* var. *Zuccarimiana*. The flowers of the latter are of a paler yellow and smaller than those of *H. mollis*, which is seen to great advantage in the wood against the background of evergreens. The flowers give out a pleasant odour, which may often be detected at a considerable distance.

Another shrub with a delightfully scented flower is *Viburnum nigrans*: this was raised from seed sent home by the late Reginald Farrer, and it is now in bloom for the first time at Wisley.

A welcome surprise on the border behind the glasshouses is the unusually free flowering of *Parrotia persica*. The half-opened flowers, which often escape notice, here stand out in the sunlight almost like scarlet berries.

Pieris (Andromeda) floribunda is well furnished with its clustered spikes and should soon be a mass of flowers. The common Hazel is beginning to bloom, and many species of *Saxif* have already burst their buds.

Under glass, the trial of Carnations is providing some bright colour. An *Antirrhinum* trial is also in progress, but at present the plants are, naturally, quite small.

In the Alpine house the flowers of *Saxifraga Burseriana* major, *S. B. glabra* and, most charming of all, *S. B. crenata*, are to be seen, as well as *S. Irvingii*.

The germination of some of the seeds sent to Wisley by the Mt. Everest expedition is providing a good deal of speculative interest. *J. E. G. White*.

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Rhododendrons.—No one reading Mr. Magor's interesting remarks (p. 42) on the above subject will contradict him as regards the beauty and excellence of the plants he mentions, but I feel that some reference to climate and situation should be made for the benefit of your many readers deeply interested in Rhododendrons, but lacking the knowledge to discriminate between species of service to them as garden plants and those suitable only for very favoured spots where they can not only be grown but flowered. Suppose, for example, a reader should be attracted by the six plants named by Mr. Magor as his choice, and let us assume such a reader lives in Cheshire. The eastern side of this county is one of the best districts for the growing of hardy hybrids, but the probabilities are that he would never see a bloom from any of the six species except *R. Augustinii*, and I conclude that he would be annoyed at the result. The Rhododendrons named by Mr. Magor may be grown by experts in favourable spots, but, even then, many disappointments will follow. I agree entirely with Mr. Magor's contention that the species and finer hybrids he mentions are incomparably more beautiful than the hardy hybrids, but when it is considered that these specialities can only be grown by perhaps 2 per cent. of persons interested in the cultivation of Rhododendrons, it seems necessary to point out their limitations. This is not the moment for me to enlarge upon the possibilities of hardy hybrids, which thrive equally well in the suburbs of Manchester or in gardens side by side with their more delicate relations, but on reading Mr. Magor's article I felt constrained to take up the cudgels on behalf of that somewhat abused section of Rhododendrons. I venture to suggest that, should cultivators in the greater part of England be restricted to the species and few hybrids mentioned by Mr. Magor, the landscape would suffer to a very considerable extent. *F. Gomer Watney The Cottage, Bagshot.*

Libonia floribunda.—A perusal of several issues of *The Gardeners' Chronicle*, ranging over different years, fails to find any mention of this plant. I may have overlooked such a reference, or perchance the name *Libonia* is otherwise rendered—in which case such information will be much welcomed. Neither is there such a name given in the 1901 issue of *Thompson's Dictionary*, nor is it to be found in a very recently-published gardening dictionary. The omission of this plant from more latter-day writings would seem to indicate that it is none too well known, which is a great pity, as this *Libonia* has real beauty and decorative worth approaching, when well grown, some of the winter-flowering Begonias. The flowers are tubular-shaped, about an inch long and bicoloured, a blending of scarlet and yellow which, when seen in a grouping of several plants, is most distinct and attractive. The foliage is glossy, small and ovate, while the blossoms depend, like those of Solomon's Seal, along the stem, varying in length, according to the strength of each shoot or growth. Cuttings are easily rooted in sandy soil from shoots procurable towards the end of spring and early summer. After their first potting, *Libonias* may be grown in cold frames, while, for a time previous to being housed for the winter, outside treatment is not harmful to healthy plants. During December and January, when at their best, a greenhouse temperature ranging from 45° to 52° is sufficiently high. One plant in a 48-sized pot, or three in a 7 inch pot, give useful results—while specimens grown as "cut-backs" would appear to flower more freely than so-called one-year-old plants. *C. Turner, Amphill Park Gardens.*

[*Libonia floribunda* is a plant common in cultivation, and our correspondent's failure to find the name in some gardening works may be due to its being described under its more correct name of *Jacobinia pauciflora*.—Eds.]

Winter-flowering Begonias.—Several correspondents have during the past few weeks referred to these beautiful flowering plants in your pages, and it is true that the autumn and winter-flowering Begonias make a glorious display during the dull months of the year. The *Gloire de Lorraine* type flowers first, in October and November, and at Christmas that magnificent variety *The King* comes into bloom. I have plants of this variety (end of January) two feet high and the same distance through. Plants of Mrs. Peterson, with its beautiful dark foliage and pink flowers, in four inch pots, are as large as those of *The King*. All the plants are clean and have not been fumigated once, and I attribute this freedom from pests to my method of cultivation. The worst evil is rust: as soon as this is detected the plants should be burnt, as there is no practical cure for it. I never allow the water pipes to become too hot; should the pipes be overheated many times a grower will very soon find his plants infested with green fly and thrips. All the Begonias revel in heat and moisture; the house should be closed early, and shaded from sunshine so as to keep the growth soft until the autumn months, when the plants will naturally become harder as the flowering period arrives. For potting compost I use a light mixture of turfy loam one part, leaf-mould two parts, and the same of peat, with plenty of sand. No chemical manure is used. During the past season I used dried sheep manure rubbed through a half-inch sieve, in preference to dry cow manure, but an undue amount of this fertiliser would cause the plants to make excessive growth, which results in fewer flowers. I give the plants plenty of water during the growing season, and use the syringe freely, but during the winter give water only when it is needed. When cutting back the plants it is a good plan to do this gradually, removing the flower stems first and leave six to eight inches of growth for the production of cuttings. It is a barbarous practice to cut the plants down to within an inch or two of the pots. When feeding use liquid cow or sheep manure; soot water may also be given the roots. *Wm. Fulford, Delrow House Gardens, Aldenham.*

SOCIETIES.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

JANUARY 11.—Committee present: Messrs. J. Cypher (in the chair), B. J. Beckton, Dr. F. Beiford, J. Birchenall, D. A. Cowan, J. C. Corran, J. Evans, J. Howes, A. Keeling, D. McLeod, J. McNab, E. W. Thompson and H. Arthur (Secretary). Owing to the adverse weather the exhibits were not so numerous as usual.

AWARDS.

FIRST CLASS CERTIFICATES.

Odonoglossum crispum X.L.A.L. A large white flower of perfect shape, with small red spots on the lip. *Cypripedium Viking*. The dorsal sepal is white, with a brownish-green base and a deep broad claret line down the centre; the petals are greenish-yellow with brown lines and a dark brown line along the centre; the pouch is greenish-yellow. From S. GRATRUX, Esq.

Cattleya Enid Colossus. An exceptionally large flower of fine shape and dark, round lip. From D. LOSH-THORPE, Esq.

AWARDS OF MERIT.

Cypripedium Merlene var. *Golden Noble* (Selene x Lord Wolmer); *C. Lord Wolmer* (Westmarch var. From Mrs. GRATRUX.

C. Noble *Leonum* var. *Tom Clark*. From Miss BOLTON.

C. Parsons Reginald (Alcibiades illustris x Lady Dillon). From S. GRATRUX, Esq.

Laelia-Cattleya Schraderae var. *Prince Henry*. From D. LOSH-THORPE, Esq.

CULTURAL CERTIFICATE.

Mr. F. COOKSON for *Calanthes* in variety.

GROUPS.

S. GRATRUX, Esq., West Point (gr. Mr. J. Howes), staged a group of choice *Cypripediums*, for which a large Silver-Gilt Medal was awarded.

A. T. CUSONS, Esq., Kersal (gr Mr. F. Cookson), was awarded a Silver-Gilt Medal for a group of *Cypripediums*.

MESSRS. CYPHER AND SONS, Cheltenham, were awarded a Silver Medal for a group of *Cypripediums* in variety.

ROYAL HORTICULTURAL OF ABERDEEN.

THE first of a series of lectures under the auspices of this society was given in the Botany Classroom, Aberdeen University, on Wednesday, the 1st inst., by Dr. MacGregor Skene, lecturer in vegetable physiology at Aberdeen University. These lectures were previously conducted by the North of Scotland Horticultural Association, a body which for many years did valuable propaganda work for horticulture, but is now merged in the Royal Horticultural Society of Aberdeen. Dr. Skene took for his subject "The Making of a Flower," and delighted his large audience with a most instructive and interesting lecture. To get to the beginning of the long series of evolutionary changes which had produced the flowers which delighted them to-day in their wild state, and which formed the material with which breeders had worked to produce their garden forms, it was necessary, said Dr. Skene, to go back a long way. The seed came before the flower, and it was in the geological epoch, when coal was being laid down, that there first arose a race of Fern-like plants which bore seed. The production of seed might be looked on as giving protection to the reproductive units, guarding them against drought, and so allowing the seed plants to grow in dry places and to conquer great areas of the land surface. Later these early seed-bearing Ferns became the origin of a stock of plants represented to-day by the Cycads. In the vegetation of the secondary geological period the Cycads were dominant, and in that period they produced members in which the reproductive organs were arranged in a primitive flower. From such beginnings the flowering plants of to-day had evolved, the

most primitive type now extant being probably the Tulip Tree.

The factor which had determined the production of colour, scent, and nectar was the insect visit, which transferred pollen from stamen to stigma. All these features were to be explained in relation to the insect, and, if those characters which were determined by this inter-relation were taken away, there was no flower in the ordinary sense left. The dependence of the flower on insect pollination was evident in many ways. The Monkshoods were pollinated by bumble-bees, and in their distribution they always kept within the bumble-bee zone. Red Clover, *Trifolium pratense*, set no seed in New Zealand till bees had been introduced. Foreign garden plants had frequently to be pollinated by hand, in the absence of insects.

With wild flowers as material, man had fashioned the garden varieties, using the tools of selection and hybridisation. He had converted a few wild species of Tulip into thousands of varieties. The Tulip was a capital instance of the fascination of the history of a cultivated flower. Brought by merchant seamen of Holland to Leyden, its cultivation became such an obsession in the seventeenth century in Holland that laws had to be passed to prevent dishonesty in a trade in which incredible sums changed hands for a single bulb. Thus was laid the foundation of the great Dutch bulb trade.

The lecture was illustrated by beautiful limelight views, and hearty thanks were accorded Dr. Skene for the highly instructive evening he had provided.

ELSTREE AND DISTRICT HORTICULTURAL.

THE annual meeting of this Society, held recently, was followed shortly afterwards by the annual dinner and social evening.

Mr. Edwin Beckett presided at the annual meeting. A very satisfactory state of affairs was reported by the Hon. Secretary, Mr. W. J. Pritchard, on behalf of the Committee. After meeting all claims, and making a donation of ten guineas to the local sports club, the available balance was shown by the accounts to have risen during the year from £9 16s to no less than £36, in addition to which there is a deposit account with the bank of £20. Amounts received during the year as subscriptions, donations, and for special prizes amounted to £65, whilst the Society expended £72 upon prizes at the annual summer show.

Special votes of thanks were accorded to Lord Aldenham, the Hon. Vicary Gibbs, and the Hon. Edith Gibbs, for their great help and support, and it was announced that the show for 1922 would take place at Aldenham Park, on July 15 next. During the evening several new members were elected.

Votes of thanks to the Chairman and Hon. Secretary terminated the business.

The annual dinner which took place at the "Plough Inn," Elstree, was a great success, the chair being taken by H. F. Thomas, Esq., Elstree. The company numbered about 80. The toast, "Continued Prosperity of the Society," was moved by the Chairman in a humorous speech, and was responded to, on behalf of the Society, by Mr. W. Cutbush, who emphasised the usefulness of the Society. The toast of "The Chairman" was moved by Mr. Ed. Beckett in a short but excellent speech, and was suitably responded to by Mr. Thomas. The musical items, which were numerous and varied, assisted greatly in making the evening an exceedingly pleasant and successful one.

WATFORD HORTICULTURAL.

THE third of a series of lectures promoted by the above Society was given in the Council Chamber on the 25th ult. by Mr. F. W. Miles (County Staff Lecturer). Major E. W. C. Monro presided over a large attendance. Taking "Up-to-Date Vegetable Cultivation" as his subject, the lecturer dealt with it in a style which com-

elled the interest of his audience. Rotation of crops, the art of intercropping, the vexed question of manuring, and the best varieties of vegetables were all dealt with. The Chairman, in proposing a vote of thanks, added interesting remarks concerning the seed-growing industry.

BRITISH MYCOLOGICAL.

A MEETING of the British Mycological Society was held at University College, London, on Saturday, January 21, the President, Mr. F. T. Brooks, in the chair.

The first paper was by Mr. W. B. Crow on *Leuconostoc mesenteroides*, which was formerly frequent in sugar works and was principally responsible for the so-called "frog spawn" which appeared in the vats containing sugar solutions.

SYMBIOSIS IN *CALLUNA VULGARIS*.

This was followed by a critical review by Dr. M. C. Rayner of a recent German paper by H. Christoph, in which he comes to quite opposite conclusions from her well-known results on obligate symbiosis in *Calluna vulgaris*. The experimental results of her own work were first summarised. Christoph, who is apparently still in ignorance of these experimental facts, concerns himself with the manner in which the roots of *Calluna*, in common with the *Ericaceae*, become infected by a mycorrhizal fungus, and with the subsequent relations between plant and endophyte. As a consequence of germinating seeds on sterilised and unsterilised soils, he concludes that infection takes place always from the soil, never from the seed-coat. Moreover, he concludes that the relation between plant and fungus is entirely casual in nature and claims to have raised and grown healthy plants, the roots of which remain free from fungal infection. Unfortunately, the records of all experiments carried out by Christoph with sterilised seeds are at present valueless, since he offers no proof whatever that such seeds and the seedlings obtained from them were free from infection from micro-organisms. Nor were his seed cultures grown under aseptic conditions, since he records infection from the soil in some of them by other species of fungi, an infection regarded as of no consequence since the species concerned are incapable of infecting the roots.

Christoph isolated a fungus from the roots of *Calluna*, but was unable to identify it in pure culture as it did not spore. He claims to have established its identity by successful inoculation into seedlings, but the latter were already well rooted. Dr. Rayner pointed out that the obligate relation between plant and fungus which follows from her experimental results and the regular infection of seedlings from the seed-coat in no way involves the absence of the mycorrhizal fungus (a species of *Phoma*) from soil or precludes additional infection of roots from that source. It is obvious, indeed, that the soil about *Calluna* roots will always contain hyphae of this fungus, although the extent to which the latter can grow as an independent saprophyte in soil under natural conditions is at present unknown.

DIE BACK OF STONE FRUITS.

Miss D. M. Cayley followed with a description of the "die back" of stone fruit trees due to *Diaporthe perniciosus*. In the investigation of "die back" in stone fruit trees, although different fungi have been found to be very generally present on the diseased tissues, *D. perniciosus* has proved to be by far the most prevalent. The fungus has been isolated from Peach, Peach stock, Apricot, many different varieties of Plum, Apple stock (Type II., Malling), and wild Sloe. This "die back" appears to be of very general occurrence in fruit-growing areas in this country. The disease attacks trees of all ages, but the damage is most noticeable in young ones where the whole tree is killed very rapidly after the first external symptoms have appeared. The development of the parasite in the host plant is slow; infection occurs for a considerable time, in some cases probably years, before any definite external symptoms appear, but once wilting has

set in the affected areas die rapidly and the fungus completes its life history as a saprophyte on the dead wood. The first symptoms may be either rapid wilting and browning of the leaves during the growing season, or premature yellowing and fall of the leaves in autumn. In either case the parts affected are killed outright in a short time. The bark at first looks healthy, and frequently no external symptoms can be seen before wilting sets in. In other cases the bark may take on a reddish tinge, or slightly sunken areas may extend longitudinally down the stem or branch. The smaller branches or stems instead of being cylindrical are inclined to be angular or flattened. This angular appearance is due to the uneven development of secondary thickening, which is arrested in the diseased area, whereas normal growth continues in the parts of the periphery unaffected by the fungus.

Callus may form on either side of the sunken area, with the result that the bark is split longitudinally down the stem. As the disease develops, transverse elongated excrescences form on the bark, very similar to, but much more numerous than, the undeveloped lenticels on normal bark. These excrescences are caused by the development of stomata immediately beneath, or in between the external layers of cork. Pycnidia develop in these stomata, break through the bark, causing the lenticel like spots, and the spores are liberated as whitish tendrils.

The fungus kills the cortical tissues, the phloem, cambium and medullary rays, and penetrates the wood, causing considerable discolouration of the xylem. The wilting, however is not due to the mechanical blocking of the vessels by the fungus itself. The vessels are, however, considerably blocked by tylosis and gummy deposits.

Diaporthe is one of the *Pyrenomycetes*, with a pycnidial stage belonging to the form genus *Phomopsis*. It is difficult to get the fungus to complete its life history on artificial media in pure culture, although sowings of ascospores and pycnosporos grow well on various artificial media. In three instances, however, perithecia have been observed in pure culture, from sowings of pycnosporos, thus proving that both stages belong to the same fungus.

Inoculation experiments on one year old shoots of Prince of Wales Plum, although they showed definite stages of infection, accompanied by gumming, have not produced, so far, the typical wilt. Other inoculations on the current year's young shoots of Peach, with pure cultures isolated from different varieties of Plum, and from Apricot and Peach, gave rise to rapid wilt and die back. These results show that all the strains are definitely parasitic on the Peach.

Experiments with mono-ascospore and mono-pycnosporos cultures have given very interesting results, showing that there probably are two distinct biologic strains occurring on the Plum, and a third on the Peach, which, when grown together in a Petri-dish on an artificial medium, show a peculiar phenomenon of repulsing one another, although they are all capable of parasitising the Peach. So far, all the mono-ascospore cultures derived from the same perithecia have proved to be of the same strain, and the segregation in the different strains appears to take place at some period before the development of the pycnosporos. The investigation of this part of the problem is not yet complete, the initial results being brought forward for discussion.

Dr. W. Brown continued his account of investigations on the physiology of fungi. The germination of fungal spores is markedly affected by the action of volatile substances proceeding from plant tissues. Thus the germination of spores of *Botrytis cinerea* is accelerated by the action of volatile substances arising from the petals of *Rosa centifolia*, and from a large variety of leaves, *Ruta*, *Eucalyptus*, *Choisya*, *Pelargonium*, Apple, etc., and from Apple fruit. The parasitic capacity of the spores is also increased in the presence of such plant tissues, the spores in virtue of their more vigorous germination being enabled to penetrate leaves (e.g., *Beau leaves*) which they are unable to

attack in the absence of such stimulation. In other cases very distinct retardations have been obtained, e.g., in the case of *Botrytis* spores in presence of Orange, Onion, and Potato tissue. These effects are also obtained with other fungi. It was found possible to reproduce the phenomena by use of a chemically pure substance such as ethyl acetate.

Mr. W. J. Dowson's paper on Michaelmas Daisy wilt is published on p. 63.

ASSOCIATION OF ECONOMIC BIOLOGISTS.

At the meeting of this Association held on Friday, January 27, the President, Sir David Prain, in the chair, Professor E. P. Stebbing opened a discussion on "The Importance of Research in Forestry and its Position in the Empire." The history of forestry research in India from its initiation to its great post-war developments was described, and the scope and value of the work of the various branches of the research divisions indicated. The speaker then reviewed the state of forestry research in the overseas dominions, pointing out the great value and high quality of timbers obtainable within the Empire. The research organisation in this country was discussed and the general problems needing urgent investigation indicated, the warning being given, however, that the research side should not be developed more quickly than the planting work. A plea was made for the establishment of a fully equipped research institute, which would work in collaboration with the educational centres. Until such an institution was available a fuller use should be made of the study centres. A keen discussion followed, in which the following gentlemen took part: Lord Clinton, Mr. Robinson, Professor Troup, Professor Groom, Professor Crocker, Dr. Munro, Mr. Hiley, Mr. Brooks, Mr. Guiliband, Dr. Brierley, Mr. Chrystal and Sir David Prain.

NATIONAL DAHLIA.

JANUARY 31.—The annual meeting of the National Dahlia Society was held in the Lecture Room of the Royal Horticultural Society, Vincent Square, Westminster, on this date, about twenty members being present. The chairman, Mr. Joseph Cheal, was unable to be present, owing to indisposition, and Mr. D. B. Crane was elected to the chair. After the minutes of the previous annual meeting had been read and confirmed, the secretary read the report of the committee for 1921, of which the following are extracts:—

"The committee is glad to record a most satisfactory season, so far as the name flower is concerned. The flowering period was unusually long, and the general quality of the blooms at the annual show was very high. The trade exhibits reached a high standard of excellence and competition was good, especially in the classes devoted to Cactus varieties and decorative sections.

"Encouraged by the success of last year, the Society has arranged to hold an independent show on September 6 next in the R.H.S. Hall.

"The sincere thanks of the committee are tendered to the donors of special prizes and to the Floral Committee, the members of which paid several visits to Wisley in order to inspect the varieties on trial there and to assist in drafting the scheme of Dahlia classification, which seems to have been accepted with general approval. The great assistance given to the Society by the Horticultural Press in assisting propaganda and recording the doings of the Society generally is also recorded.

"Owing to lack of funds, it is not yet possible to resume the publication of the Society's *Year Book*, but lists of the best varieties in the different sections are published as a supplement to the schedule."

The treasurer, Mr. J. Green, read the statement of accounts, which showed a credit balance of over £21, largely made up of unappropriated proportions of life members' subscriptions. The principal items on the receipt side were:—Subscriptions and donations, £53 18s. 9d.; prize fund, £15 18s. 6d.; and

advertisements in schedule, £8 6s. The past year's expenditure included:—Prizes, £40 19s. 9d.; printing and stationery (including the schedule), £24 16s. 6d.

The chairman, in moving the adoption of the report and accounts, referred to the useful work done by the Society during the past year, and appealed for an increased membership, as it was by this means that the Society would be enabled to find funds to carry on its work. The treasurer, in seconding the adoption of the report, stated that the accounts were as good as could be expected; the Society had over £21 in hand, but most of that sum really represented the value of life subscriptions, and should not be utilised for ordinary purposes, unless in very exceptional circumstances. The report and balance-sheet were adopted without further comment. The alteration to by-laws proposed last year, whereby the number forming the General Committee was reduced from forty to twenty-four, exclusive of the officers, was confirmed, and the month of the annual meeting altered to November, in order that the schedule could be published earlier, with a view to enabling those who intended to exhibit obtaining their plants early and making their arrangements in good time.

It was decided to limit the number of vice-presidents to six and to extend the list of patrons. The following were elected vice-presidents:—Messrs. J. Cheal, W. Cuthbertson, J. Green, S. Mortimer, W. Stephens, and J. T. West. Mr. Reginald Cory was re-elected president; Mr. J. Cheal, chairman; Mr. J. Green, treasurer; and Mr. J. Emberson, show superintendent. The following new members of the General Committee were appointed:—Messrs. H. H. Thomas, H. L. Brownson, A. F. Tofield, A. J. Cobb, W. G. Cramp, and Steven Jones. The following gentlemen were appointed members of the joint Floral Committee for adjudicating on novelties submitted for award in conjunction with the R.H.S. floral sub-committee:—Messrs. J. Cheal, J. T. West, J. B. Riding, J. Green, and D. B. Crane. Mr. Gerald Hillier, who resigned the office of hon. secretary, was given a hearty vote of thanks for his services. On the proposition of Mr. J. Green, Mr. A. C. Bartlett, 318, Kew Road, Kew, was elected to the vacancy.

BRITISH CARNATION.

The following new Carnations were registered by the British Carnation Society in 1921:—

Bartlow Beauty.—Seedling, salmon colour, sweet-scented. From Mr. FRED M. FOLKARD, Bartlow House Gardens, Bartlow.

Cameron.—Seedling, mauve, parentage *Britannia* × *Mikado*. From Mr. HERBERT G. CULLWICK, Westlake Gardens, West Coker, Yeovil.

Freedom.—Seedling from Mary Allwood, salmon-scarlet, fragrant. From Mr. G. CARPENTER, West Hall Gardens, Byfleet, Surrey.

Leslie.—Sport from *Circe*, cerise, clove-scented. From Mr. W. G. DOUCE, The Gardens, Calthorp Towers, Rugby.

Lorna Doone.—Seedling, rose pink. From Mr. H. T. MASON, Hampton Hill.

Nigger.—Crimson, fragrant. From Mr. C. ENGELMANN, Saffron Walden.

Nora Wicks.—Seedling from May-day, pink, fragrant. From G. CARPENTER, West Hall Gardens, Byfleet, Surrey.

Olive Beckwith.—Sport from Mrs. C. W. Ward, flesh-pink to light orange. From G. BECKWITH AND SONS, Ware Road, Hoddesdon.

Sir Edgar Mackay Edgar.—Seedling, crimson clove, fragrant. From Messrs. STUART LOW AND CO., Bush Hill Park.

White Queen.—Seedling, pure white, fragrant. From A. J. WHITWORTH, Datchet, Bucks.

Wivelsfield Fancy.—Seedling, flesh-pink flaked pure rose. From Messrs. ALLWOOD BROTHERS, Haywards Heath.

Wivelsfield Pink.—Seedling, salmon cerise, fragrant. From Messrs. ALLWOOD BROTHERS, Haywards Heath.

ANSWERS TO CORRESPONDENTS.

BULLFINCHES IN THE GARDEN: *H. M.* Bullfinches are amongst the most destructive of all birds in the garden, and although, as you state, some persons believe that they only attack buds containing insects, Mr. J. G. Blackey, in an article on the subject in *Gard. Chron.*, March 15, 1919, states that although he examined the crops, stomachs, etc., of no fewer than 270 of these birds which he captured or shot in the garden, he never found present in the food a single bud containing an insect. The best method of clearing the garden of these destructive birds is by shooting them with a gun; but many would object to doing this as bullfinches are very handsome birds. Mr. Blackey states that trying to frighten them with a gun is useless, for the birds come back in a few minutes. He recommends placing strips of bright tin, 1 inch by 6 inches, on poles above the trees, so that they may be swayed about by the wind and thus frighten the bullfinches. Considerable correspondence on the subject of birds in the garden was published in *Gard. Chron.*, Vol. LXV., January to June, 1919.

CHERRY STOCKS: *C. N.* The stocks were the common Cherry and Mahaleb respectively.

CHRYSANTHEMUM RUST: *Y. V.* Seeing that your stock plants were infested with the disease, it is not surprising that you find the cuttings from them are also affected. It would be best, even at this stage, to obtain stock from a fresh source; but if this is impossible, spray the plants at intervals with dilute Bordeaux mixture. Keep a careful watch for any leaves that may show signs of the disease and gather these and burn them at once.

CHRYSANTHEMUM SPORT: *S. B. W.* The variety appears to be of fair decorative value, and we would suggest that you propagate the sport and send blooms next season to the Floral Committee of the National Chrysanthemum Society.

NAMES OF FRUIT: *Cross Waltham*. 1, Radford Beauty; 2, Dumelow's Seedling (syn. Wellington); 3, Lord Derby.

NAMES OF PLANTS: *A. W.* 1, *Haemanthus* species, probably *H. virescens albiflorus*; 2, *Liriope graminifolia* (syn. *Ophiopogon spicatus*); 3, not recognised.

OUT-OF-SEASON CROPS FOR MARKET: *H. F. P.* To make a profitable business by growing what you call "out-of-season crops" would require not only experience of how best to grow crops against the natural seasons, but also several greenhouses or frames, and consequently a certain amount of capital. And it does not follow that "out-of-season" crops could be sold to "the moneyed classes" and at "fancy prices," unless you are prepared to attend personally to the marketing as well as the growing. You might begin in a small way by growing Lettuces, Short-horn Carrots, Radishes, Spinach, Endive and Turnips in frames with hot beds of manure beneath them during the winter, say, from October to April. This would be a kind of intensive cultivation, and you could not do better than read how these crops are grown out of season in *French Market Gardening*, by John Weathers, which can be obtained from our publishing department, price 5s. 6d. post free. If you have had no experience in growing these crops the book will tell you how one crop may be cultivated to follow another under the same light, and how to provide for a succession. In a warm greenhouse you could grow early French and climbing French Beans as well as the other crops mentioned. It would be better to start in a small way at first until you began to find out what you could grow best, and what would sell best. Try frame Radishes for a start; good, well-washed roots tied up in neat bundles usually sell well during the winter and spring months.

Communications Received.—*T.* Sainte-Mesme—G. A. C.—A. E. H.—Tychhurst—J. H.—F. A. H.—Mrs. P.—R. P. B.—H. M.—J. E. D., Jerusalem.

THE Gardeners' Chronicle

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 39.3.

ACTUAL TEMPERATURE:—
Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, February 15, 10 a.m. Bar. 30.1; temp. 45°. Weather—Dull.

Soil Conditions and Plant Growth.

The wonderful advances of knowledge of the soil in relation to plant growth which have taken place during the past decade are illustrated by the fact that whereas, in the first edition of Dr. Russell's work* of this title, published in 1912, 166 pages sufficed to summarise what was known on this subject, some 400 pages are now required; and Dr. Russell does not waste words. It is no exaggeration of language to say that during this period soil science has been remade. In 1912 the old view which regards the soil as an inert assemblage of mineral and decaying humus particles was still widely held; to-day every student of the soil realises that this picture of soil-constitution is as insufficient as it is simple. It is true that before 1912 the foundations of the new science had been laid. The rôle of nitrifying bacteria had been discovered and the importance of humus had, of course, long been recognised. It was known also, long before that date, and thanks in large measure to Sir Humphry Davy, that the physics of the soil is of no less importance in relation to plant growth than is its chemistry. It was also well understood that the water-relations of the soil are of the utmost importance in their effects on fertility. The great progress of soil science of recent years has been due rather to the intensive cultivation of special aspects of that science by numerous and highly skilled workers than to the introduction of any absolutely new ideas. The sole exceptions to this statement are perhaps

the application of the discoveries in the physical chemistry of colloids to the soil, and the extension of the idea that the upper layers of the soil are the abodes of an extensive microscopic flora and fauna composed of bacteria, algae, protozoa and inter-organisms, and that the actions and inter-actions of these minute denizens of the soil count greatly in determining soil fertility and probably in the actual manufacture of plant-food. The puzzling behaviour of clay—its strange properties of puddling under pressure, flocculating and becoming easier to work when subjected to frost or when treated with lime, are becoming more intelligible now that the colloidal nature of clay is recognised. As Dr. Russell points out in his chapter on the colloidal properties of soil, each of the two chief constituents of soil, clay and humus, possesses colloidal properties. To these properties are due the power of soils of absorbing substances from solution, as, for example, potash salts, phosphates and salts of ammonia; with the result that soluble salts of those substances used as artificial manures do not wash out but remain at the service of plants growing in the soil. In the case of clay, the colloidal view bids fair to change fundamentally current opinion as to the cause of certain of its properties. According to the older opinion, the chief physical properties of clay are to be ascribed to the excessive minuteness of its particles, which range downwards until the smallest are invisible under the microscope. The more recent suggestion, however, is that the stickiness and other properties of clay is due to the fact that a watery colloid substance forms a gelatinous film round each of the minute solid clay particles. We may thus picture a clay soil as consisting of an incredibly large number of extremely minute particles, so small as to be invisible even by the aid of the microscope, around each of which is a gelatinous envelope. In the vast tract formed by these envelopes, the micro-organisms flourish much as they may be made to flourish in the laboratory on plates of gelatine or agar-agar. There they live and die, and according to recent views, by their lives and deaths manufacture the food which the roots of plants absorb from the soil. There is no page of Dr. Russell's book which is not of interest both to the scientific student and to the practical grower. The enthusiast for indiscriminate intensive cultivation who urges the conversion of all grass land into arable might also learn wisdom from a perusal of these pages. From them he would discover that cultivation makes a heavy and unavoidable toll on the soil and that the cost of making good the loss—e.g., of nitrogenous food material which ensues from cultivation—must in the case of not a few soils prove prohibitive to their arable cultivation. The amount of loss which ensues when prairie land is brought under cultivation may amount (p. 181) to so much as 68 lb. of nitrogen per acre per annum, and the same loss is observed when heavy dressings of manure are applied to land in this country. The crop is nourished, but the soil is impoverished by a larger amount than the crop is benefited. This leakage of costly plant food appears to be due to the decomposition of nitrogen compounds to gaseous nitrogen, so that instead of all the nitrogen contained in or applied to the soil awaiting obediently the attention of the soil-nitrifying bacteria and appearing as usable nitrates, some is decomposed by other agencies, with the result that the nitrogen escapes into the air. Those, again, who have trouble with sour soils will gain much useful information from a perusal of Dr. Russell's remarks on pp. 239-244. The

sour or acid soils which give an acid reaction with litmus present many interesting features. They may be improved by liming or they may be used for the cultivation of those crops which are not too intolerant of acid conditions, as, for example, Lupins, Alsike, Oats, Potatoes and certain grasses. As acidity increases so the number of species growing in the soil decreases. At Rothamsted, on grass plots on soil with a neutral reaction, there are forty-five species; on grass plots which are somewhat acid, fewer, and on the most acid plots only seven species grow. The flora is generally a good index of acidity; for example, where soils are markedly acid, as on the bake land of the Wiltshire Downs, Sheep's Sorrel, Scarlet Pimpernel, Knawel (*Scleranthus annuus*) are present, whereas Toad Flax, the white and Bladder Campion are absent, although abundant on neighbouring chalky soils.

A far more extensive review than is possible in these pages would be required to do justice to the industry and judgment which Dr. Russell has expended in writing this admirable book. Enough has been said, however, to indicate that anyone who cultivates the soil and would like to cultivate it better, should obtain and peruse his book. Admirably written, concise and lucid, Dr. Russell has conferred, by preparing this new edition, a great boon on everyone who makes a study of the right mode of exploitation of the soil in the interest of agriculture and horticulture.

Alterations at Bishop's Park, Fulham.—Improvements in Bishop's Park, Fulham, have been sanctioned, entailing an expenditure of £2,445. One item which the Fulham children will appreciate is the importation of one hundred and twenty tons of sea-sand; this is to be placed near the paddling pool in imitation of the seaside.

Presentation to Mr. A. Shambrink.—On the occasion of the annual meeting of the Derbyshire Gardeners' Association, held on the 3rd inst., Mr. A. Shambrink was presented with an illuminated address and a suitably inscribed gold-mounted umbrella in recognition of the valuable services he has rendered to the Society during the many years he has been resident near Derby. Mr. Shambrink stands in the front rank of plantmen, and visitors to the Royal Horticultural Society's meetings will remember the magnificent Cyclamen and Begonias he has exhibited at Vincent Square, and for which he has obtained the highest awards; while horticulturists in the Midlands are aware that he has been awarded several large Gold Medals of Birmingham for similar displays. Mr. Shambrink has taken up new duties with Lady Markham, Avonside, Barford, and his loss to the Derbyshire Association will be a gain to the Warwickshire district. The presentation was made by Alderman A. Green, who referred to Mr. Shambrink's capabilities as a gardener and especially to the services he had rendered the Derbyshire Gardeners' Association.

The New Award of Garden Merit.—As announced in our issue of February 11 (p. 61), the Council of the Royal Horticultural Society has just established a new award for ornamental plants, especially intended to mark plants of proved and outstanding excellence for garden decoration. It is to be known as the Award of Garden Merit, and will be bestowed by the Council on the recommendation of the Wisley Garden Committee, generally, but not necessarily exclusively, to plants which have been thoroughly tried at Wisley. It may be given to plants long grown in our gardens as well as to more recent introductions, provided they are of outstanding merit in their class and do not require very special treatment to bring out their excellences. We learn from Mr. F. J. Chittenden that the first award was made at the meeting of January 31, 1922, to *Hamamelis mollis*.

*The Rothamsted Monographs on Agricultural Science, *Soil Conditions and Plant Growth* (Fourth Edition), by Edward J. Russell. Messrs. Longmans, Green and Co. Price 16s. net.

This Chinese species of a genus represented by *H. arborea* and *H. japonica* in Japan and *H. virginiana* and *H. vernalis* in America (all of them now growing in British gardens) was introduced in 1879 by Mr. Charles Maries to Messrs. Veitch's Coombe Wood Nursery, but did not become well known for a long time. It is the finest of the genus both in flower and foliage, and particularly valuable in the shrub border in January, when it produces its delightfully fragrant, golden-yellow flowers in profusion, in clusters along the bare last year's twigs. The long, narrow petals are straight (not crumpled, as in other members of the genus), rich golden-yellow, except for the reddish base, and set in a red-brown calyx, smooth within, hairy without. The bush grows to six or eight feet in height (possibly more), and has stout spreading branches. It is accommodating as regards soil, but grows best in good loam. When young, a little leaf soil aids it, but later it can take care of itself. It requires no pruning, unless to correct a slight tendency to sprawl.

Legacies to Gardeners.—The late Mr. Christopher Geiselbrecht, of Beechdale, Eltham Road, Lee, Kent, who, during his life-time was a valuable supporter of both the Gardeners' Royal Benevolent Institution and the Royal Gardeners' Orphan Fund, left the income from £3,000 in trust for each of his gardeners, Mr. George David Judge and Mr. Harry Cox, for life, and £2 a week for their wives if they should survive them.

Association of Economic Biologists.—The annual general meeting of this Association will be held at 2.30 p.m. on Friday, February 24, in the Botanical Lecture Theatre of the Imperial College of Science, South Kensington, London, S.W.7. The usual annual business of the Association will be transacted, and Dr. John Rennie, of the University of Aberdeen, will read a paper on "The Present Position of Bee Disease Research"; this will be followed by a demonstration by Dr. Rennie of "Polyhedral Disease in *Tipula* Species." The new councillors will meet on the conclusion of the general meeting to elect the officers of the Association for 1922.

Honour for M. Le Loup Grimoux.—In recognition of his services rendered to horticulture in general and to Chrysanthemum specialists in particular, the National Chrysanthemum Society has awarded an Honorary Fellowship to M. Le Loup Grimoux, the organiser, and moving spirit of the Le Mans show, held in November, 1921. M. Grimoux is as skilful a grower as he is an organiser, and is now regarded as the cleverest grower of large Chrysanthemum blooms in France.

Flowers in Season.—A sheaf of flowering branches of *Parrotia persica*, sent by Mr. Anthony Waterer, has adorned our editorial office for several days past. Mr. Waterer informs us that *Parrotia persica* is not a plant which flowers in a young state, but is extraordinarily fine when it attains some considerable age and size. The tree from which the sprays were cut is twelve feet high, and has a circumference of thirty feet. Mr. Waterer sent flowering branches to Mr. W. J. Bean, at Kew, who, in acknowledgment, wrote: "Thanks for the *Parrotia persica*. It is extraordinarily fine, and I do not remember having ever seen it so good." The flowers are not conspicuous individually, but the numerous orange red stamens and the rich reddish-brown bracts are very effective when, as in the specimens referred to, they occur in large numbers along every twig.

Horticultural Lectures at Glasgow.—A syllabus of interesting lectures on horticultural subjects has just been issued by the Glasgow and West of Scotland Horticultural Society. The subjects and lecturers include "Garden City Problems," by Mr. J. M'Gran, Coodham Gardens, Kilmarnock, on February 22; "Rock and Water Gardening," by Mr. William Besant, Sunlight Cottage, Kelvingrove Park, on March 29; "The Culture and Training of Hardy Fruit," by Mr. D. Grant M'Iver, Miramar Lodge, Skelmorlie, on October 4; and "Our Allotments—As They Are and What They

Might Be," by Mr. Alex Buist, Gryfe Nursery, Bridge-of-Weir, on December 6. The Society's programme includes an outing to Loch Lomond Park on Saturday, June 2, and the great International Show to be held at Kelvin Hall, on August 30, 31, September 1 and 2.

Dr. E. J. Russell.—Research stations, like human habitations, come to assume in the course of years a distinctive and individual character of their own. It is as though they absorbed and radiated the spirit of those who abide in them. In this sense Rothamsted, over whose destinies Dr. Russell presides, may with propriety be described as a happy home of research. A succession of remarkably gifted men, Lawes and Gilbert, Warrington, Hall and Russell, have all done notable work there and have established Rothamsted's fame throughout the world. The success which has attended the quest of discovery into soil science by these workers shows no sign of abatement; indeed, thanks in large measure to Dr. Russell, that success bids fair to increase with yet greater rapidity. For Dr. Russell possesses in high degree not only the capacity for research, but also the yet rarer



DR. E. J. RUSSELL, F.R.S.

faculty, that of inspiring research in others. Hence the laboratory at Harpenden has become a great research centre whence issue results which illuminate science and aid practice. The most striking example of Dr. Russell's power to compel belief in research and to get belief expressed in endowment is provided by the Lea Valley Research Station, the origin of which is due no less to the public spirit of the growers than to the foresight and enthusiasm of Dr. Russell. When Dr. Russell became Director of Rothamsted he had already proved himself one of the foremost investigators in agricultural science, and during his tenure of that important office he has enhanced his reputation and that of the Institute. He began his career as lecturer and demonstrator in chemistry in Victoria University, Manchester, in 1898, and after three or four years became head of the Chemical Department of the Agricultural College, Wye, which post he held till 1907. From 1907-1912 he was Goldsmiths' Company's soil chemist at Rothamsted, and at the end of that period he was appointed director of the Research Station. Clear headed, of sound judgment and unbounded enthusiasm, Dr. Russell is the happy possessor of other gifts also, which with his fine training and wide knowledge make him a great power for good. Wonderfully lucid in exposition, he possesses—as people say, naturally—the art of expressing himself with a charming simplicity, which his colleagues admire and envy. As our readers know, he is the author of numerous scientific works, of which the most important

are *Soil Conditions and Plant Growth; Lessons on Soil; Soils and Agriculture of Kent, Surrey and Sussex*, (with A. D. Hall); *A Student's Book on Soils; and Manures and Manuring for Higher Crop Production*. During the war Dr. Russell's untiring energy was sufficient to enable him to keep work going at Rothamsted, and at the same time to perform service of great national importance as technical advisor of the Food Production Department and as member of the Munitions Panel and of the National Salvage Council. His scientific work has been recognised by his election to the Royal Society (1917), and his public services by the award of an O.B.E. Foreign countries have bestowed upon him numerous honours, but what he must hold most dear is the universal regard in which he is held by his scientific colleagues of this country and throughout the world.

National Institute of Agricultural Botany.—At a meeting of the Council of the N.I.A.B., held on the 9th inst., the first election of Fellows of the Institute took place. One hundred and ten candidates were elected, among whom were the following:—H.R.H. the Duke of York, the Prime Minister, the Duke of Bedford, the Marquess of Crewe, the Earl of Ancaster, the Earl of Derby, the Earl of Crawford, Viscount Milner, Lord Clinton, Lord Bledisloe, Lord Ernle, Sir Gilbert Greenall, Sir Harry Verney, Sir Matthew Wallace, the Hon. E. G. Strutt, the Rt. Hon. E. C. Pretyman, M.P., Lt.-Col. the Rt. Hon. Sir A. Griffith-Boscawen, Sir Thomas Middleton, Mr. Charles Adeane, Mr. Samuel Farmer, Mr. R. R. Robbins, and Lady Margaret Boscawen.

Appointments for the Ensuing Week.—Monday, February 20: Reading and District Gardeners' Association's meeting; lecture on "Flowering Bulbs, Plants and Shrubs; Forcing and Retarding," by Mr. H. Mew.—Wednesday, February 22: Glasgow and West of Scotland Horticultural Society's lecture on "Garden City Problems," by Mr. J. M'Gran; Irish Gardeners' Association's meeting; Wimbledon and District Gardeners' Society's meeting; Elgin Horticultural Society's meeting.—Thursday, February 23: Bristol and District Gardeners' Association's meeting; Royal Botanic Society's meeting.—Friday, February 24: Association of Economic Biologists meeting; Paisley Florists' Society's meeting.

"The Gardeners' Chronicle" Seventy-five Years Ago.—A Disclaimer.—In our advertising columns of Saturday last was an announcement by Messrs. Hubbard and Co. that they had for sale, as a cure for the Potato disease, some lime analysed by Prof. Lindley. We beg to state that this use of Dr. L.'s name was without his knowledge; that he never analysed any lime for Messrs. Hubbard and Co., and that he does not recommend magnesium limestone as a cure for the Potato disease. In the year 1844, nearly three years ago, he, in civility to these parties, of whom he has no knowledge whatever, procured an analysis of magnesium limestone, to be made for them, for which he paid one guinea, which was repaid by Messrs. H. and Co., but they were perfectly aware that it was for the analyst whom Dr. L. employed, and that he has no part in the analysis. Under these circumstances, Dr. Lindley cannot but feel that a use has been made of his name by the advertisers which was unauthorised and improper. *Gard. Chron.*, February 13, 1847.

Publications Received.—*The Microscopic Study of Bacteria in Cheese*. By G. J. Hucker; *Composition of Some Soils from the Chautauque County Grape Belt*. By R. C. Collison; *The Use of Agar Slants in Detecting Fermentation*. By H. J. Conn and G. J. Hucker; *Rose Bengal as a General Bacterial Stain*. By H. J. Conn; *A Modification and New Application of the Gram Stain*. By G. J. Hucker; *The Use of Various Culture Media in Characterising Actinomycetes*. By H. J. Conn; *Plant Lice Injurious to Apple Orchards*. By F. Z. Hartzell and L. F. Strickland; *An Investigation of the Seed of the Silver Maple*. By R. J. Anderson. All published by the New York Agricultural Experiment Station, Geneva, New York.

THE ALPINE GARDEN.

SILENE SCHAFTA.

SCHAFTA'S Catchfly is one of the most valuable of rock plants, but is not so much sought after by those who endeavour to secure novelties and rare species, many of which do not possess a tithe of the real value of *Silene Schafta*. The plant is very easily cultivated in any rock garden or rockery, and in the usual soil provided for the subjects which are generally cultivated there. I have found that it will thrive and flower in sun and in practically full shade, always provided that it is not under the drip of trees. Other points in its favour are the ease with which it is cultivated and (of special value to those who have to study economy) the cheapness of plants, and still more of seeds from which a good stock may be easily raised for a few pence.

Silene Schafta is a pretty little plant, suitable for edgings or for almost any place in rockwork, thriving even in crevices with a fair quantity of soil. It is of trailing habit, but not so vigorous as to be a danger to its neighbours. It has neat leaves and numbers of medium-sized flowers of a colour often called "purple-rose," which is probably as near to a colour description as it is possible to reach.

The plant generally begins to flower in summer, and continues to bloom until the advent of frost. I have, indeed, had it in bloom after a good deal of frost well into October. This long and late flowering habit makes this *Silene* all the more valuable.

It may be increased by division or cuttings, the former being performed at any time—in spring by preference—and the latter struck in summer under a bell-glass, hand-light, or frame in sandy soil. But raising plants from seeds is the best method, as it is cheaper where a stock is required, and gives good plants to bloom the following year. The seeds may be sown in light soil in the open in April or May in shallow drills about $\frac{1}{4}$ inch deep, and should be covered with sandy soil. If the weather is dry, careful watering through a fine rose is necessary. When the seedlings are large enough to handle, they should be transplanted about 3 inches apart, and removed in autumn to where they are to flower. The seeds may also be sown in pots or pans under glass in spring. *S. Arnott*.

ORCHID NOTES AND GLEANINGS.

ALBINISM AMONG ORCHIDS IN NATURE.

EXAMINATION of the facts connected with the production of albinos (and varieties resulting from albinism) in the species of Orchids in their native habitats discloses some interesting particulars.

Species with decided yellow colouring, especially in the labellums, such as *Oncidiums*, are very numerous, but none of them has given an albino, and when colour suppression occasionally takes place the result is a paler yellow, with often a tinge of green in place of the purplish colour in the sepals and petals, but never white. On the contrary the species of *Oncidium* marked with shades of rose or purple, invariably give a pure albino, familiar instances being *Oncidium incurvum album* and *O. ornithorhynchum album*. It seems that the yellow and green in the flowers are more in the nature of body colour influenced by the vegetative system, than the various cyanic tints which are floral surface colours and displayed generally on white or whitish ground, which gives the albino after the colour has vanished.

The facts emerge throughout the whole of the Orchid family that true yellows do not give albinos, while purple-tinted species seldom fail to do so. Instances to the contrary have been recorded, viz., the so-called *Anguloa Clowesii* alba, which is known to be the normally white *Anguloa eburnea*, and *Sobralia xantholeuca* alba, which was a seedling reversion resulting from hybridisation.

While yellow-flowered species do not tend to produce whites in nature, the purple-tinted ones invariably do so. The matter of albino *Cattleyas* and others has been recently referred to, and other familiar instances are found in the genus *Spathoglottis* where the yellow forms give no whites, but the brightly-coloured rose and purple *S. plicata* furnished Sir Jeremiah Colman's snow-white *S. plicata* alba. In *Odontoglossum* two good examples are *O. Uro-Skinneri* album and *O. bicktoniense* album, in which the decided deep rose of the lip disappears and leaves pure white; the sepals and petals losing the purple and brown in their markings, which, however, appear as light

sections give no whites; and so on through the whole tribe.

Except in the *C. niveum* section the *Cypripediums* give no albinos, the colour in the lip and dorsal sepal being retained, though changed by colour suppression to pale yellow or green. The bright green on pure white in *C. Lawrenceanum Hyeatum* (Fig. 36), and which is transmitted in *C. Maudiae* class in a remarkably beautiful degree, is proof of the almost ineradicable nature of the green, and the evanescent character of the mauve and claret colour which has been eradicated.

The question of colour in flowers is a very interesting one. *J. O'B.*

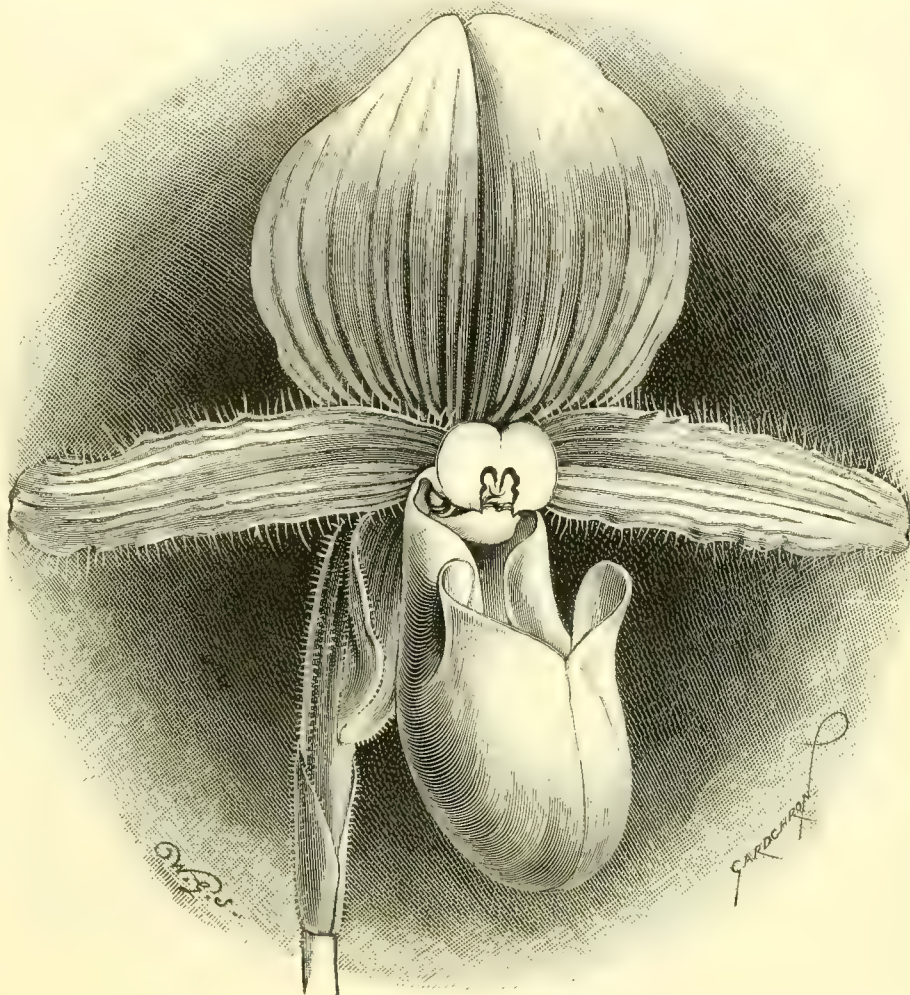


FIG. 36.—CYPRIPEDIUM LAWRENCEANUM HYEANUM.

green. *Vanda coerulea*, *Saccolabiums*, *Aerides*, and all other species with rose and purple tints give instances of the same kind, even the little African *Stenoglottis fimbriata* and *S. longifolia*, of the same nature as our own British Orchids, also furnish albinos.

It is curious, however, to note that the yellow-flowered Orchids which are firm to their colour in nature rapidly undergo a change when used by the hybridiser in our gardens, and lend themselves readily to the production of white forms, the intensifying of purple and crimson, or the heightening of their own yellow according to the combination which the hybridiser decides on.

Scarlet-flowered species do not give albinos, but, generally, in cases of suppression of their normal colour, the result is yellow, instances being the yellow *Sophranitis grandiflora* Rositteriana and *Saccolabium miniatum* luteum. *Dendrobium* and *Epidendrum* having sections with rose, purple and other tints of this class readily produce albinos, while the yellow

NOTICES OF BOOKS.

How to Excel with Sweet Peas.

How easy it is to grow Sweet Peas is shown by Mr. Horace J. Wright in a little brochure on the flower,* forming one of the excellent series of booklets on gardening subjects published by *Country Life*. Those who have failed to find the secret of success—and it is notorious that many excellent gardeners cannot grow Sweet Peas successfully—will be stimulated to try again by the author's remark that no plant is easier to grow. Wherein lies the secret? Probably it is found in the preparation of the soil, with which Mr. Wright deals fully. Where the soil is suitable, Sweet Peas provide some of the best subjects for decorative purposes, both in the garden and for the provision of cut blooms, and advice from such a noted specialist of the flower on its cultivation will be welcomed, especially by beginners.

* *Sweet Peas and How to Excel with Them*. By Horace J. Wright. *Country Life* Booklets. Price 9d. net.

The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Miltonia.—Members of the vexillaria section of Miltonia that were potted last autumn have filled their pots with roots, and are making rapid growth. They require plenty of water, and should not be allowed to suffer for want of moisture, either at the roots or in the atmosphere. Those varieties which produce their flowers in the autumn, such as *M. vexillaria Leopoldii*, *superba*, and several hybrids, may be repotted, should they require it, and be in the necessary condition—that is, about to develop fresh roots. A mixture of equal portions of peat, A.1 fibre, and Sphagnum-moss, with a quantity of broken leaves will furnish a suitable rooting medium. These and other plants should be continually watched at this season, especially after a cold snap, for attacks of thrip, and other insect pests. Owing to the increased amount of fire heat necessary at such times to maintain the requisite temperatures, it is not always possible to provide suitable atmospheric moisture. Dipping the plants in a solution of Quassia extract is a safe and sure remedy, and, as prevention is better than cure, it is advisable to dip them at intervals, as the leaves of Orchids are easily disfigured by this pest, which is particularly partial to Miltonias.

Calanthe.—With the exception of the late flowering varieties, of which *C. Regnierii* is an example, Calanthes have passed the flowering stage, and should enjoy a season of rest in a house having an average temperature of 55° to 60°. They should be exposed to all the light possible to ripen the pseudo-bulbs. Many growers, to my mind, rest these plants in a too low temperature, which is often the cause of disease and spot in the leaves and pseudo-bulbs. Water will not be needed, and the atmosphere should be kept on the dry side. The best place in which to rest the plants is on a shelf, where they will receive all the light possible.

HARDY FRUIT GARDEN.

By H. MARHAM, Gardener to the EARL OF STRAFFORD, Wrotham Park, Barnet.

Vines.—The pruning of hardy vines should be completed at an early date in order that the cut surfaces may become hardened before the sap begins to rise, otherwise bleeding will be sure to follow. Established vines grown on the spur system will need the laterals cut back to two plump buds, and leaders that have not reached their limit may be allowed to extend more or less according to the length and strength of the growth and buds. From 3 feet to 4 feet may be left if the growths are well matured and the buds suitable. After the pruning is completed, remove a little of the loose bark and apply a dressing of Gishurst Compound or some other suitable insecticide, brushing the specific well into the crevices, and dressing the part about the eyes with a little weaker solution. The roots should be top-dressed with a mixture of rich soil, bone meal, and brick mortar, and fed liberally with liquid manure at intervals.

Orchard Trees.—Trees that have become grown over with mosses and lichens should have their stems and main branches thoroughly scraped and brushed with a stiff brush, and then well dressed with a mixture of lime and soot, using a whitewash brush for the work. The smaller branches are best dressed with a similar mixture by means of the syringe. Caustic alkali is a safe and excellent material to use if the formula for making it is strictly adhered to. Those entrusted with the application of this strong chemical should be very careful not to let any of the liquid touch the

flesh. Gloves should be worn, and the work should be undertaken when the buds are in a dormant state.

Woolly Aphis.—The infestations of woolly aphis last summer were amongst the worst I remember, and entailed much labour in keeping the pest in reasonable check. Nicotine, applied with a soft brush, did much to destroy the aphis, and proved the best remedy, notwithstanding other insecticides were thoroughly tried.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir C. NALL-CAIN, Bart The Node, Codicote, Welwyn, Hertfordshire.

Roses.—Where Roses have been specially grown in pots for flowering indoors, they should be pruned and the drainage put in perfect order. Afterwards place them in a temperature of not more than 45°, and syringe them only on bright days, so that the moisture dries before night. This treatment may be con-



FIG. 37.—AN EDGING OF PINKS.

(See page 77.)

tinued until the buds are formed, when syringing should be discontinued. Admit a little air by the top ventilators when outside conditions will allow, but prevent cold draught, as these encourage mildew to develop, which is very detrimental to successful Rose cultivation under glass.

Cyclamen.—The florists' Cyclamen is one of the brightest and most useful flowering plants for the early winter and spring decoration indoors, and well repay a little extra care bestowed on their cultivation. Plants that were raised from seed sown during August and were pricked out into pans or boxes should now be ready for transferring to small 60-sized pots. The soil for this potting may consist of equal parts loam and good leaf-mould, with a little old mortar rubble and sufficient sand added to keep the whole porous. After potting them the plants should be stood on a bed of ashes in a light position, as near the roof glass as possible to prevent them becoming drawn, but it will be necessary to shade them from bright sunshine. Cyclamens at this stage should be grown in a temperature of 50° to 55°, with a rise in the day by sun heat. Mite and greenfly

are the worst enemies of these plants, therefore frequent fumigations or spraying with an insecticide is to be recommended in the early stages of growth.

THE KITCHEN GARDEN.

By JAMES E. HATHAWAY, Gardener to JOHN BRENNAND, Esq., Baldersby Park, Thirsk, Yorkshire.

Brussels Sprouts.—This crop requires a long growing season, and disappointing results are often due to neglect in this matter. A sowing may be made in boxes in a cool, well-ventilated greenhouse. If a cold frame is available, seed may be sown in it, either in rows or broadcast; but where several varieties are grown it is best to sow in rows. A close watch must be kept for slugs, or they will soon destroy all the seedlings. Dusting with soot or lime will help to keep the pests in check, but the best method is to search for them after dusk with a light.

Spinach.—To ensure an early crop of Spinach, seed should be sown in frames on a slight hotbed. Let the rows be at least one foot apart. A sowing should also be made on a warm border as soon as the land is in a favourable condition, and, to ensure a regular supply, other small sowings every three weeks from now onwards. The beds of Spinach sown in the autumn should be kept hoed and free from weeds when the ground is favourable for working.

Cabbage.—Hoe the rows of autumn-planted Cabbages as soon as the weather permits, as the plants thrive best when the surface is kept stirred regularly. As soon as the plants begin to grow freely a light sprinkling of sulphate of ammonia about the roots will greatly assist them. This fertiliser is best applied when there is rain. Old soot and liberal dressings of wood ash are also valuable fertilisers for Cabbages. All blanks in the rows should be made good at the earliest opportunity, with plants reserved for the purpose.

Planning.—At the beginning of each season a plan of the kitchen garden should be drawn up, and the plots allotted to the various crops. This will save a lot of time in the busy planting season, and a glance at the plan will show what each plot has carried for years back, and also the amount of manure which has been applied.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

Grape Room.—Examine Grapes in bottles frequently and remove mouldy berries as soon as they appear. Examine the bottles and fill them with water if necessary. If any Grapes are still hanging on the vines, they should be cut and bottled at once, so that the house may be cleaned and the vines pruned and rested. Keep the temperature of the Grape room about 45 deg., and the surroundings as dry as possible.

Plums.—Although forced Plums lag behind Cherries at the finish, the two grow well together until some time after the fruits are set and swelling. Their treatment as regards fresh air, a low temperature, and slow development is in every way identical. In the selection of Plums for forcing, none but the very best dessert sorts should be chosen, and the trees should be grown in pots, as the plants may then be turned out of doors as soon as the crop is gathered. There are, however, many cold houses planted with Plums in the north, and many more in Scotland. The plants may be removed to a cool house of any description when the crop is approaching ripeness, but the fruits cannot be rushed into ripening at the finish. Like other stone fruits they respond satisfactorily when started early and attended to carefully through their different stages of growth.

Routine Work.—The cleansing of late fruit houses should now be concluded; this is one of the most important operations connected with

successful fruit culture. Remove all loose materials from the borders, taking care not to damage the fibrous roots while doing so, and top dress the borders with good loam, adding a little lime rubble if the loam is very strong; and bone meal, with a sprinkling of vine manure, more or less, according to the age of the vines or Peaches. Wash the vines with Gishurst Compound or other insecticide, but do not remove much loose bark from the rods; rather give the latter an extra dressing of the specific if mealy bug or red spider has been troublesome. These remarks apply also to late Peaches on which scale or other pests were troublesome last season.

THE FLOWER GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

Dahlias.—A start should be made, where it is desired to increase and raise new stocks of these valuable plants, in propagating them. Last season's tubers that were lifted and stored for the winter should be started into growth in a genial atmosphere, and when the young growths are about 3 to 4 inches long removed



FIG. 38.—PINUS CANARIENSIS; THREE SEEDLINGS IN A CREAM JAR.

from the tuber by means of a sharp knife and inserted in the usual way in small 60-sized pots containing a sandy compost. Strike them in a temperature of from 65° to 70°, and when they have become well rooted, transfer them singly to 48-sized pots. After allowing the plants to become established in the same temperature, gradually harden them off ready for planting out later. The old tubers may also be divided in March or April, to increase the stock. Fresh Dahlia plants should be purchased in April, and potted and grown on for a time in frames prior to planting them in the open at the end of May.

Rhododendron and Azalea Beds.—In many gardens, where soil conditions are unsuitable, if not distinctly adverse to the growth of these fine flowering shrubs, special beds should be prepared for them. At this season the beds should be very lightly forked over (without disturbing the roots) and a rich top-dressing, composed of one part good loam, one part peat or leaf soil, and one part well-decayed farmyard manure applied. The materials should be trodden firmly into position, after which the surface should be lightly raked over and the bed made neat and tidy. This treatment will be found of great assistance to these plants. Whilst dealing with Rhododendrons, I may call attention to the necessity of removing all dead flowers during the flowering season, to prevent seed pods from forming.

SEEDLING PINES FOR ROOM DECORATION.

I SEND herewith two photographs of Canary Isle Pines growing in moss fibre without drainage. One (Fig. 38) shows three unbranched plants, and the other (Fig. 39) one branched at the base. The seed was sown in these pots (cream-jar size) in the spring of 1917, and they have been growing and keeping healthy in this confinement without drainage ever since, merely given a little water weekly or so. They make pretty table plants, being of a feathery appearance and light glaucous green in colour. So far, they have kept to their seedling foliage of simple needles, though plants grown from seed sown the same time in flower pots formed adult needles in the spring of 1921. Once they do this they lose their youthful charm. The photographs were taken on August 20, 1921, and the plants represented are from seeds given me by Prof. A. Henry. Realising that the seedlings would be of little use for outside planting in this climate, I casually put a few seeds in moss fibre to watch germination and seedling growth, never imagining that they would exist and remain healthy for any length of time. I am not aware that Pines have ever been tried in moss fibre without drainage before. They have the advantage over Oaks and Chestnuts so grown, in being decorative the whole year round. *John Parkin, The Gill, Brayton, Cumberland.*

PINKS AS AN EDGING FOR BORDERS.

AMONG old-fashioned garden plants, few are more valuable for providing a dense and continuously beautiful edging for beds and borders than the popular varieties of garden Pinks. In cottage gardens such edgings are very popular and look well throughout the winter, and are particularly attractive in summer when in full bloom. There is no question as to the hardness of such varieties as Mrs. Sinkins and Her Majesty, and every gardener is aware that Pinks are among the easiest plants to propagate. The accompanying illustration (see Fig. 37) shows a long herbaceous border edged with Pinks, and it will be granted that a live edging of this character is preferable to one of tiles.

INDOOR PLANTS.

BROMELIADS.

BROMELIACEOUS plants comprise a very extensive family, embracing *Æchmea*, *Tillandsia*, *Vriesia*, *Caraguata*, *Bilbergia*, *Nidularium* and others. Some of them are amongst the most beautiful and ornamental of plants, and should find a place in every collection where plants are grown in warm greenhouses or for conservatory decoration. The exquisite colouring of the bracts and flowers of many of the species and hybrids, and the beautifully marked foliage of the others should place them in the front rank in any collection for the warm greenhouse or conservatory. A great advantage with Bromeliads is that they do not occupy a considerable amount of space. Large specimens are fine ornaments, very distinct and exceedingly useful for grouping. They are of easy culture, and being epiphytes do not require so large an amount of soil as many plants to keep them alive. They thrive well during the winter in a temperature of about 55° to 60° in a house having a comparatively moist atmosphere. When the growing season commences the temperature should be increased to 65° or 70° with plenty of moisture, and the plants should be shaded from the direct rays of the sun. The plants are increased readily by division or from suckers. The soil most suitable for them is a mixture of two-thirds rough fibrous peat, one-third light, turfy loam, and live Sphagnum-moss, with silver-sand added. Over-potting is to be guarded against. Well drain the pots, the best drainage material being clean, broken potsherds with a little charcoal, if procurable.

The following is a list of some of the most beautiful Bromeliads which come within the scope of this note.

Æchmea Reginae is a plant of robust habit, with leaves arranged in a vase-like manner. The flower spike is erect, the flowers blue and white, and the bracts carmine, these remaining in perfection for two months. *Æ. Veitchii* (syn. *Chevalieria Veitchii*) is a showy species with scarlet bracts and flowers. *Nidularium Meyendorffii* has a rosette arrangement of leaves, the central, fleshy leaves being bright rose-crimson, the outer dark green. *Bilbergia Saundersii* is a blue flowered plant with crimson bracts. Another pretty species, *B. vittata*, has strap-shaped leaves and flowers produced in nodding racemes. They are dark indigo blue set off with crimson bracts. *Caraguata Zahnii* (syn. *Tillandsia Zahnii*) is a handsome plant, the base of the leaves being yellow with crimson stripes. The flower is pale yellow with bright scarlet bracts. *C. Osyana* is another pretty species, with red bracts and yellow flowers. *Tillandsia tessellata* is a novel and beautifully ornamental species, with light, glaucous-green foliage, veined with rosy purple on the under surface and mottled with transparent greenish-yellow blotches on the upper surface. *T. hieroglyphica* makes a handsome foliage plant, the leaves being marked with dark purple. *T. Lindenii* major has leaves that are light green on the upper surface, the lower striped with



FIG. 39.—PINUS CANARIENSIS; ONE SEEDLING IN A CREAM JAR.

reddish brown. The spathe rises erect well above the foliage, and is coloured rosy-carmine. The large flowers are a vivid blue with a white eye. *T. Lindenii* vera has narrower and finer foliage than *T. Lindenii* major; both are acceptable when in flower and are a rare adornment to any collection. *T. zebrina* (syn. *splendens*) is one of the best of the *Tillandsias*. It has fleshy leaves, each leaf being banded alternatively with green and chocolate-brown, and bears crimson flower spikes with bracts shaped like a sword. *T. chrysostachys* has bright lemon-yellow spikes of flower.

Tillandsias and *Vriesias* are so closely allied to each other that the species and hybrids are often included in each other. *Vriesia* (syn. *Tillandsia*) *brachystachys* is a very distinct species with yellow flower and green and scarlet bracts. *V. Barilleti*, also a yellow flowered species, has yellowish green bracts dotted with brown. *V. fenestralis* has broad, arched, pale green leaves that are beautifully marked with dark green on the upper half. The leaves of *V. psittacina* are yellow-green, recurved and more or less waved. The flowers are tipped with green and surrounded by orange-scarlet bracts. *Ananas* (syn. *Ananassa*) *sativus* (the Pine Apple) requires strong heat and special culture. *A. sativa* *variegata* is a fine decorative variety, with foliage broadly margined with creamy white suffused with red toward the margin. *John Heul.*

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 5, Tavistock Street, Covent Garden, W.C.2.

THE GREENHOUSE, HOTHOUSE AND STOVE.

CHARLES MCINTOSH, the author of the above work and of *The Orchard*, in the series referred to on page 30, was born in 1794 at Abercainey, where his father was gardener. He was successively gardener at Tayworth Castle, Stratton, Claremont and Dalkeith Park. He could have been only a brief period at the two first-mentioned places, as he was gardener at Claremont, then occupied by the King of the Belgians, about 1828, and where he carried out alterations that met the published approval of J. C. Loudon. James McDonald, for nearly half a century gardener at Dalkeith, retired in November, 1838, and was succeeded by McIntosh, who laid out new kitchen gardens shortly subsequent to taking up his duties there. Some sixteen years later he commenced as landscape gardener in Edinburgh, and was succeeded by William Thomson, from Wrotham Park, who greatly increased the amount of glass at Dalkeith.

McIntosh first appeared in print in *The Gardeners' Magazine*, 1826, and his first book, *The Practical Gardener and Modern Horticulturist*, was published in 1828 (there was an edition as late as 1840), with a series of very poor coloured plates.

In 1830 the *Flora and Pomona; or, the British Fruit and Flower Garden*, came out in parts at 1s. to 3s. each, with rather poor coloured illustrations, by F. Smith, and in 1838 and 1839 the works under review with beautiful coloured prints by Baxter. In March, 1852, appeared the first number of *The Book of the Garden*, at 5s. each part, the completed work, in two volumes, costing £4 7s. 6d. A ground plan of Dalkeith Gardens is one of the illustrations. This elaborate treatise is of interest to me because it is the first book on gardening that came in my way when a boy at school. The copy belonged to my cousin, the late Mr. James Douglas, of Great Bookham, who obtained it second-hand, and was, I think, the beginning of the fine library of old and new books he collected. At the same time he was taking in Glenny's *Gossip of the Garden* and *The Florist*, while my brother, as well as the former, introduced *The Cottage Gardener* into our circle.

To return to McIntosh. In conjunction with Dr. Kemp, he issued *The British Year-Book* in 1856, and he died in Edinburgh in 1864. Robert Thomson's *Gardener's Assistant* (1859) was, no doubt, the means of setting McIntosh in the background. The portrait of this notable gardener shows him to have been of rather slight build, and, from a remark in one of his communications, it would appear that his was not a robust constitution.

The Greenhouse was published at a transitional period. It does not appear that plants were cultivated to the extent or to the dimensions they were a few years later; and, indeed, it may be safely said that pot-plant culture was just emerging from a sort of pristine condition. Plant structures were very heavy in the woodwork, badly glazed with small glass panes, and worse heated, with flues or the new hot-water system still in its infancy. The popular plants were Ericas, Pelargoniums and Camellias, for which in large gardens special structures were erected. Many hothouse plants

were grown in pine-pits, Ericas and Pines being the two subjects that tested the capacity of the gardener of the period. Later, Heaths were reduced to a select list of the best species, but at this period they were grown in collections. Dr. Duncan, of Edinburgh, for instance, cultivated some hundreds. Probably Heaths and Camellias may reassert themselves, and the treatment of these, especially of the former, is given in so full a manner that one could not wish for a better guide than *The Greenhouse*. Epacris, Boronia, Eriostemon, Correa and others are treated along with the Ericas. McNab's system of potting, as practised by him in Edinburgh Botanic Gardens, is illustrated; but I think none now would pursue the same method, the base of the plant being raised several inches above the rim of the pot. Pelargoniums, like the two just mentioned subjects, were being grown so extensively as to cause some to erect more than one structure specially for their cultivation. Some 350 varieties are named, among which are a few species, and the plate of these demonstrates that very little progress had been made in their improvement. Prices ranged from 1s. to 20s. each. The author states that there were in all 800 species and varieties. Specimens, such as were exhibited in London twenty to forty years later, some of which were six feet in diameter, seem not to have been attempted at this date. Bulbous and allied plants were numerous, and the author advises the provision of a structure for these, too.

It is curious to see such things as Antholyza, Babiana, Brodiaea, Ixia, Gladiolus and Alstroemeria conjoined with greenhouse and stove species. The chapter devoted to succulents is brief and interesting, as containing a letter from Donald Beaton, who states that he had raised 10,000 seedlings from seeds gathered off imported dead specimens, and so preserved the species that otherwise would have been lost. Concerning mixed greenhouse plants, in which Anagallis, Chinese Paeonias and Alonsoas are included, very little is written. Fuchsias, for instance, have less than two lines devoted to them. A plate of Calceolaria shows that this plant, like the Fuchsia, had only recently been taken in hand. The chapter on "Orchidæa," illustrated with a plate of Laelia elegans, Maxillaria Harrisonae and Dendrobium moschatum, contains the names of very few Orchids that are known now. Cipripedium insigne, Peristeria elata, Dendrobium fimbriatum, Zygopetalum Mackayi and Stanhopea eburnea are the more familiar. The treatment had greatly improved within a few years antecedent to 1838, and no doubt gardeners would be quite successful with such means as they had. Epiphytal species were largely grown on blocks of wood. Of Ferns, the cultivation was as yet in its infancy, and, in fact, it had not been long since it had been discovered that the spores were "seeds." An interesting fact is recorded of a grower germinating spores gathered off dry fronds fifty years old.

In the chapter on Tropical Fruits and Palms it would appear that here and there these were being cultivated in stove houses erected for their cultivation, and in some instances the pine-pit was utilised to keep a few. Thus it had been recorded that Thomas Thomson fruited the Plantain in the Pine stove at Tynningham in 1789, and the Banana, and the latter was so seldom fruited that the fact of its fruiting at Wynstay is noted in this and several other books.

Some of the plates, as already noted, are beautifully executed and finished. One of

Cape Heaths is bound up in *The Flower Garden*, and in this volume those specially fine are one of Epacris and Chorozeema, two of Orchids, one of Euphorbia fulgens, a group of Calceolarias, another of greenhouse flowers, and one of hothouse flowers. Besides their interest as plates, they give a faithful representation of the flowers grown at the period and at the same enable one to comprehend the vast strides made in horticultural subjects in eighty years. An Ixora, for instance, might be taken for a Bouvardia; a Gloxinia is even more enlightening in its minimised proportions, and in Pelargoniums and Calceolarias the evidence is not a whit less. Numerous woodcuts illustrate the text, woodcuts which we find doing duty in other books of the period, and the text itself is not always consistent. A description of a conservatory belonging to Lord Ashburton is said here to be seventy feet in length, while in *The Practical Gardener*, where also it is illustrated and described, it is 100 feet in length. The roof of this structure is on the ridge and furrow principle, and the sides are of glass, down to the ground. It looks like a huge, flat, glass box. All the same, as I know from experience, plants grew perfectly well in such a structure. R. P. Brotherston.

AN EARLY VILMORIN CATALOGUE.

It is not often much can be added to Mr. Roberts' interesting articles on old catalogues and nursery lore, but I am able to supplement his Vilmorin broadside (p. 54) with a scarce catalogue published by that firm in 1771, only two years after the broadside.

It is an octavo volume of 130 pages, and must be one of the most detailed published at that time, as the descriptions of the fruits in particular are quite elaborated, often running into six lines. It is said this little work was compiled by Duchesne, and it is very possible: it is stated that the Strawberry seed offered was of his saving.

The enumeration of the Strawberries is of great interest, and 22 varieties are offered, classed as follows:—Fraisiers: F. sylvestris; Breslinges ou Fraisiers Verts; F. pratensis; Caproniers ou Fraisiers musques (our Haut-bois); and finally the Quomos ou Fraisiers d'Amerique. Of this class there are eight varieties—F. Ecarlate (our F. virginiana), F. Ananas, The Pine, F. Je Bath, de Caroline, Quomos, Frutiller ou F. de Chili, Frutiller Royal.

A long list of Pears is given, and of other fruits also, but they are mostly well known from pomological works of the period. A few interesting points may briefly be noted.

It is curious to find Medlars recommended as stocks for Pears and "other fruits of this family."

A note refers to the Apple Reinette de Canada, which the firm "hopes shortly to offer." This is apparently the first mention known of this Apple, which is now so largely grown in France, but its connection with Canada, if any, remains a problem.

A part of the catalogue is devoted to a calendar of seed planting, and very full instructions are given for the culture of pasture grasses and clovers.

Among the flowers I notice the Duc Van Thol Tulip, Iris Susiana, I. persica; La "Chrisaine" or Chrysanthemums, double Poppies (Papaver Rheas) of many colours; Zonal Geraniums with various colours and variegated leaves, and Sweet Pea (one variety only). Several hints as to raising seeds are given. Heliotrope, for instance, is advised to be grown on the soil, and not buried, and covered with moss to conserve the moisture. It would be interesting to know if any of your readers have an earlier edition of this catalogue. E. A. Bungard.

TREES AND SHRUBS.

THE SITKA SPRUCE IN SUSSEX.

FOURTEEN years ago several acres of cool, ordinary land at Gravetye Manor, in Sussex, were planted with the Sitka Spruce, more by way of experiment than in anticipation that the trees would attain to anything approaching their present dimensions. The young trees, which averaged a foot in height, were planted at regular distances apart all over the ground, with nurses of the common Spruce between. As the trees grew and encroached on each other, the nurses were gradually removed, until now the plantation is a crop of almost pure Sitka Spruce.

When staying at Gravetye lately, I was agreeably surprised at the splendid growth of these trees, and on taking the measurements of several, found the average cubic contents to be a little over seven feet, some of the biggest, which are 55 feet high, containing a much larger volume of timber. Rarely have I seen a straighter or more uniform crop of boles, and the taper is so gradual, that at 20 feet the stem measurements are little less than near ground level. Owing to close order of growth, the trees are clear of living branches, for fully half their height, and are gradually cleaning themselves as they advance in growth. For its age this is by far the finest plantation of the Sitka Spruce that I have seen, and if cut down at present the value of timber produced would more than pay for the rental of land and cost of trees and planting.

As scaffold poles or for construction work the trees are of special value, and if placed on the market would find a ready sale at highly remunerative returns. Should growth proceed at an equal rate during the next ten years, after which the first thinning should take place, the value of timber to be removed should be very considerable.

How well the Sitka Spruce is suited for planting in this country may be inferred from the fact that some of the earliest planted trees are over 100 feet in height, with diameters from two to three feet at a yard from the ground, and that the tree succeeds well at over 1,000 feet altitude. The Kincardineshire plantation, at Durris, at elevations from 700-900 feet, where the land is poor, wet and of a peaty nature, is a good example of how well this tree succeeds under the most unfavourable conditions. In some instances deep ditches were required in order to carry off the surplus water, yet in spite of the numerous drawbacks the trees, which were planted forty-one years ago, are in splendid health, growing rapidly and producing fine, clean boles that are straight as the proverbial arrow.

In the plantation that was formed by the writer on one of the spurs of the Snowdon range of hills, on Lord Penrhyn's estate, the Sitka is thriving amazingly at altitudes up to 600 feet. But perhaps the most interesting experiment with this tree was planting it under the most adverse conditions in poor, damp soil and a wind-swept situation, by the side of Lake Ossian, in Scotland, at elevations up to fully 1,200 feet. Even under these trying conditions, several of the leading shoots that were recently measured were 16 inches in length, and the present indications are that the tree will beat all the others that were experimented with on this cold, barren and high-lying land.

It is encouraging to know that several landed proprietors are planting the Sitka Spruce on rather an extensive scale, and when the beauty, hardihood and valuable timber-producing properties are taken into account, it must be admitted that they are acting wisely in so doing. In addition to the Sitka Spruce, many others of the less common Coniferous trees are thriving well at Gravetye, especially a plantation of *Abies grandis*, the trees in which are growing with amazing freedom, some of the best specimens being taller than Douglas Firs that were planted at the same time. The *Cephalonian* Fir is also doing well as a plantation tree, as is also the Japanese Larch, which has grown with the greatest freedom, and is so far free

from disease. Both the Corsican and Austrian Pines are producing long, annual growths, and the foliage wears a deep shade of green that denotes robust health. Other Pines that have been planted in quantity are the Maritime, Southern Pitch, White or Weymouth, and our native Scotch Fir. Strikingly beautiful is the silvery foliage of the Weymouth Pine and of *Picea pungens glauca*, which are succeeding as well as the Bhotan Pine, which appears to

winter that the chief glories of the trees are apparent, for then the silvery bark shows to the greatest advantage through the network of thin branches, and fully entitles it to be described as *The Lady of the Woods*. When grouped in a clearing of woodland with undergrowth of *Rhododendron* and *Bracken* Fern, as at Warren House, Kingston (Fig. 40), the Silver Birch gives a touch a rare beauty to the landscape and compels the admiration of all lovers of



FIG. 40. SILVER BIRCHES AT WARREN HOUSE, KINGSTON.

revel in the soil of parts of Gravetye. Amongst many other Coniferous trees, that have been planted in large breadths in order to demonstrate their adaptability for afforesting purposes, are several species of Cypress, *Arbovitae*, Hemlock, Cedar of Lebanon and Douglas Fir. A. D. Webster.

THE SILVER BIRCH IN WOODLAND.

Few others of our native trees equal the Silver Birch in beauty of outline or in the graceful disposition of the branches, which hang like filigree work of so delicate a nature that the shoots seem almost too fragile to resist the storms of autumn and winter. Indeed, it is in

nature. Apparently the native Silver Birches include two distinct species, *pubescens* and *verrucosa*, the former with stiffer habit of growth and somewhat darker bark, whilst *verrucosa*, the *alba* of Linnaeus and *pendula* of Roth, is slightly more graceful and free from down on the young vegetative parts, by which it is readily known.

The Silver Birch is sometimes used as a town tree, and its ornamental character in winter fully justifies its selection for the purpose, as town streets are usually very dull in winter even when rows of deciduous trees are planted on either side. But the Silver Birch seems most at home in woodland, and when the winter sunshine lights up its silvery bark and frost decks its pendant branches it is exquisitely beautiful.

MESEMBRYANTHEMUM AND SOME NEW GENERA SEPARATED FROM IT.

(Continued from page 65.)

BB, FLOWERS WHITE.

(7) *L. marmorata*, N.E. Br.—Growths solitary or few in a clump, increasing very slowly, up to 1½ in. high, 1½ in. broad, and ¾ in. thick, with the top of the lobes slightly convex, grey-green, mottled with pale grey or creamy-grey. Calyx 6-lobed; lobes 2-3 lines long and about 2 lines broad, ovate or oblong, obtuse. Corolla about 1½ in. in diameter, expanding after mid-day in full sunshine and closing at dusk, scented; petals about 40, of about 2 closely overlapping series, 6-7 lines long and 1-1½ line broad, obtuse, pure white on both sides, very shining. Column of stamens ½ in. long, white, with yellow anthers. Top of the ovary flat; style very short; stigmas 6, finally about 5 lines long, at first erect, but when the petals fade they spread widely from the base, pushing the stamens away so that the latter form a sort of ring around them, and they are revolute at the tips.—*M. marmoratum*, N.E. Br., in *Journ. Linn. Soc. Bot.*, v. 45, p. 68.

South Africa: locality unknown, Pillans!

(8) *L. optica*, N.E. Br.—Growths forming clumps of 4-15 to a plant, each 6-8 lines high and 6-7 lines in their greater diameter, with the top of the lobes slightly convex, with narrow whitish or whitish-brown margins, and the central part greenish-white or pale greyish-white sometimes tinged with pink, without or occasionally with 1 or 2 whitish spots. Calyx 5-lobed; lobes, 2 lines long, oblong, obtuse, brownish. Corolla, about ¾ in. in diameter, expanding only in bright sunshine; petals numerous, 3-4 lines long, pure white or tinged with pink. Stamens white, with yellow anthers. Stigmas 5, filiform greenish.—*M. opticum*, Marloth in *Trans. Roy. Soc. S. Afr.*, v. 1, p. 405, t. 27, f. 5 (1910). *M. marginatum*, Marloth in a note under *M. rhopalophyllum* Schlechter, on p. 406 of the same work.

Great Namaqualand: near Prince of Wales Bay, in sand-covered fissures of gneiss rocks, Marloth, 4,675; on rocky hills at Luderitz Bay, Pole Evans, 7,210!

I have not seen fresh flowers of this species, as my plants of it have not yet flowered.

(9) *L. bella*, N.E. Br.—Growths at first solitary, forming clumps with age, increasing slowly, each up to about 1 in. high and 1 in. in their greater diameter, with the top of the lobes convex, having a rather broad, light brown or buff-brown border, enclosing an irregularly lobed fuscous or greenish central area with or without 1 or 2 brown spots upon it. Flowers not seen, stated to be white and shining.

Great Namaqualand: near Aus, Phillips!

When sufficiently supplied with water the top of the lobes is even and smooth all over, but under very dry conditions the central part becomes slightly sunk below the level of the marginal part. I am indebted for this pretty species to Q.-M. Sergeant E. C. Phillips, who informs me that it grows on the top of small kopies in sandy, gravelly soil and is so similar in colour to the soil that it is difficult to detect. It has not yet flowered with me.

(10) *L. damarana*, N.E. Br.—Plant solitary or of few growths in a clump, increasing slowly under cultivation. Each growth ¾-1 in. high and up to 1½ in. in its greater diameter; lobes flat or very slightly convex on the top, very pale brown or fawn-colour, marked with distinctly impressed branching lines and spots forming a sort of pattern of a rich, dark brown or dark grey colour. Calyx 5-6-lobed, much compressed and about 5 lines broad; lobes 2-3 lines long, 2-2½ lines broad, ovate or oblong, obtuse, some with membranous edges, dull reddish-brown. Corolla ¾-1½ in. in diameter, opening about 1 p.m. and closing between 4 and 5 p.m., and lasting for about a week, not scented; petals 30-36, in about 2 closely overlapping series, 5-9 lines long and about 1 line broad, linear, obtuse, pure white on both sides, slightly shining. Column

of stamens 2½-3½ lines long, white with yellow anthers. Top of the ovary flat. Style absent; stigmas 5, filiform, revolute at the tips, light yellow.—*M. damaranum*, N.E. Br., in *Journ. Linn. Soc. Bot.*, vol. 45, p. 67.

Damaraland, locality and collector unknown. I received specimens of this plant some years ago without information, except that they came from Damaraland. Subsequently some plants were sent to me from Omaruru and Aus and arrived in a very shrivelled condition, so that I mistook them for the same species as the above, and, therefore, wrongly mentioned those places as localities for *M. damaranum*, in the journal above quoted. The Omaruru plant died without rooting, but I believe it to have been the same as that from Aus, which, now that I have it in plump condition, proves to be quite distinct from *L. damarana*, and is described above as *L. bella*. I am under the impression that Prof. Pearson sent *L. damarana* to Kew among the plants he collected on the Great Karasberg Range, and that it died, but I have no note to that effect and may be mistaken. *N. E. Brown*.

(To be continued.)

THE GREAT DROUGHT OF 1921 AND ITS EFFECT ON GARDEN PLANTS.

(Continued from page 56.)

WARWICKSHIRE

This garden is dry; the soil is very light and shallow, and overlies what is locally called "cat's brain," a poor, slightly clayey sand. It is surrounded by trees, so that there is a tendency for all the borders to be robbed of moisture, which adds to the general dryness. On the contrary, the trees provide cool, shady positions which escape the full effect of such conditions as prevailed in 1921.

We do not appear to have suffered quite so much rain shortage as most places in England, judging by the reports in your columns; and in particular we had a most welcome break on July 30, which lasted well into August, so that the latter month, with the addition of the last two days of July, showed a total rainfall of 5.21 inches. Mr. C. N. Milner, whose measurements are taken a few hundred yards away from this garden, has given me the following figures for the first ten months of the year:—January, 2.43 inches; February, 0.24; March, 1.37; April 1.22; May, 1.58; June, 0.69; July (to the 29th), 0.46; August, (including July 30-31), 5.21; September, 1.05; and October, 1.87 inch.

As I only came here in October, 1920, I cannot compare 1921 with previous years, but one or two things observed may be worth recording. *Violas* planted in a sunny, very dry border perished so completely that no trace of them was left; but a considerable number planted in the Rose garden, which is in a shadier part, with better cultivated soil, did remarkably well. Not only did they do well in their normal season, but, after slacking off in July, they were refreshed by the rains, and, starting a new lease of life, did better than before, and gave a brilliant display which lasted into October. The *Roses*, an ordinary collection of dwarfs, made a very brave show in July, in spite of the fact that they were not once watered; but the second blooming was very disappointing, although in 1920 they flowered very freely all through the late summer and autumn. Evidently, although they had done so well earlier, the effort had exhausted them.

We have actually lost very few plants, almost the only total failures being some *Berberis* and *Heaths*, which were only planted in the spring and moreover did not stand much chance, owing to faulty despatch by the nurseryman from whom they had been obtained. *Rhododendrons* looked very sorry for themselves, but were all saved by means of a few timely soakings, and now they look as healthy as possible and seem well set with flower buds. *Primroses*, too, suffered, as might be expected, and, as I seemed likely to lose

my stock, I watered them several times, but I might have saved myself the trouble, for, although the greater part of the old plants died away, so many seedlings sprang up around them after the rain came that I shall not run short; indeed, it seems to be one of the features of the year that, although the parent plants so often suffered, they ripened seeds so freely and well that, as soon as rain fell, there was an abundance of young plants arising round the old stools to carry on the family traditions.

Some annuals ripened their seed so early and well that young plants from them almost reached the flowering stage before November frosts cut them down. I noticed this particularly with *Brachycome iberidifolia*.

The ordinary spring sowings of vegetable and flower seeds, the latter including the regular supplies of Wallflowers, Canterbury Bells, etc., came up with unusual freedom. They were for the most part sown in the less exposed positions and received some water, but I never saw such crowded seedbeds, proving that dry, warm conditions, if not too dry, assist germination.

Pests do not seem to have flourished, as a rule, and the garden, on the whole, was much cleaner in 1921 than in 1920, partly, of course, because of our efforts, but not wholly so. American blight was very troublesome in 1920. We sprayed the trees in the early spring and thus reduced it, doubtless; but there was some still in evidence in the early part of the summer. Instead of increasing, however, it died away, and the trees were almost free in the latter part of the summer. Aphides were troublesome on Brussels Sprouts and other members of the Cabbage tribe, and the Gooseberry sawfly was unusually abundant in this neighbourhood; while, curiously enough, mildew was in evidence on the *Roses* and also on some Apple trees. However, we felt that we had been unusually free from our usual enemies.

Amongst subjects that suffered severely were many of the Saxifrages, especially the *Kabschias* and the mossy ones, the latter dying back in big patches, and the former only surviving as the result of much watering. The common *Arabis alba* showed distress, but recovered rapidly after the rain, and such countless numbers of seedlings came up as to be a nuisance. Dahlias, which needed more water than we could give them, started growth with great difficulty, but flowered well later on. Chrysanthemums were kept back so much that, when at last they did start to grow in August, they were already behind time in their development, and were, as a consequence, late in flowering. They did very well in the end, however, though most kinds were short in their growth.

Perhaps the most important lesson to be learnt from my garden is the difficulty in drawing general conclusions about the effects of such an experience as we had in 1921. The different behaviour of various plants—notably in the case of the *Violas* referred to above—in different positions shows the necessity for caution and for a full consideration of all the circumstances of each case. Colbran J. Wainwright, Daylesford, Handsworth Wood, Birmingham.

SURREY.

In most parts of Surrey the drought was severely felt. Many *Rhododendrons* and *Azalea mollis* died in these gardens. The soil being light and sandy, vegetable seeds germinated badly from June to November. Brussels Sprouts and Broccoli were very scarce. Apple and Pear trees are well set with flower buds for the coming season, after carrying a good crop of fair-sized fruits, which have kept well. Rain fell on 112 days; an average rainfall is 27 inches, and the amount registered in 1920 was 26.50 inches. In 1921 the record was as follows:—January, 2.32 inches; February, 0.47; March, 1.36; April, 0.97; May, 1.66; June, 0.29; July, 0.40; August, 0.72; September, 1.34; October, 0.65; November, 1.84; December, 1.53; total, 13.53 inches. J. W. Harris, Beverend Gardens, Orshott.

(To be continued.)

FRUIT REGISTER.

APPLE SOPS IN WINE.

No other variety of Apple can vie in colour with this old and very good quality sort.

Noticing a few baskets of it in a West Midland fruit market some weeks since, I was impressed with the intense colour of the fruit this season over and above what I have seen previously. The variety should be perpetuated if only for the beauty of the tree in the landscape.

The fruit is above middle size, very dark red on the sunny side, rich orange red on the shaded side, and has a bloom on the surface.

One of its peculiarities is the red colouring of the flesh. The tree grows vigorously, and is productive.

Apple Sops in Wine is a splendid cooking sort.

APPLE SACK AND SUGAR.

This pretty old Apple is becoming extinct, it being doubtful if trees could be procured from any nursery in England to-day, and the only specimens I know are large decaying trees in one or two orchards. These trees are so full of flower spurs it is difficult to get suitable wood for grafting purposes; nevertheless, the colouration of the fruits is of great beauty.

Small to medium in size, this Apple has a pale yellow skin with streaks of red; the flesh is white, tender and juicy. Trees of this old variety may be found in Devonshire, Herefordshire and Somersetshire, and probably in other counties.

APPLE NONE SUCH.

This Apple stands practically in a category of its own, it having most remarkable leaves and wood, the former being covered with a fine whitish tomentum, the latter being somewhat thorny. It has been known since 1668.

One large tree of this peculiar growth I noticed near Ocle Pritchard a few days before the fruits were gathered, and I was impressed with their beautifully finished appearance, after Peasgood's Nonesuch style.

The fruit is of middle size to large, nearly round; eye small, stalk short, slender, inserted in a shallow cavity; skin beautifully marbled with red, yellow and green; flesh very white, melting with a full sub-acid juice, flavour first-class as a culinary sort. It will keep until November.

I think many of these old, useful varieties are somewhat localised and never get far afield. *Pomona.*

POTATO CRUSADER.

AMONGST the many promising new varieties of Potatoes raised in recent years Crusader (see Fig. 41) holds a high place, and will doubtless become popular with growers, not only for the table, but also as an exhibition sort, as the tubers are of very imposing appearance. The specimen illustrated was from a grand dish of the variety exhibited by Messrs. Dobbie and Co. at the National Potato Society's Exhibition in November, 1921. Crusader is an early main-crop sort and was raised by the late Dr. Wilson, of St. Andrews. It is immune to wart disease and, so far as can be judged, very resistant to late blight. It is a strong grower, and has a most distinct, erect-growing haulm. Given good cultivation it will produce a splendid crop of perfectly shaped kidney tubers of excellent cooking quality. Last year a well-known Ayrshire farmer planted one ton of Crusader in light soil during April, and the crop lifted in September weighed 19 tons.

The early main-crop varieties have a special value in seasons when late blight is prevalent, for the grower is enabled to lift the tubers at a time when the soil is comparatively dry and before the disease has affected the crop to any considerable extent.

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Cedrus Libani.—The estimate of the age of the Cedars at Chorleywood cited by Mr. Stacey (page 56) provides a liberal margin between 450 and 1,000 years. There is no certain evidence of the exact year when the Cedar of Lebanon was first grown in England, but the question was carefully gone into by Messrs. Elwes and Henry in their *Trees of Great Britain and Ireland*, pp. 458, 459, with the result that they could find no authentic record earlier than that of John Evelyn, who states in the third edition of his *Sylva*, published in 1679, that he had received seeds from Mount Lebanon. As he discusses the existing condition of the forest on Mount Lebanon with some detail, he would have been pretty sure to have mentioned any young Cedars growing in England at the time when he was writing. Loudon accepted this as proof that Evelyn was the first to grow Cedars of Lebanon in England, and he considered that the trees mentioned by Sir Hans Sloane as growing in his garden (now the Chelsea Physic Garden) in 1685 were

into this country, it is supposed to have been not earlier than 1663—one of the earliest records is of one planted in 1676 at Bretby Park, Derbyshire. *Joseph Cheal, Crawley.*

—The trees at Chorleywood are well known, and are mentioned in *Trees of Great Britain and Ireland*, Vol. III., p. 463. It is supposed that Evelyn first obtained seed which was planted at Enfield by Dr. Uvedale about 1670, which makes the date of introduction about 250 years. The fine Cedars at Bayfordbury were raised from the Enfield trees and planted in 1765. The largest tree has now, at 5 ft., a clean stem, with a girth of 20 ft., and it is 97 ft. high. Surely a fine tree for 155 years! I do not agree that the Cedar is slow of growth. Many fine trees are mentioned in the above-quoted work by Elwes and Henry. *H. Clinton Baker, Bayfordbury.*

Wilt in Melons.—I am very grateful to *C. G.* (page 34) for his kind correction. I should have written Bordeaux mixture powder sulphate of copper (2 lb. tin) guaranteed 58/60 per cent. genuine sulphate of copper. I was advised last year in the *Gard. Chron.* to try Bordeaux paste; this I could not obtain,

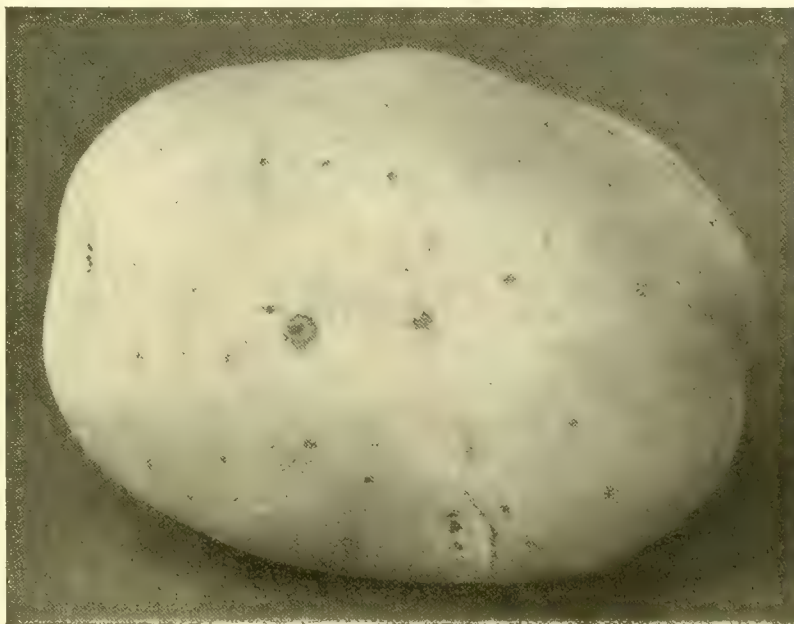


FIG. 41.—POTATO CRUSADER.

the oldest in England. The last of these trees died about 25 or 30 years ago, and had to be removed. It is evident that the Cedars at Chorleywood cannot be 300 years old, and are probably much less. *Herbert Maxwell, Monreith.*

—I was interested in Mr. Stacey's note on *Cedrus Libani* at Chorleywood, and I imagine that these are some of the finest trees in the country. I visited the native habitat of the tree a few years since and ascended the Lebanon to see some of the oldest specimens remaining. I took measurements of some of these, and the largest measured 42 ft. in circumference at 4 ft. from the ground. This gives a diameter of 14 ft. through, as against the Chorleywood tree's 25 ft. circumference and 8 ft. 4 in. diameter. Fine as the Chorleywood trees are it will take them some years yet to reach the dimensions of the Lebanon trees. The largest one that I saw was on the Jubal Baruk or one of the southern spurs of the Lebanon range, and the altitude was 6,200 ft. according to my aneroid barometer.

The majestic beauty of these monarchs may be imagined as they grip the rocky mountain side and stretch out their enormous pendulous branches towards the valleys below.

As to the date of introduction of this Cedar

and used the above mixture instead. Growers whose Melons suffer from wilt will regard Mr. Allan's treatment of Melons as set out on page 23 as being the very best. Wilt disease is not like the canker caused by excessive moisture, as plants grown in good houses, planted high and dust dry at the collar, wilt just the same as plants in cold frames. My Cucumbers also suffer in the same way. *Anxious.*

—Mr. Bates refers (p. 56) to the causes of "canker or wilt" in Melons, but my own observations have led to the deduction that these are two widely dissimilar diseases. Canker affects various portions of the plants, usually commencing in the stem just above the soil level, and showing first in the form of excrescences on the outside of the stem and midrib of the leaves, and for some days the plants will not show any other sign of ill-health. The mysterious wilt disease, on the contrary, shows no injury to the plant externally, but causes the whole of the foliage to wilt or droop with the first direct rays of bright sunshine. Canker can be guarded against by due regard to watering and ventilation, but I have yet to hear of a reliable specific or preventive for the wilt disease. *J. E. Palmer, Tilstone Lodge Gardens, Tarporley, Cheshire.*

SOCIETIES.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

THURSDAY, FEBRUARY 2.—Committee present: The Rev. J. Crombleholme (in the chair), Messrs. Ashworth, B. J. Beckton, J. Birchenall, A. Burns, A. Coningsby, D. A. Cowan, J. Cypher, A. G. Ellwood, W. Giles, Dr. R. N. Hartley, J. Howes, A. Keeling, J. Lupton, D. McLeod, E. W. Thompson, and H. Arthur (secretary).

AWARDS.

FIRST-CLASS CERTIFICATES.

Odontoglossum crispum Hero, a large white flower of perfect shape. *O. Wilckeanum aureum*, one of the best forms of this lovely yellow variety. *Odontia Viscount Lascelles* (Odtia. Madeline × Odm. L'Aiglon), flowers richly blotched bright reddish brown, on a white ground. *Cypripedium memoria* P. M. Ogilvie var. *Invincible*, a finely shaped flower, the dorsal sepal richly spotted: from S. GRATRIX, Esq. *Cymbidium Schlegelii*, Fowler's var., from Mrs. BRUCE and Miss WRIGLEY. *Lycaete Skinneri* var. *Princess Mary*, a large flower of beautiful rose colour, from Mrs. GRATRIX.

AWARDS OF MERIT.

Cypripedium Conference magnificum, *C. Porthei* (Alcibiades?), *C. Cotswold* (Blanche Moore × G. E. Moore), *C. Bantire* (Gaston Bullel × leyburnense), from Hy. GREEN, Esq. *Odontoglossum crispum* Lord Derby, *O. Dodderham magnificum*, and *Odontia Hammerae* (Odtia. Sanderac × Odm. Jasper), from A. HANMER, Esq. *Odontoglossum Lobbiae*, from Mrs. BRUCE and Miss WRIGLEY. *O. crispum Romeo*, from S. GRATRIX, Esq. *Cypripedium Verona* var. *Cyme*, from Col. Sir J. RUTHERFORD, Bart.

GROUPS.

Mrs. BRUCE and Miss WRIGLEY, Bury (gr. Mr. A. Burns), and S. GRATRIX, Esq., West Point (gr. Mr. J. Howes), were awarded Silver-Gilt Medals for collections of *Cypripediums*. A. HANMER, Esq., Buxton (gr. Mr. W. Giles), staged a group to which a large Silver Medal was awarded. Hy. GREEN, Esq., Birmingham (gr. Mr. Geo. W. Marsh), was awarded a Silver Medal for a group, and Dr. R. N. HARTLEY, Wigan, was awarded a Bronze Medal for a group. MESSRS. CYPHER AND SONS, Cheltenham, were awarded a Silver Medal for a group of *Cypripediums*, *Masdevallias*, *Coelogynes*, etc.

NATIONAL CHRYSANTHEMUM.

The annual general meeting of this Society was held in the Floral Committee Room at the Royal Horticultural Hall, Westminster, on the evening of Monday, February 6, when Mr. E. F. Hawes presided. The meeting was of a purely business character, as there were no controversial matters arising, but Mr. C. Harman Payne added considerable interest to the proceedings by referring at some length to the Le Mans show and its attendant functions.

The report of the Committee and accounts for 1921 were presented, and adopted on the motion of the Chairman. Reference was made in the report to the fine exhibition held in November, and to the financial success which attended it. It appears that the Floral Committee granted fourteen First-Class Certificates and four Commendations to new Chrysanthemums; 56 novelties were submitted for its consideration. The educational interest of the Society was well sustained by Mr. M. Mills and Mr. Harold Wells, both of whom gave lectures after the business proceedings at Committee meetings held last autumn. It is a pleasure to be able to record an improved financial position; whereas £3 13s. was brought forward from 1920, £14 19s. 3d. represents the balance in hand at the end of 1921. Receipts included £109 5s. in subscriptions, and £70 2s. 6d. in special prizes, with £78 taken at the gate at the November show. The entire turnover was £335 1s. The Society has a reserve fund of £50, and its surplus of assets over liabilities is given as £87 1s. 6d.

Following the adoption of the report, the election of officers took place, with the result that Sir Albert Rolitt was re-elected President; Mr. J. Green, Treasurer; Mr. E. F. Hawes, Chairman; Mr. D. Ingamells, Vice-Chairman; Mr. C. Harman Payne, Hon. Foreign Corresponding Secretary (for the 34th time); Mr. C. H. Curtis, General Secretary and Editor, and Messrs. R. A. Witty and S. J. Bayley, Hon. Auditors. The eligible retiring members of Committee were re-elected and vacancies were filled by the election of Mr. W. J. Taylor, Pinner, Mr. R. C. Pulling, Lewisham, and Mr. T. Smith, Kingston.

On the proposal of the Treasurer, the members decided to make a small presentation to Mrs. Curtis in recognition of her kindly help to the Society on the occasion of the November show.

ROYAL GARDENERS' ORPHAN FUND.

THE annual general meeting of the supporters of the Royal Gardeners' Orphan Fund was held on the 9th inst., at Simpson's Restaurant, Strand. Mr. E. Sherwood, Hon. Treasurer of the Fund, occupied the chair, and there were present Messrs. B. Wynne, D. Ingamells, G. F. Tinley, John Douglas, J. F. McLeod, H. J. Jones, R. Leech, W. E. Wallace, C. H. Curtis, J. M. Bridgeford, D. Swain, L. Sutton, and G. Reynolds.

The meeting was of very short duration, and there was scarcely any discussion. The chairman submitted the annual report of the Executive Committee and statement of accounts. The chief items in the report are those following:—

EXTRACTS FROM THE REPORT OF THE EXECUTIVE COMMITTEE.

"With a deep sense of thankfulness your Committee is enabled, in presenting their thirty-fourth annual report, to congratulate the supporters of the Fund on the completion of another year's satisfactory work, notwithstanding the adverse influence which the present financial situation everywhere has on all charitable institutions. That the Fund has been enabled to make provision for the disbursement of over one thousand five hundred and twenty-four pounds, among no fewer than one hundred and twenty-seven children during the past year in such times as these cannot be other than gratifying, but it must be recognised that this has only been possible owing to the hearty co-operation and support of all who have the welfare of the Fund at heart, and to whom most grateful thanks are due.

"At the commencement of the year one hundred and eleven orphan children were in receipt of the full benefits of the Fund, and sixteen more were added at the annual meeting in February. The fact that there are only four approved candidates appealing for election at the ensuing annual meeting, speaks eloquently of the splendid services rendered to their country by gardeners of military age whose dependents are being provided for by the Ministry of Pensions, instead of having to apply to this Fund for assistance to aid in their maintenance until they can earn their own livelihood. This state of affairs cannot, however, be of long duration, and your Committee very earnestly appeals for con-

tinued financial help to enable the useful work now in progress to be efficiently carried on—and if possible to reinstate the invested funds which had of necessity to be parted with during the war. The Committee feels that this appeal will not be made in vain.

"Gratifying success attended the holding of the annual festival dinner in the Connaught Rooms, on June 22, under the presidency of the Right Hon. Viscount Elveden, M.P., and resulted in a net gain to the fund of over eleven hundred pounds.

"Your Committee again has to acknowledge with great thankfulness an increasing measure of support by the members of Gardeners' Improvement and Horticultural Societies in various parts of the country.

"Among the special contributions received during the year your Committee gratefully acknowledges the receipt of a legacy of £365 18s. 4d. from the executors of Mr. William Phipps, who was well known to the older generation of horticulturists as gardener for many years at Bowood, Wiltshire. We have also to acknowledge generous gifts from Percival David, Esq., the Rt. Hon. Mary Countess of Ilchester, The Lady Battersea, and Mr. Robert B. Ker, part proceeds of a flower and fruit show held in the Liverpool Cotton Market.

"The loss which the Fund has sustained during the past year by the deaths of generous supporters is again a heavy one, and your Committee records with deep regret the passing away of Lady Veitch, The Lord Mount Stephen, Mr. William C. Dawes, Mr. W. E. George, J.P., Mr. George Paul, J.P., Mr. W. G. Ridden, Mr. G. F. Nixon, Mr. J. C. Geiselbrecht, Mr. C. Archer, Mr. F. Harris, and Mrs. Penton."

Mr. D. Ingamells seconded the adoption of the report, which was passed without comment. The chairman proposed the election of Viscount Elveden as a vice-president, and referred to the great success which attended the festival dinner over which his Lordship kindly presided. The election was confirmed by the unanimous vote of those present. The meeting then proceeded to the election of officers. Mr. E. Sherwood was, on the proposition of Mr. J. F. McLeod, re-appointed Treasurer, and thanked for his valuable services in connection with the Fund. Mr. Sherwood, in reply, thanked the meeting for re-electing him and declared that he had the interest of the Fund at heart, and was always ready to render it any benefit that was in his power. The retiring members of the Committee, Messrs. W. H. Cutbush, D. Ingamells, R. B. Leech, J. F. McLeod, A. W. Metcalfe, D. Swain and Geo. F. Tinley, were, on the proposition of Mr. L. Sutton, re-elected, and Messrs. W. Poupard, J. H. Smith, and T. A. Gardener, who resigned, thanked for their past valuable services. To fill these three vacancies, Mr. W. Auton, Mr. A. Dawkins and Mr. J. Wort were elected members of the General Committee.

The Auditors, Messrs. Peter R. Barr and A. Witty, were also re-appointed and thanked for their services. On the proposition of Mr. D. Ingamells, Mr. Brian Wynne was re-elected Secretary of the Fund. At this stage of the proceedings, there being no ballot, the four following children were, on the proposition of Mr. W. E. Wallace, elected to the benefits of the Fund:—Janet Helen Robertson, Robert David Robertson, Noel G. Tyler and Kenneth Edward Tyler.

CASH STATEMENT FOR THE YEAR ENDING DECEMBER 31st, 1921.

RECEIPTS				PAYMENTS			
	£	s.	d.		£	s.	d.
To Subscriptions:				By Children's Allowances	1,435	5	0
General	237	15	6	Grants in Aid	50	5	0
Local Secretaries	43	13	0	" Emma Sherwood Memorial "	13	0	0
			281	" Maybud Campbell Fund "	13	0	0
Donations:				" James Campbell Fund "	13	0	0
General	230	6	6				
Local Secretaries	8	12	2		1,524	10	0
			238	" Secretary's Salary "			300
Legacy: Mr. William Phipps	365	18	4	Rent, Insurance, Firing and			
Proceeds of Annual Festival Dinner	1,178	8	6	Lighting	62	4	4
Advertisements in List of Subscribers	18	6	0	Printing and Stationery	72	5	6
Dividends on Stock and Interest on				Printing and Posting List of			
Deposit, &c.	294	17	0	Subscribers	81	6	8
Income Tax returned	44	11	7	Advertising	1	19	6
			2,422	Expenses in connection with			
Balance last Account	660	19	9	Annual General and Com-	25	11	11
			2,422	mittee Meetings	5	3	9
			£3,083	Bank Charges	45	12	0
			8	Postages	7	12	1
				Petty Cash: Sundries			
					301	5	9
				Balances: Cash at Bank	407	4	5
				Cash on deposit	550	0	0
				Cash in hand	0	8	2
					957	12	7
					£3,083	8	4

Having inspected the Securities and examined the Books and Vouchers supplied to us, we hereby certify the above Account to be correct.

PETER R. BARR,)
RICHARD A. WITTY,) Auditors
Incorporated Accountant

January 23rd, 1922.

* Approximately £400 is required to meet quarterly payments on January 1st.

ROYAL HORTICULTURAL.

FEBRUARY 14.—The annual meeting of the Royal Horticultural Society was held on Tuesday last in the Vincent Square Hall, Westminster. The number of exhibits was not so numerous as usual at the annual meeting, but there was a capital attendance. The chief features of the exhibition were Orchids, Carnations, Primulas, Azaleas, early hardy flowers, and, in the fruit and vegetable section, a group of vegetables and collections of Oranges and Apples.

The Narcissus and Tulip Committee held its opening meeting for the season, but only one novelty was submitted. Awards were made to novelties by all the other committees. The Orchid Committee granted one First-Class Certificate and one Award of Merit; the Floral Committee recommended an Award of Merit to a variety of *Primula malacoides* and the Fruit and Vegetable Committee conferred a similar award on Seedling Washington Navel Orange, shown by Messrs. T. S. RIVERS AND SON.

Floral Committee.

Present: Messrs. H. B. May (in the chair), W. J. Bean, W. R. Dykes, Reginald Cory, James Hudson, Chas. E. Pearson, W. P. Thomson, R. W. Wallace, Hugh Dickson, Clarence Elliott, W. B. Cranfield, H. V. Warrender, E. A. Bowles, G. Reuthe, John Heal, Donald Allan, C. R. Fielder, J. F. McLeod, W. Howe, Montagu C. Allwood, W. B. Gingell, H. J. Jones, D. B. Crane and Amos Perry.

AWARD OF MERIT.

Primula malacoides Princess Mary.—A charming and useful plant of much sturdier habit than the typical *P. malacoides*, and with larger blooms. The foliage is stiffer and firmer than in the type and has some white farina on the underside. The flowers are $\frac{1}{2}$ to $\frac{3}{4}$ inch in diameter, rich rosy lilac in colour, with a light orange-yellow eye. Shown by Messrs. JAS. CARTER AND CO.

OTHER INTERESTING PLANTS.

Mr. A. C. T. WOODWARD, Arley Castle, Bewdley, showed *Clematis* F. 559. This has small leaves, each of the three leaflets being divided into three. The flowers are rose coloured, with numerous segments and borne on long stalks. It is from the Da-Tung Alps and, apparently, one of the recent discoveries in China. *Saxifraga Mariae-Theresae*, from Mr. P. ROSENHEIM, Chetwynd, East Molesey, was referred to the Scientific Committee.

GROUPS.

Composed principally of two sorts of *Primula*, *Hyacinths* and *Tulips*, the exhibit by Messrs. CARTER AND CO. was singularly effective. A whole length of tabling was utilised, and raised along the centre were small collections of *Primula stellata* Fairy Queen Improved—a floriferous variety in which the clear white petals have a distinct rich carmine zone around the yellow eye—alternating with groups of miniature *Hyacinths* in various colours. An informal bordering was composed largely of *Primula malacoides* Princess Mary, and of this excellent variety there were very many plants all as well grown as the stellata variety. Bowls of *Tulips* in such sorts as Prince of Austria and the double-flowered Tea Rose pleasantly interspersed the *Primula* bordering (Silver-Gilt Banksian Medal).

The collection of greenhouse plants shown by Messrs. STUART LOW AND CO. included a very effective standard of *Acacia Baileyana*, little bushes of *Chorizema cordata*, *Erica Veitchii* and many varieties of *Azalea indica*. A goodly collection of cut Carnations adjoined the plants, and of these two large vases of the Hon. C. Knollys and Mrs. C. F. Raphael of the perpetual-Malmaison varieties were admirable, while there were also very many valuable perpetual varieties (Silver Flora Medal).

Carnations were also excellently shown by Messrs. ALLWOOD BROS., who gave special prominence to a large stand containing mixed perpetual-Malmaison sorts. This was an exceedingly effective arrangement, and the many blooms diffused a pleasant fragrance. Near by there was a large stand of Wivelsfield Pink, of glowing colour, which was enhanced by the

good yellow of Maine Sunshine, which is probably the best of all the yellow varieties. Rich deep colour was provided by a massed vase of the velvety crimson Triumph (Silver Flora Medal).

By the use of many artistic bowls and small *jardiniere* amongst his vases of Carnations, Mr. C. ENGELMANN made a novel and effective display. It was a large exhibit, and of the very many good sorts on view it was those of pink shades of colour that were the most pleasing. These included Laddie, Cupid, Lady Northcliffe, Peerless and Bona (Silver Banksian Medal).

Begonia manicata, a free-flowering greenhouse species which is equally effective as comparatively small specimens in 6 inch pots as when grown to a much greater size, was given the central place by Messrs. L. R. RUSSELL, LTD., in a collection of plants. There were also well flowered specimens of *Azalea indica*, *A. mollis* and Ghent hybrids, while at one end was a small group of *Prunus triloba* and the double-flowered Peach (Silver Banksian Medal).

A collection of cut blooms of the Sheepwell strain of scented *Cyclamen latifolium* was contributed by E. WORMALL, Esq. (gr. Mr. Lay), Sheepwell House, Potters Bar. The blooms illustrated high cultivation, but, probably owing to the cold weather, the fragrance was not readily apparent (Bronze Flora Medal).

Shrubs with ornamental foliage and in flower were an interesting feature in the hall. Amongst a representative collection by Messrs. J. CHEAL AND SONS there were branches of *Parrotia persica* just disclosing the stamens of its lively red flowers. This medium-sized tree is not only strikingly brilliant when in flower, but is also of great value for its autumn foliage. Flowering shrubs included *Rhododendron praecox* and *Pieris* (*Andromeda*) *floribunda*, while of spring flowers there were *Crocus versicolor*, *Grape Hyacinths* and various *Saxifrages* (Silver Banksian Medal).

Berberis hyemalis and sprays of *Hamamelis* were prominent in an exhibit by Messrs. R. WALLACE AND CO., who also showed pans of *Crocuses*, *Primroses* and *Irises* with a goodly mass of *Lithospermum prostratum* (Silver Banksian Medal). A batch of the attractive foliage plant *Veronica glauco-coerulea* attracted attention in the contribution by Messrs. SKELTON AND KIRBY, who also showed some interesting *Saxifrages* (Bronze Flora Medal).

Dwarf Conifers suitable for the rock garden were shown by Messrs. R. TUCKER AND SONS, who also had little colonies of *Adonis amurensis* in full bloom and many *Saxifrages*. Of the latter, *Saxifraga macedonia*, bearing many yellow flowers, and S. Mr. Leng, with primrose yellow blossoms, were very attractive (Silver Banksian Medal).

An exceedingly gay and attractive planting of *Irises*, *Crocuses* and other spring flowers was made by Messrs. WATERER, SONS AND CRISP. Amongst the *Irises* were excellent examples of *I. reticulata*, *I. sind-pers*, *I. Sindjarensis* and *I. persica*. The last-named was particularly charming; the contrast between the deep velvety blue lip and the rich orange central marking is most effective (Silver Flora Medal).

Many good varieties of *Polyanthus* were shown by Mr. W. MILLER, who also staged various *Daffodils*, *Grape Hyacinths* and *Snowdrops*, while the Misses HOPKINS had a little rockery suitably planted (Bronze Flora Medal).

Chief amongst the plants shown by Messrs. BARR AND SON were many Christmas Roses and the dainty little hardy *Cyclamen*, such as *C. ibericum roseum* and *C. i. rubrum*. A goodly back there were many vases of *Narcissus Grand Soleil d'Or* of very rich colour (Bronze Flora Medal).

Eucalyptus Gunnii, as small plants, was again shown by Messrs. WM. CUTBUSH AND SON, who also had *Sarcococca ruscifolia*, a lowly shrub which thrives under shade, bearing both flowers and last year's berries (Silver Banksian Medal).

Mr. G. REUTHE again showed various Conifers and alpinas with little bushes of *Correa cardinalis* bearing its bright little cylindrical flowers (Silver Banksian Medal).

In the Orchid Annex Messrs. SEGERS BROS., LTD., wholesale growers, set up an exhibit of *Tulips*. These had apparently been brought from

Holland and presented a bright and fresh appearance. The double-flowered varieties included Mr. Van der Hoef (yellow) and El Toreador (crimson and fawn), while amongst the singles were Lenôtre (a good pink Darwin that forces well), McKinley (carmine and orange) and Victoire d'Olivier (a darker Bartigon), which may be forced into bloom three weeks earlier than that variety.

Narcissus and Tulip Committee.

Present: Messrs. E. A. Bowles (in the chair), W. R. Dykes, J. W. Jones, G. Churcher, F. Herbert Chapman, George Monro, W. B. Cranfield, G. Reuthe, Arthur R. Goodwin, Peter R. Barr and Charles H. Curtis (hon. sec.).

The Committee met for the first time this season, and the only plant before it was *Narcissus* St. Valentine, an early yellow-flowered *Cyclamineus* hybrid of *Barrii* form.

Orchid Committee.

Present: Frederick J. Hanbury, Esq. (in the chair), Messrs. Jas. O'Brien (hon. secretary), Gurney Wilson, J. Wilson Potter, Stuart H. Low, E. R. Ashton, T. Armstrong, A. McBean, W. J. Kaye, H. T. Pitt, J. T. Barker, J. E. Shill, Fred. K. Sander, H. G. Alexander, Chas. H. Curtis, S. W. Flory, Arthur Dye, W. H. White, C. J. Lucas and R. Brooman White.

AWARDS.

FIRST-CLASS CERTIFICATE.

Miltonia Lord Lambourne, from Messrs. CHARLESWORTH AND CO., a marvellous hybrid of which the derivation is not recorded, but the fact is clear that nothing equal to it in colour, form or floral beauty has ever been shown. The probability is that it is a further development of Messrs. Charlesworth's *M. Venus* (*Phalaenopsis* × *vexillaria*), the model shape of the flowers giving strong suggestion of that showy hybrid.

The sepals are white, with the inner two-thirds bright violet colour; the petals are broad and coloured reddish-violet. The lip is broad and almost circular in outline, the basal mask being of thick, radiating lines of violet-crimson, fringed by violet, the broad margin being white. It is certainly one of the finest hybrids raised and well worthy of the honourable name bestowed on it. The award of a Silver-Gilt Flora Medal was also made to this superb novelty.

AWARD OF MERIT.

Odontioda Cora (*Oda. Coronation* × *Odm. eximium*), from Messrs. CHARLESWORTH AND CO. The large, finely-formed flowers are reddish-purple with some white at the edges and tips of the segments. The lip is white, with ruby blotch in front of the yellow crest.

GROUPS.

Baron BRUNO SCHRÖDER, The Dell Park, Englefield Green (gr. Mr. J. E. Shill), was awarded a Silver-Gilt Lindley Medal, as a mark of appreciation of his charming group, and the high state of excellence attained by his gardener in the matter of fine cultivation, every plant being a superb specimen, in itself unsurpassable in its class. The arrangement of the group added to the attraction of the fine plants which were set up with very graceful foliage plants. About twenty grand specimens of *Cymbidium Pauwelsii* in many varieties, with their arching spikes of from twenty to forty flowers each, formed the main object, and beneath these were arranged a fine lot of *Calanthe* Baron Schröder, the largest and best *Calanthe*, both the light and the dark forms being included. *Laelio-Cattleya* Schröderae of fine varieties, a large and finely-formed *Cattleya* Trianae and others were included in the collection.

A Silver Flora Medal was awarded to Messrs. SANDER, St. Albans, for an excellent group of *Cymbidium Alexanderi* Gottianum, Yellow Hammer, Martin, and others in fine variety, arranged with *Odontoglossums*, *Dendrobiums*, and *Cypripediums*, the last-named including good *C. Eurybiades* and C. Charlotte Dillon.

MESSRS. FLORY AND BLACK, Slough, were awarded a Silver Banksian Medal for a group of hybrids, including *Sophrone-Laelio-Cattleya* Langleyensis, *Sophrone-Laelio* Nerissa, two fine forms

of *Laelio-Cattleya* William Pitt, and the white *Cattleya* Brenda.

OTHER EXHIBITS.

Lt.-Col. Sir GEO. L. HOLFORD, K.C.V.O., Westonbirt, Tetbury (gr. Mr. H. G. Alexander), showed the pretty little *Sophrone* *Cattleya* Prudence (S.-L. Orpetii $\times$ C. Fabia), with four neatly-formed magenta-crimson coloured flowers.

Messrs. J. and A. McBEAN, Cooksbridge, staged a selection of showy hybrids, including *Sophrone-Laelio-Cattleya* Marathon, the white *Brasso-Cattleya* Bianca, *Laelio-Cattleya* Eunice alba, *Cattleya* Eunice alba, and yellow *Cypripediums*.

Messrs. R. F. FELTON AND SON, Hanover Square, florists, arranged a very pretty stand of *Cymbidiums* and *Odontoglossums* overhanging their exhibit of fruits from South Africa.

Messrs. CHARLESWORTH AND CO. exhibited a fine yellow and white *Odontoglossum* *Wilckeanum aureum*.

Fruit and Vegetable Committee.

Present: Messrs. C. G. A. Nix (in the chair), E. A. Bunyard, W. Poupart, P. C. M. Veitch, H. S. Rivers, Geo. F. Tinley, P. D. Tuckett, A. L. Smith, Ed. Beckett, S. B. Dicks, G. Reynold, T. Pateman, E. Neal, W. J. Jefferies, E. A. Merryweather, E. Harriss, A. Metcalfe, J. C. Allgrove, W. H. Divers, G. Berry, S. T. Wright and A. Bullock.

AWARD OF MERIT.

Orange Seedling Washington Navel.—This is a large-fruited variety with a somewhat rough skin of a pale yellow colour and with, in most cases, the characteristic "navel" end. The flesh is exceedingly juicy and of excellent flavour; the foliage is large and of deep lustrous green colour, paler on the under surface. Trees of this variety grown in pots were included in a collection referred to below. Shown by Messrs. T. S. RIVERS AND SON.

GROUPS.

A collection of Citrus fruits shown by Messrs. T. S. RIVERS AND SON was awarded a Silver-Gilt Hogg Memorial Medal. The collection made a very bright and attractive feature in the hall and the large size and generally fine appearance of these home-grown Oranges was a revelation to many visitors, and especially the profusion in which they were shown. Some were very bulky trees in large tubs and there were also smaller plants in pots more suitable for decorative purposes indoors. All bore heavy crops, the most notable varieties being St. Michael, or Long Orange; Egg Orange, Nonpareil, St. Michaels and the Boscellio Orange. *Citrus corniculata* and the Myrtle-leaved Orange represented distinct forms, and there was also the hardy *Citrus trifoliata* (syn *Aegle sepiaria*), which is used in the south-west of England as a hedge plant and is said to survive as much as 30° or 40° of frost. American raisers have crossed this plant with several of the sweet Oranges in order to obtain a hardy strain, and Messrs. RIVERS showed two of these hybrids; one named Rusk Citrange had borne fruits with them, and these are like small Tangerines, but with a very disagreeable flavour.

SIR MONTAGUE TURNER, Bedford, Havering, Romford (gr. Mr. A. Barrett), showed a collection of 48 varieties of Apples, which, considering the late season, were in remarkably fine condition. Amongst the more notable dishes were those of Scarlet Pearmain, Sure Crop, Cox's Orange Pippin, Cornish Gilliflower, Allington Pippin, Melon Apple, Ribston Pippin, Christmas Pearmain, Annie Elizabeth, Margil, Hornmead's Pearmain, Bedford's Seedling, and Scarlet Pearmain (Silver Knightian Medal).

Messrs. SUTTON AND SONS showed some excellent vegetables in a group that was deserving of praise for its arrangement. In the centre was a large batch of variegated Kales and on stands and baskets were Tender and True and Hollow Crown Parsnips; Prize Taker Leeks, Improved Reading and Brown Globe Onions, excellent Chicory, Scorzenera, Seakale and Salsify, Improved Red Intermediate Carrots, Artichokes, Potatoes and fine heads of Extra Curled Scotch Kale (Silver Banksian Medal).

Annual Meeting.

THE Lecture Room was filled with Fellows when Lord Lambourne took the chair at the annual general meeting. In proposing the adoption of the report of the Council, which has been circulated, the President drew special attention to the paragraph on "Bribery and Secret Commissions in Horticulture," saying that he "knew for a fact that commissions are tendered," a state of affairs which, in his opinion, reflects discredit on all concerned. The Council of the R.H.S. was anxious to do all that lay in its power to discountenance such practices, and Lord Lambourne appealed to all Fellows to report any cases that may come to their notice to the proper authority. Home-grown bulbs are again to receive the attention of the Society, and the announcement of a show of dried bulbs next autumn, followed by a display of flowers in 1923, was received with general approval. The work on "Pritzel" was briefly reviewed and it appeared that, up to date, 250,000 cards have been compiled, so that it is hoped to publish the work towards the end of next year. The copyright of the *Botanical Magazine*, which may otherwise have been lost to the country and horticulture generally, has been presented to the Society by a "number of men interested in gardening," so that publication will continue, and it is hoped to issue a complete volume for this year. The alliance with the National Rose Society was commented upon and great expectations raised over the Rose trials which are to be held at Wisley in the near future, which it was confidently hoped would not be adversely affected by soil conditions.

A well-deserved tribute was paid by Lord Lambourne to the public spirit displayed by the members of the various committees who, without recompense, expend much of their time and, in some cases, money in attending the various meetings. Lord Lambourne reminded the meeting that nearly all the members of committees were busy men, and it was always the busy men who found time for such work and whose services were of the greatest value.

Mr. C. A. Nix, who seconded the adoption of the report, explained that his resignation of the post as Treasurer was due to the great increase in the financial work of the Society which, he felt, required the attention of a more experienced man than himself, and this the Society had found in Mr. C. T. Musgrave. Referring to the balance-sheet Mr. Nix explained that the new item connected with insurance related to the large shows which the Council felt, in view of the large attendances, should be safeguarded from loss which might occur through bad weather. He felt that, generally, 1921 had been a good year for the Society, and he was much more optimistic than he was a twelvemonth ago.

The only comments on the report were by Mr. Bickerton, who suggested that the Council consider providing easier means of reaching Wisley: that a gallery at the Hall would ease the congestion, and that attention should be paid to "correlated science." In reply, Lord Lambourne said that the matter of facilities for reaching Wisley were under consideration, and in the meantime he reminded the meeting that a London General Omnibus ran from Weybridge station, and by it Fellows could travel to a point quite near to the Society's gardens. The provision of a gallery was debarred by the L.C.C. regulations. As to correlated science Lord Lambourne frankly stated he was not sure he understood what was meant, but he was sure it would receive due attention from the Council!

In the absence of further nominations the officers and Council as published were declared duly elected.

The most interesting ceremony was the presentation of five Victoria Medals of Honour. The recipients were Lord Lambourne, Messrs. W. A. Binley, William Poupart, John Fraser and the Rev. Arthur Boscawen. Lord Lambourne's medal was presented to him by the Rev. W. Wilks amid great applause. On behalf of Messrs. Dobbie and Co., Mr. W. Cuthbertson received the Lawrence Medal, which was awarded for their display of Tulips at the Hall on May 10 and 11 of last year.

Obituary.

John Smith.—An interesting personality has been lost to horticulture by the death of Mr. John Smith, who laid out the Comely Bank Cemetery, Edinburgh, and acted as superintendent of it for twenty-seven years. He had long passed the allotted span of life, but remained mentally alert to the end, and died after a very brief illness. A native of Dun-glass, Mr. J. Smith gained experience of gardening in early life at various English and Scottish gardens. He was outside foreman at Shrublands, Ipswich, in the days when it was the correct thing for foremen at that famous establishment to wear top hats. While in these gardens one of his colleagues was the late Mr. Donald Matheson, subsequently of Meikleour Gardens, Perthshire, and the father of the present general manager of the Caledonian Railway Company. For nine years Mr. J. Smith had charge of extensive gardens in Florence, where he acquired a wide knowledge of the Italian language. On his return from Italy he went to Lewis Castle, Stornoway, and subsequently to Edinburgh. A clever gardener and organiser, Mr. J. Smith was also a keen angler.

ANSWERS TO CORRESPONDENTS.

HAWTHORN DISEASED: C. W. The trouble is apparently caused by one of the Rose cankers, but the material you sent was insufficient for a proper diagnosis.

NAMES AND ADDRESSES: T. Sainte-Mesem. The following are the names and addresses you require: Messrs. Stredwick, St. Leonards, England; Mr. J. T. West, Tower Hill, Brentwood, England; and Messrs. Burrell and Co., Howe House Nurseries, Cambridge, England.

NAME OF FRUIT: J. H. C. Broad Eye Pippin.

NAMES OF PLANTS: A. N. 1, *Picea sitchensis*; 2, *Abies nobilis*; 3, *A. concolor*; 4, *Cephalotaxus pedunculata*; 5, *Abies grandis*; 6, *Picea Omorica*; 7, *Picea excelsa* var.; 8, *Abies Veitchii*; 9, *Picea Morinda*; 10, *Thuja plicata*; 11, *Cupressus Lawsoniana*; 12, *C. nootkatensis* var. *pendula*; 13, *C. Lawsoniana* var. *inter-texta*; 14, *Pinus inops*; 15, P. Murrayana; 16, P. Pinaster; 17, P. sylvestris; 18, *Arbutus Unedo*.—G. K. P. *Quercus Lucombeana* (Lucombe Oak).

POTATO SHARPE'S EXPRESS: B. P. B. There is no evidence of disease in the tubers you sent; they have the appearance of injury by frost, as you suggest.

SWEET-SCENTED CLIMBERS FOR A PERGOLA: W. M. B. It is no easy matter to select nine sweet-scented climbers suitable for a pergola. The following plants would be best for your purpose:—*Akebia quinata*, a species with small, claret-purple flowers; *A. lobata*, small, dull purple flowers; *Boussingaultia baselloides*, small white flowers; *Jasminum officinale*, white flowers; *Holboellia latifolia*, flowers purplish green; *Stauntonia hexaphylla*, whitish-green flowers. It is doubtful whether either of the two last-named would flower away from the shelter of a wall. *Chimonanthus fragrans* (Winter Sweet) might be used to cover the pillars of a pergola. There is a choice of Honeysuckles, *Lonicera Caprifolium*, *L. Periclymenum*, of which there are several varieties, such as *serotina*, which flowers until late in the season, and is commonly known as Late Dutch Honeysuckle, while the var. *belgica* is known as Dutch Honeysuckle, a very strong-growing variety; *Clematis paniculata*, white flowers; and *C. calycina*, which is not over-hardy away from a wall. The *Wistarias* are slightly fragrant, especially *W. multi-juga*; in any case, they are beautiful plants for a pergola. *Vitis vinifera* (Grape Vine) is fragrant when in flower, as also is *Vitis riparia*.

Communications Received.—W. F.—G. W. S.—G. A. C.—J. I.—H. & G.—J. R. G.—S. A.—W. J. P.—H. T.—C. M. E.—A. G. H.

No. 1835.—SATURDAY, FEBRUARY 25, 1922.

A New Belgian Horticultural Society.—A society, or club, for garden lovers, has been formed in Brussels under the name of "Le Jardin d'Egremont" ("The Pleasure Garden"). The organ of the society, also called *Le Jardin d'Egremont*, is bound up with another monthly journal, that of the *Naturalistes Belges*. It appears to make appeal more especially to amateur gardeners, and an editorial note gives one of its objects as that of "struggling against

the banality, the poverty, even, of too many gardens in Belgium." Four committees have been formed, to take over special branches of the Society's work—Technical, Design, Botanical, and Editorial—the latter being charged with the production of the journal. The first number of the Society's journal is an attractive issue, and the journal should be able to attain in due course a separate and successful existence.

"Monro" Concert.—The twenty-third annual concert, conducted by the "Geo. Monro, Ltd.," Concert Committee on behalf of various charities, was held at Queen's Hall, Langham Place, on the 16th inst. A lengthy and excellent programme of about two dozen items was provided, including some very fine music by the band of the Grenadier Guards. There was a large attendance. The floral decorations on the stage were carried out by Messrs. Wills and Segar, while the Daffodils on the tables were given by Messrs. Lowe and Shawyer. These concerts have been the means of rendering a large amount of assistance to various charities, and during the year 1921 the committee made donations of £10 10s. to the Gardeners' Royal Benevolent Institution, £3 3s. to the Royal Gardeners' Orphan Fund, £5 5s. to the Wholesale Fruit and Potato Trades' Benevolent Society, £6 6s. to the Royal Surgical Aid Society, £6 6s. to the Charing Cross Hospital, £3 3s. to St. Dunstan's, £3 3s. to the London and Home Counties Benevolent Fund, and £2 2s. to the Covent Garden Lifeboat Fund.

Paper as Mulching Material.—According to the *Agricultural Gazette of New South Wales*, experiments made by the Hawaiian Pineapple Packers' Association show that when paper is used as mulching material Pineapples give greatly increased yields. The paper mulch consists of a strip of paper, in which are cut holes large enough for the Pineapple plants to grow through. It was found that the plants treated in this way grew uniformly larger, greener, and more healthy, and the fruits were also larger. It was claimed that the paper mulch prevented the growth of weeds and the packing of the soil through heavy rains, thus greatly reducing the cost of cultivation. In the association's experiment station the growth of plants provided with the paper mulch was three times greater in weight and much healthier than those on other plots without the paper.

Cambridge Horticultural Exhibition.—In connection with the Royal Agricultural Society's show to be held at Cambridge, a horticultural exhibition has been arranged for July 4 to July 7, which will be under the superintendence of Mr. Peter Blair, Trentham, Stoke-on-Trent. An attractive schedule has been provided, and substantial prizes are offered for a group of miscellaneous plants, for Orchids, Delphiniums, Begonias, hardy perennials, Perpetual Carnations, Border Carnations, Sweet Peas, and Roses. In the group class the first prize is £45 and the second prize £40.

"Garden Hints."—A number of useful garden hints and reminders is issued in a booklet under this title by the Humber Fishing and Fish Manure Co., Ltd., Hull, manufacturers of the "Eclipse" fish manure. The publishers ask us to announce that free copies of the booklet will be sent to readers of this journal on their making application to the firm. In these times, when stable and farm-yard manure are scarce and dear, such useful organic manures as the Eclipse fish manure offer excellent substitutes for animal dung, and many growers, professional as well as amateur, are making extended use of them with good results. The book under notice gives the best methods of employing the fertiliser.

Le Mans International Show.—It is interesting to record that this show, held last November, has proved to be a great financial success. The total expenditure amounted to about 100,000 francs, and after taking into account the subsidies granted by the State and the municipality there remains a balance on the credit side of the account of about 10,000 francs. This admirable result reflects great honour upon the organising committee and upon the Mayor of

Le Mans and his energetic helper, M. Leloup-Grimou, neither of whom spared themselves to make a success of the show.

French Chrysanthemum Society.—This society, like so many others with a small annual subscription, has found that, owing to the higher cost of postage and printing, it can no longer carry on its work under the old subscription of five francs per year. Consequently the annual subscription for this and succeeding years has been raised to eight francs per member. At the present rate of exchange, and considering the advantages the society offers, members resident in the United Kingdom will probably consider it to be one of the cheapest subscriptions in the horticultural world. The Registrar of Novelties, M. Reiser, appeals to raisers to send him their catalogues, so that the catalogue of his society may be kept up to date.

A Rhubarb Exhibition.—The ninth annual Rhubarb show of the Leeds and District Market Gardeners' Association will be held at the Griffin Hotel, Leeds, on Saturday, March 4. Prizes are offered in six classes, and include a gold medal for the best six sticks of Victoria



SIR DAVID PRAIN, F.R.S. (SEE P. 85.)

or any other variety over 5 lb. in weight; a silver cup of the value of thirty guineas for the best six sticks of Dawe's Champion, and a silver cup offered by Messrs. Garcia Jacobs and Co. for the best three marketable bunches of Victoria Rhubarb, not to exceed $\frac{3}{4}$ lb. each. The cups are to be won three times in all before they are the property of any exhibitor. The annual dinner, followed by a smoking concert, will be held on the same occasion. The secretary is Mr. J. R. Groundwell, Scott Hall Gardens, Buslingthorpe, Leeds.

A Warning.—Mr. J. Harrison, jun., President of the Horticultural Trades' Association, requests us to draw attention to an instance of disgraceful trading on the part of an unscrupulous Dutch vendor of bulbs. It appears that an English customer, attracted by the low prices quoted, sent the Dutch vendor an order for bulbs, and enclosed a remittance for £1 1s. Although free delivery was promised, the customer had to pay 1s. 6d. on the consignment. Many of the bulbs were small, broken, and mildewed, and some not true to name. The only passable lot (if true) were Pheasant Eye Narcissus. Mr. Harrison points out that, had a British trader supplied such bulbs, the customer could have repudiated the contract and obtained the return of his money through the courts, but there is practically no redress in such a case as this, owing to the difficulty and cost of taking legal

proceedings outside the jurisdiction of the British Courts. Mr. Harrison considers that it is high time the Government took steps to prevent the British public from being fleeced by an unscrupulous type of Dutch trader, and he believes reputable British and Dutch firms alike will desire to see such cases as this exposed.

Lecture on Potatoes.—A lecture on "Practical Lessons from the International Potato Conference" will be delivered by Mr. W. Cuthbertson at the Royal Horticultural Society's meeting on Tuesday, February 28, at 5 p.m.

Ideal Home Exhibition.—A series of interesting conferences has been arranged by the Garden Cities and Town Planning Association during the *Daily Mail* Ideal Home Exhibition, to be held at Olympia in March. Several of the lectures will be concerned with horticultural and agricultural questions, notably:—Thursday, March 2, Poultry; Friday, March 3, Utility Small Garden; Monday, March 6, Young Farmers' Clubs (British day); Tuesday, March 7, Young Farmers' Clubs (International day); Tuesday and Wednesday, March 14 and 15, Garden Cities and Town Planning; Thursday, March 16, Utility Small Garden; Monday, March 20, Bees; Tuesday, March 21, Poultry; Friday, March 24, Fruit Growing. Among the chairmen who will preside at these conferences are the Minister of Agriculture and Lord Astor, and the speakers are all authorities on their respective subjects. Tickets for any of the conferences may be obtained from the Secretary, Garden Cities and Town Planning Association, 3, Gray's Inn Place, London, W.C.1., and will include free admission to the Exhibition.

Appointments for the Ensuing Week.—Tuesday, February 28.—Royal Horticultural Society's Committee meetings; lecture by Mr. W. Cuthbertson, at 5 p.m.; Cardiff Gardeners' Society's meeting. Wednesday, March 1.—Royal Agricultural Society's Council meeting; National Viola and Pansy Society's meeting. Thursday, March 2.—Manchester and North of England Orchid Society's meeting; Linnean Society's meeting, at 5 p.m.; Wargrave and District Gardeners' Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*The Margill Apple.* The origin of this favourite Apple has not been clearly traced; but it is supposed to be English. It has been recognised in no foreign collection, excepting in some in which it has been introduced by its English name. Rogers, in his *Fruit Cultivator*, 1834, states that he has known it for seventy years, it being then in repute as a dessert fruit. The first tree of it he saw was an espalier in the Sheen Garden, planted by Sir William Temple. It deserves notice on account of its very dwarf habit, rendering it most eligible for borders, or other situations where large trees would be objectionable; for its constant and abundant bearing, hence its synonym of *Never-fail*; and, finally, for its close approximation in point of flavour to the Ribston Pippin. The flesh is firm, juicy, sugary and rich, with a Ribston Pippin flavour, but more perfumed. In perfection from November till February. The tree is dwarf, but healthy, and so productive that attention is necessary to prevent it from over-bearing itself. Shoots purplish-brown, sprinkled with minute pale dots. Leaves small, ovately lanceolate, partially folded, regularly serrated; petioles long, slender, downy; stipules lanceolate, an inch or more in length. Flowers middle-sized; petals longish ovate, somewhat cordate at the base. In pruning this variety, instead of only fruit-spurs, a sprinkling of young shoots should be encouraged, by judicious shortening at the winter pruning, and the spurs should be individually thinned. Sometimes the entire cluster may be dispensed with, but in this case the cut should not be quite close to the branch, for at the base of the spur latent buds generally exist to form a fresh succession. *R. T., Gard. Chron., Feb. 20, 1847.*

Publication Received.—*The Forest Flora of New South Wales.* By J. H. Maiden. Vol. VII. Part 9. William Applegate Gullick. Sydney. Price, 2s. 6d. per part.

NOTES FROM KEW.

THE WILD CHINESE PRIMROSE.

ONE of the most interesting subjects in flower in the Conservatory (No. 4 Greenhouse) at the present time is a group of some fifty plants of *Primula sinensis*, the wild Chinese Primrose. They are the progeny of plants raised from seeds collected by Mr. E. H. Wilson. The plant was first introduced in 1820, and a figure of it appears in the *Botanical Magazine*, tab. 2564. The plant figured has purplish-crimson blossoms, but those flowering at Kew are a dainty shade of pale lilac. One item in the *Bot. Mag.* description is very interesting, because it still holds good of the species to-day, i.e., "it is generally considered very shy of producing seeds." Persistent pollination is necessary to obtain any seeds at all, but, fortunately, the plants are perennial.

RHODODENDRON HIPPOPHAEODES.

Growing in its habitat at from about 10,000 feet to 14,000 feet elevation, this is one of the hardiest and most distinct of the newer Chinese Rhododendrons. It is a much branched, small shrub up to 4 or 5 feet high, with small somewhat hoary leaves, hence the name *hippophaeoides*. The flowers are borne in a terminal inflorescence of six or seven blooms in a crowded, head-like umbel. Plants raised from seeds vary very considerably in the shade of colour, which includes lavender blue, blue purple, pale purplish rose, and rosy lilac.

R. hippophaeoides has been described as a tall-growing *R. intricatum*. In addition to its value in the rock garden, the subject of this note should find a place in groups along the front of the shrubbery border, whilst for lawn beds it will be a delightful companion plant to the popular *R. racemosum*. It is readily increased by seeds and cuttings.

R. hippophaeoides was collected by Mr. George Forrest in several localities of Yunnan during 1913-14. His numbers include 10,333 F. (open situations, alpine shrub), 11487 F., 12461 F. (open marshy meadows), 12562 F. and 12633 F. Mr. Kingdon Ward also collected this species in Yunnan (269 B., K.W.) in May 1913.

PYRACANTHA CRENULATA VAR. YUNNANENSIS.

In some respects, this Chinese *Pyracantha* is proving one of the most valuable and distinct of the family. Now, during the second half of February, it is the only one adorned with quantities of shining, light red fruits. Rather smaller than the popular variety *Lalandei*, the fruits ripen later than those of that form and also those of *P. Gibbsii*, a closely-allied species, from which it also differs in the coarsely crenate, spatulate leaves. It was first introduced from Yunnan by Mr. R. P. Ducloux, in 1906.

THE ALPINE GARDEN.

NIEREMBERGIA RIVULARIS.

A good plant of *Nierembergia rivularis* is a beautiful object in the garden; its cup-like blooms of pearly white are set above the heart-shaped, dark green leaves. It is one of the most lovely of dwarf plants, and where it is happy makes a spreading carpet of growth. Its habitat is the River Plate, whence we have but a few flowers which are truly hardy; there it grows on the muddy river banks. The ideal conditions with us would almost appear to be a rich, sloping bank facing south, with water flowing underneath, so as to be within reach of the roots. These conditions are not easy to secure, especially as a drier medium in winter is advisable. The finest plants I have ever seen were grown in pots and pans set in zinc pails of water, and standing on inverted pots, the water being only at such a level that the base of the pots was immersed about a couple of inches in the water. In late autumn the pots were removed from the pails and placed in a frame for the winter, being brought out again in the spring and subjected to the same treatment as before. Some are fortunate enough to find *N. rivularis* do well on the level in the ordinary soil of their gardens. *S. Arnott.*

TREES AND SHRUBS.

PYRUS LATIFOLIA.

THE above tree is generally known as the Service Tree of Fontainebleau from the fact that it was first found in the Forest of Fontainebleau, in France. It is the most common form in private gardens, but might be more often planted than it is, for it is very handsome in fruit, and seems to bear more regularly than *P. Aria*. The fruits are large, abundant, and orange-coloured when mature. A tree I had under observation for the past two years bore down the branches with the weight of fruit. The tree is regarded as a hybrid between *P. Aria* and *P. terminalis*, yet the seeds are fertile and come true to the parent, for I have seen a self-sown tree in fruit and also much younger seedlings. The tree is somewhat variable, and a form with shorter, broader leaves grows wild in the west of England. Indeed, there are several forms, but I refer to that with the largest and broadest leaves, which suggests the supposed

flourish anywhere in our islands, given reasonable shelter and a soil devoid of lime. What would the Rhododendron Dell at Kew, which affords delight annually to tens of thousands, be if none but natural species were grown there?

It is quite true, as Mr. Magcr has stated, that there are very many places in our country where the choicer species might be grown successfully, and are not; but he is the last person who should disparage hybrids, forasmuch as, if the crossing of natural species be a crime, he himself is deeply dyed in guilt, being the fabricator of a whole crowd of Asiatic cross-breeds!

There is a purpose, too, to which those who prize and can grow the tenderer species can put the showy hybrids. Suppose it be intended to plant a woodland glade with some of the nobler species — *calophyllum*, *Falconeri*, *Griffithianum*, *sino-grande*, or the like—they must be set wide apart, having regard to the dimensions they will one day attain. But it must be many years before they bloom, whereas



FIG. 42.—A SPECIMEN *HYDRANGAEA HORTENSIS* IN A TUB PLUNGED IN A LAWN.

parents. From some source or other this has got into Park Place, Henley-on-Thames. The best situation for trees of this class is on the outside of belts or clumps in parks, because they are of moderate height, and fruit best when fully exposed to light and air. On the contrary, they soon get overtopped when surrounded by tall-growing trees. *J. F.*

RHODODENDRONS.

MR. F. GOMER WATERER's note of warning (p. 70) is a timely one. If, living as I do on the west coast, where most of the Asiatic species introduced in recent years will thrive—if, I say, I have ever spoken disrespectfully of hybrids, let me make amends by acknowledging gratefully the splendid results of the work of Mr. Waterer's firm and other skilful and patient cultivators. If it were possible to revisit Great Britain as it was in the eighteenth century, how one would miss the glow and glitter which they have ensured for early summer in thousands of parks and gardens. I confess to sharing Perdita's strong preference for natural species over hybrids, but that should not blind one to the magnificence of the illicit offspring of *Rhododendron arboreum*, *caucasicum*, *Griffithianum*, etc., which will

the hardy hybrids flower freely in their youth, and will not only illumine the glade with colour, but provide shelter for the species that are set there for permanence, and be cut out when these approach maturity. *Herbert Maxwell, Monreith.*

HYDRANGEAS IN TUBS.

FOR providing floral displays in courtyards, on terraces, and in large bare spaces contiguous to dwellings, tubs and vases filled with various subjects are much used, but of the wide range of plants available for such purposes none is more satisfactory than a large, well-flowered *Hydrangea*, especially where the barrenness of the situation is unduly great. Another position for which such a specimen is supremely suitable is a circumscribed piece of lawn devoid of flower beds. Set in such a spot is the specimen herewith shown (Fig. 42), and it represents one of several so used. The illustration suggests a more natural setting, as distinct from the impression given when *Hydrangeas* are used in association with flagged paving or gravel; moreover, the natural effect is enhanced by the sinking of the tub in the grass. *C. Turner, Amphill Park Gardens*

The Week's Work.

THE ORCHID HOUSES.

By J. T. BARBER, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Vanda, Aërides, and Saccolabium.—Although these old-world Orchids are not seen in many collections at the present time, they are worthy of cultivation, for when in bloom they are delightful objects. Those showing signs of renewed root action may be given attention in such matters as repotting or resurfacing the compost. I do not advocate resurfacing Orchids as a rule, but in repotting these plants there is a danger of breaking many of the thick, fleshy roots when turning the plants out of their receptacles. In the case of well-rooted, healthy specimens it is desirable to renew the compost on the surface after the long resting season. Care should be taken that the drainage is perfect. Plants that have become leggy through the loss of their lower leaves should be reduced by cutting away a portion of the stem. This shortening must be governed by the condition of the roots; for it is not desirable to remove them all. The growths should be fastened securely to neat stakes, sufficiently strong to hold them in position. A suitable compost consists of clean, broken crocks, and live Sphagnum-moss, pressed moderately firmly, for unless the compost is made firm the moss will not grow satisfactorily, and the plants will not thrive. The majority of these plants do best grown in the warmest house, preferably standing on a damp base. *Vanda tricolor*, *V. suavis*, *Aërides crispum*, *A. crassifolium*, and *A. Warneri* do better in a warm, intermediate temperature.

Masdevallia.—Plants that are in need of fresh rooting material may at this season receive attention in this respect. Any of the stronger growing species such as *M. Harryana* and *M. ignea*, that did not receive attention in the autumn may now be dealt with. The strong growing members are best grown in pots; the smaller varieties in shallow pans, suspended well up to the roof-glass. Equal parts peat, Polypodium and *Osmunda* fibres, and Sphagnum-moss, with some broken leaves added form a suitable rooting medium. *M. tovarensis*, with others of the same nature, are amongst those requiring attention at this season, just as they commence to grow. As the roots are incapable of pushing through hard masses of material, the plants should not be potted too firmly. They are best grown at the warmer end of a cool house at all seasons.

THE KITCHEN GARDEN.

By JAMES E. HATHAWAY, Gardener to JOHN BRENNAND, Esq., Baldersby Park, Thirsk, Yorkshire.

Horse Radish.—This useful vegetable does not receive nearly the attention it should, for it is usually planted in some out-of-the-way corner and practically left to take care of itself. The same ground may be continually used for this crop, but it is best to take up half the bed every year, store the thick roots, and select long, straight pieces for replanting. The longer the cuttings are the better will the results be. The ground should be trenched and enriched with well-rotted manure. If of a heavy texture, add such materials as mortar rubble and wood ash to lighten it. Holes should be made 1 ft. apart, and the sets placed in them, with the top end at least 4 in. above the surface.

Chinese Artichokes.—These tubers should now be lifted and stored if this has not been done already, otherwise they will begin to grow again. New beds should be made on ground that has been dug deeply or trenched; the plants do best in open, sandy land. Plant in rows made 18 in. apart and set the tubers 10 in. distant in the

rows. The quickest way of planting is to rake the ground over and insert the sets with a dibbler, about 3 in. deep.

Herbs.—Perennial herbs, such as Mint, Sage and Thyme should be lifted, divided and replanted. A border facing west is best suited for these plants. The ground should be trenched and well manured; heavy land should be lightened by adding wood ash, lime rubble, sand and other material of a gritty nature. Mint, and especially on heavy land, benefits greatly by such materials.

Cucumbers.—Plants raised from seed, as previously advised, are ready for planting out. A hotbed should be made of litter and leaves, and the materials allowed to ferment for a week. The ventilators should be opened sufficiently to allow the rank gases of fermentation to escape. A mixture of good loam, leaf-mould, horse-droppings, wood ash, and mortar rubble forms a suitable rooting medium, and should be placed in mounds 3 to 4 ft. apart, according to the height of the house. The soil should be thoroughly warm before the Cucumbers are planted. Each plant should be carefully staked and tied to the supports. It is not advisable to tie the shoots to the wires for a few days until the bed has finished sinking. A temperature of 70° should be maintained at night; but if the weather is severe 65° will be sufficient, with a day temperature of 75° to 85°, according to the weather. Plenty of atmospheric moisture must be maintained, or red spider will soon make its appearance.

PLANTS UNDER GLASS.

By T. PATMAN, Gardener to Sir C. NALL-CAYN, Bart The Node, Codicote, Welwyn, Hertfordshire.

Seed Sowing.—Seeds of the following subjects may be sown forthwith: *Gloxinia*, *Streptocarpus*, *Browallia speciosa* major, *Begonia*, *Gesnera*, *Saintpaulia ionantha*, and amongst foliage plants *Asparagus medeoloides* (Smilax), *Asparagus plumosus*, and its variety *nanus*; *A. Sprengeri*, *Grevillea*, *Acacia*, and *Eucalyptus*. The soil for raising seed should be made as light as possible, and the receptacles should be clean and dry before filling them with the soil. For raising small seeds I prefer to use 6-inch pots, with ample drainage, to pans or boxes; in my opinion small seed germinate much better in these pots. For *Gloxinias*, *Begonias*, and all small seeds the pots should be filled with soil and watered through a fine rose several hours before sowing the seed, which should be distributed evenly over the surface without any covering of soil. Place a sheet of glass over the receptacles, and shade from bright sunshine; under these conditions no further watering is required until the seeds have germinated. When moisture is needed, the pots should be held in a vessel containing water. Hard-coated seeds, such as those of *Asparagus* and *Acacia*, will germinate more readily if soaked in warm water for twelve hours or more before sowing.

Propagating.—If a suitable house or pit is available where a bottom heat of 70° to 75° may be maintained, cuttings of various subjects will readily take root provided the temperature mentioned is afforded them. The following are all useful for decorative purposes: *Codiaeums* (Crotons), *Cordylines*, *Dracaenas*, *Pandanus Veitchii* and *Abutilons*. Low-growing plants, suitable for carpeting and the covering of pots, such as *Pilea muscosa*, *Panicum*, *Selaginella*, and *Tradescantia* may also be propagated. Grow these plants in small pots of varying sizes adaptable for arranging with other flowers.

Canterbury Bells.—Seedlings of *Campanula Medium* that were potted on in October may now be brought on steadily in a cool greenhouse. These imposing hardy biennials may be had in flower six weeks or more before those growing in the open without forcing them in the least. *Canterbury Bells* are most beautiful plants for the conservatory, as well as being useful for decorating purposes generally.

THE FLOWER GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

Frame Plants.—Keep a close watch on all plants that are being raised in frames for planting in the beds later, and ventilate the frames freely on all suitable days. *Calceolarias* that are being raised in boxes should have the points nipped out, and afterwards potted to encourage the development of side growths to make bushy specimens.

The Shrubbery.—The *Witch Hazel* (*Hamamelis*) and *Winter-sweet* (*Chimonanthus fragrans*) have flowered freely during January and early February, the blossoms being of quaint, yet simple, beauty. They are not large, spreading subjects, and may well be planted in tiny groups of shrubs, where they will flower from November to March, according to the weather conditions and situation. Another beautiful, early-flowering shrub, well deserving of extended cultivation, is *Daphne Mezereum*, and its variety *album*. This year the plants are furnished with a considerable number of flower buds, which, at the time of writing, are just beginning to open, and the plants should prove a wonderful sight until such time as the leaf buds begin to unfold. Work in the shrubberies should now be almost completed, though possibly many climbing subjects and climbing *Roses* still require attention. *Clematis Jackmanii*, and similar kinds, should be attended to now, with a view to removing surplus and worn-out shoots. Care should be taken with this work, as the present view is that disease of the hybrid *Clematis* enters the plants through damaged wood. Climbing and rambling *Roses* should have sufficient of the older growths removed from their bases to permit of room for younger and healthier growths, which will furnish the plants with vigorous flowering shoots. When pruned, tie the growths neatly and securely to their supports.

Antirrhinum.—This plant probably gains in favour year by year as a bedding and border subject, and there are many charming varieties. Autumn-sown plants may be planted out at the end of the present month if the weather conditions are at all favourable, and, with this object in view, the plants should be carefully hardened off, so that they are in a suitable condition when required.

Montbretia.—Every two or three years *Montbretia* should be lifted, and the strongest corms selected to form fresh beds on a new site. The other corms should be discarded as worthless. Three years should be considered the limit for the corms to remain undisturbed by lifting, and thereafter a new position should be selected for them.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

Strawberries.—Where the earliest Strawberry plants in pots are throwing up their flower stems and young leaves are pushing freely, liquid of a slightly stimulating nature may be given more liberally, especially where the pots are five inches in diameter, and filled with busy roots. Many growers are of the opinion that pot Strawberries cannot be over-watered, but this is a mistake, as many plants are completely ruined by becoming water-logged early in the year. Mischief generally proceeds from the opposite cause, and this fact strengthens the belief that even when water is really not wanted, it can do no harm. Experienced growers can tell by the appearance of the plants when the roots need water, which should be given without wetting the crowns. As the plants come into flower they should be placed rather thinly in the lightest part of the house, where fresh air will circulate freely amongst them. In the event of small blooms being numerous, a number of the flowers may be pinched off with great advantage to the others. When the berries are well

set complete the thinning to eight fruits per pot at this early season, and remove the plants to shelves in a vinery or the hottest house at command. Feed the roots freely until the fruits show signs of turning colour, when clear water only should be given, and the supply gradually reduced when the berries are coloured. Succession plants should be placed in light pits, where they can be kept in a temperature of 45° to 50° on mild nights, and a few degrees higher by day, but on no account should they be hurried, therefore admit plenty of air whenever possible without creating cold draughts.

HARDY FRUIT GARDEN.

By H. MARSHAM, Gardener to the EARL OF STRAFFORD, Wrotham Park, Barnet.

Peaches and Nectarines.—These trees may be pruned and the branches regulated to form an evenly balanced head. If the branches and young shoots were given attention last summer in the matters of thinning and disbudding, very little pruning will be needed now. The aim of the pruner should be to furnish the tree with young fruiting wood in all parts, and especially near the main stems, so that there will be ample shoots of a suitable type to take the place of any of the older growths that may be removed. The crowding of young shoots should be guarded against, and although thin training is repeatedly advocated by experts, it does not seem at times to be strictly adhered to. Take care to allow ample room in the shreds and ties for the swelling of the wood, and be mindful not to damage any of the bark with a rap from the hammer when driving in the nails. All sturdy, well matured shoots that are needed should be trained in their full length, but those which are long and unripe may be pruned back to triple buds. Do not use more shreds or ties than are absolutely necessary to hold shoots or branches in position, as this is a waste of time and shreds.

Planting Young Trees.—In preparing the stations for the reception of the roots of fresh trees, remove the old soil to the depth of 2 feet or a little more. See that the drainage is perfect. Use a rich mixture of fibrous loam, old brick mortar, wood ash, and some well-decayed manure for placing about the roots. It is advisable to first cover the drainage with turves placed grass side downwards to prevent the drainage from getting choked with the finer particles of the fresh compost. In planting, keep the stems a few inches from the wall, and do not bury the roots too deeply, but spread them out evenly. A few good varieties are: Peaches, Hale's Early, Rivers' Early York (a fine Peach), Peregine, Dymond, Stirling Castle, Noblesse, Barrington, Bellegarde, Violette Hative, and Sea Eagle. Nectarines: Early Rivers, Lord Napier, Elruge, Pineapple, Humboldt and Milton.

Loganberry.—The main details to observe in the cultivation of the Loganberry are to train the best of the younger shoots in position, to remove the old growths, feed the roots freely and apply a rich dressing of manure more or less, according to the nature of the soil and the strength of growth made annually. The shoots of the Loganberry are very brittle, and great care must be taken in training them in position.

HERBACEOUS BORDERS.

SOME SUGGESTIONS FOR PLANTING.

HARDY herbaceous plants are extremely popular, for there is nothing more beautiful and useful than a well arranged border of hardy herbaceous plants pleasingly grouped. Either a long border similar to the one at Hampton Court or a double border separated by a path, as seen at Petworth Park, is a glorious garden feature practically the whole summer and autumn. Colour schemes are often attempted, but these usually end in disappointment, because the plants used do not flower at the same period.

A fine effect may be obtained with Delphiniums, Phloxes and perennial Asters in quanti-

ties, if bold clumps of each are intermixed throughout the whole length of the border. The result will be a beautiful display of Delphiniums in June and early July, and Phloxes at the end of July and August, while the Asters will carry on the display throughout September and October.

Where space permits and arrangements can be made for separate beds, orange-crimson and yellow flowered plants together make a brilliant effect. Plants of Geum Mrs. Bradshaw, Rudbeckia speciosa (Newmanii), Montbretias, red and scarlet Phloxes, Heleniums Riverton Gem and Riverton Beauty; Solidago Golden Wings, Alstroemerias, Hemerocallis, Kniphofias, Lychnis chalcedonica, Monarda didyma, Rudbeckia Golden Glow, Trollius, Heuchera sanguinea, Centaurea glastifolia, C. macrocephala, Rudbeckia californica, and R. nitida are all suitable for the purpose.

For a cool, partially shaded border a blending

Spark's Variety; Boltonia asteroides and B. decurrens. The above-named plants properly arranged in a suitable position will give a charming effect, and will be found a decided change from the ordinary mixed borders. R. H. Holton, Crawley.

MICHAELMAS DAISIES.

PERENNIAL ASTERS, or, as they are sometimes termed, Starworts, form splendid border subjects by themselves, the plants ranging in height from 2 feet 6 in. to 6 feet 6 in. I strongly advocate the lifting of the plants and dividing them each year for replanting, and the work should be done now. The plants should be placed on one side whilst the border is being prepared for their further reception by deep trenching and the incorporation of well-decayed manure—and protected from frost and drying winds by lightly covering them with spent manure, leaf-mould, or fine cinder ash.



FIG. 43.—*CAMPANULA CARPATICA* IN THE FRONT OF A HERBACEOUS BORDER.

of blue, mauve, pink and purple colours is very delightful. A display of beautiful flowers may be had from May until October with the following selection of plants:—Lupinus polyphyllus, L. roseus, Anchusas Opal and Dropmore, Campanula grandis, C. persicifolia, C. humosa, C. bononiensis, C. carpatica (see Fig. 43), C. glomerata; Delphiniums in variety; Dracocephalum speciosum, D. virginicum, Erigeron saluginosus, E. speciosus, E. grandiflorus, E. g. superbus, and the varieties philadelphicus and Quakeress; Eryngium amethystinum, E. planum, E. Violette, E. Zabellii; Galega Hartlandii, Irises in blue and mauve shades; Linum perenne and L. narbonense, Phloxes Le Mahdi, Iris and Widar; Nepeta Mussinii, Phloxes Elizabeth Campbell, Pantheon and similar shades of pink and mauve; Polemonium Richardsonii; Sidalcea Sussex Beauty, S. Listeri, S. malvaeflora and S. Rosy Gem; Statice latifolia; Veronica longifolia, V. subsessilis, V. scabiuscula, V. spicata, V. s. rosea, and V. s. Royal Blue, together with a good selection of Michaelmas Daisies St. Egwin, Pluto, Climax, Rosy Morn, Feltham Blue, Lil Fardel, Rose Queen, and others of the sections Amellus and Acris; Aconitum Fischeri, A. Napellus, A. japonica, A. pyramidalis, and

This method of soil preparation is of great benefit to the plants, and the ground should be allowed to settle before replanting. When the time arrives for doing this, say towards the middle of March, the old stools should be carefully divided, not chopped apart by a spade, as is often so faultily done, and suitable-sized pieces selected for planting, making the roots firm in the soil. Allow a space of 4 feet between the rows, and 3 feet 6 in. between the plants in the rows. Label them carefully at the time of planting. Later, as growth progresses, the plants should have a number of stakes, usually five, inserted close in around them, but spreading out at the top, and to these the growths should be tied as they make progress and need support.

Where it is desired to increase the stock of a certain variety, this may easily be done at the time of lifting, by potting portions of the new growths and allowing them to root in a cold frame, that should be kept close until the plants are well established. Plants of named varieties may also be raised from cuttings made from the young growths, and by this method very strong growing, single-stemmed plants are obtained in the one season. E. Beckett.

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MR. REGINALD FARRER'S SECOND EXPLORATION IN ASIA *

No. 38.—IN CAMP ON THE MOKU-JI.

HOW true it is that one should never judge a plant prematurely, or when one is in a peevish mood oneself. In a late article I turned down with tant praise a pale Sikkimensid *Primula* of which I managed to find the first opening flowers down on the Chinese side of the Chawchi, at one point only, and there both poor and single-hearted. It was feeble, starved, anaemic—all sorts of bad things. Yet on the Moku-ji this same plant is happy, fat, abundant, waxing proud in enormous tussocks in all damp places, beside rills, and even in the moist cliff-clinks and screes above the torrents. And, in these conditions, it reveals itself as a royalty in the race, no less. Its elegance is inimitable, its profusion of flower-stems beyond praise, and the flowers themselves not only of a fragrance that scents the whole air, but of a moonlit, elfin loveliness that makes me always see them as phantom blossoms in the fields of the dead. They are of a yellow so vanished as to be virtually white under one's eye, and quite white at ten yards' distance. The countless delicate bells of them swing and hang with all the demure daintiness of a Sikkimensid. And when the main shoot is over, up from the centre (in the fatter, stouter specimens) rises a hitherto unsuspected second one, from the centre of the umbel.

Associated with it is F.1187, which I sent with communications last year as the false *Omphalogramma* Delavayi, and have already spoken of this year as such. But I am getting more and more puzzled and unhappy about this, and the relations with F.1053, of which I spoke as the real Delavayi. Now, to forewarn all raisers against disappointment, this is the state of the case. On the top of Hpawshi Bum, among the brakes, there was this one unvarying magnificent *Omphalogramma*, with great, fringed flowers of imperial violet and broadly Violet-shaped leaves. But this was never seen elsewhere in bloom, so that the only seed of which we can be absolutely certain is a pod-ful or two at Edinburgh, off these same Hpawshi plants—though, of course, I still hope and believe that my differentiations between this and the impostor will prove to have been sound elsewhere. The impostor is essentially a wet-ground plant, and, like so many others, is much finer and more abundant here than in the southerly ranges, forming very large masses, and often filling a damp, grassy dell with hundreds, if not thousands, of its flowers out at once. And these flowers have, in a very high degree the *Omphalogramma* quality of enlarging after they open. Last year I had no chance of noting this; but now I find that the little pinched star of pale or glowing amethyst develops, ultimately, on a tall scape, to a big fringed blossom, sometimes approaching to the Hpawshi Bum species in size, but never, in millions of examples, showing the smallest tendency to improve on its own dim red magenta by approaching the Hpawshi Bum plant's sumptuous violet. Of a specific difference I

still remain humbly confident; but what I want to know, and am impatient to hear from Edinburgh, is, which is the real *O. Delavayi*. Considering its wide distribution over these ranges, and its abundance, I should not be surprised to learn that the rightful owner of the name is, after all, F.1187, and that it is Hpawshi Bum's noble F.1053 that is to prove the new species.

But the sordid shades of F.1187 are wiped out by livelier colours on the glades of the Moku-ji. At last I have been blessed with a *Roscoea*. What collector in these countries would be complete without one? Mine, too, is a nice modest one, making no sort of impudent claim to set me on a level with the giants responsible for *R. Humeana* and *R. cauleoides*. Not to put too fine a point upon it, mine is but a secondary plant, more like a big, fat, few-flowered *Orchis maculosa* than anything else. If you want to think of it at its best, imagine a stumpy *R. cauleoides* with flowers of rosy purple. In the same key, but paler and prettier, is a *Pleione* with which I am most heartily pleased. A prettier member of its race there never was; and as it abounds all over the damp granitic boulders and mossy rocks at 11,000 feet elevation I have no doubt whatever of its enjoying our own climate if only I can induce it to make the experiment. But the climax in rose-purples comes from a most entirely (by me) unexpected quarter. It is a *Caltha*, a perfectly plain, ordinary King-cup or Marsh-Marigold, that sets the whole fashion of its tamely at defiance with quite typical ordinary Marsh-Marigold flowers indeed, but of so lively a magenta-rose colour that at first one is always taking them, in the distance, for some large *Primula* of the Lichiangensis persuasion. It is a very fine thing indeed, and bears out my impression as to the extreme localness of this flora's species by seeming only as yet to occur on the Moku-ji Pass, and only on the southerly face, even, of that. But here this beautiful paradox is abundant, in all damp, typical King-cup places, which it even shares, to the possible confusion of the seed-collector, with our humble but old and highly valued friend, *Caltha palustris*, itself.

Nor is even this all that greeted my eyes from the camp. By now I really had believed that the great book of *Rhododendron* must certainly be closed for the year. Yet no; the Moku-ji has yet a speciality of its own in the form of yet another species in that curious and very definite group distinguished by particularly brilliant flowers, and by their remarkable corolloid attachment at the base. We have already had F.1024 (1883), F.1669; here is yet another, a low bush with the leaf-reverse either pure white or ashen, and with waxy bells, more lively in outline than those of F.1669 or F.1683, and in a freely-varying series of flame-vermilion tones. *R. haematodes* and *R. flaccigerum* I do not know, but their ally, the true *R. eucroom*, has no equal base such as distinguishes this closely allied Sino-Burmese association, which seems, therefore, to form a group apart. Their special feature is this corolloid "calyx." This is not really a proper *Rhododendron* calyx at all; when the trumpet falls, the irregularly lobed cup, of similar colour, hangs on for a while, and then comes off in separate tabs, like sepals, on its own account. Traces of this strange additional beauty already begin, as I have pointed out, in *R. aemulorum* (F.815), but in the three species of this season it is an unvarying diagnostic feature.

So that, with the glowing crimson-scarlet bushes of the *Rhododendron* to crown the varied scene, there was no reason to accuse my limited prospect from the Moku-ji camp of dullness; nor to quarry material for further raptures out of such smaller fry as a high-alpine *Clematis* trailing big white Maltese crosses over the bushes up above, and arousing false hopes of a long-hoped-for white high-alpine *Maddenii* *Rhododendron* to match *R. supranubium*, or of a big silver *Edulis* abounding all about in masses, which stands out in my mind from all its kin for English gardens on account of its unique preference for damp and even wet places. *Reginald Farrer*.

AUSTEN ON FRUIT TREES.

A *Treatise of Fruit Trees, etc.*, by R. A. Austen (Oxford, Robinson, 1657, sm. qto., 2nd ed.), contains many interesting matters. In the matter of grafting, like many other old authors, he advises different lengths of graft, according to circumstances, thus: "If the stock be low as near the ground for a standard tree, grafts need be short, three or four buds or but a couple; if for wall trees or a fruit hedge, then long grafts about a quarter of a yard are best."

In budding (p. 51), he states, "cut the bark on both sides of the bud and about a quarter of an inch above and as much below, let that end which is to be downwards be a little sharp that it may more easily go down and throw away the bark on the opposite side of the bud, then with a quill, the one half cut away, a pen of steel (made thin for the purpose, like one half of a goose quill), take off buds and bark, by putting it between the bark and wood; and be sure that the root of the bud be in it, if there be a little hole in the middle of the bud within, then the root is not there, throw away that bud, such will not grow." The interest here centres somewhat on the "steel pen," the introduction of which is often ascribed to a much later date.

In regard to Quinces, we find (p. 60), "Also to inoculate such Quince buds upon old Pear trees, which take better than grafting. But first this must be done, cut off the top or head of a Pear tree (or some of the boughs), and the next summer inoculate the young shoots; I find the buds take well on Pear trees." I have asked many whether they have met with a Pear stock for the Quince, but without any affirmative reply. Austen also grafted the Medlar on the Pear and states that "the fruit will be much better and the trees larger than upon White-thorne."

For manuring fruit trees he endeavoured to get some direct action (p. 71): "So also take a bar of iron (in winter time) and make many holes among their roots and power in Bests blood, washings of beer vessels, fat water or the like; these very much refresh the trees." Canker: "To cure it, cut it out, if it be on the body or great boughs of trees and wash the place with cow dung and urine mixt; and then cover up the place with clay mixed with horse dung, and cut off the small branches that are dead, but withal endeavour to stop the fountain and cause of it (being a sharp and virulent sap) by laying cole ashes, or ashes of burnt wood, nettles, ferns and such like vegetables to the roots, but if the trees grow on gravel ground they will hardly be cured without altering the soil in great measure." The application of dung was in much favour in later times, as in Forsyth's celebrated composition, and besides tending to keep the bark edges moist and protected from the air the bacterial action may have helped to kill off or inhibit the Nectria, just as so many saprophytic bacteria are able to kill off pathogenic sorts of man. Such applications are perhaps worthy of renewed trials. Dealing again with budding and grafting, he asks and answers the question, "What flags are best to bind withall. Those flags are best to use for binding grafts and buds inoculated, which are three square of a brown colour, of a middle size; the biggest are too hollow and spongy, the least are too small and weak; they are to be had from the mat makers at all times of the year, or else they may be cut out of the ditches and dried in summer, and laid up to use as occasion is." The question of identification of the "flags" is of interest, and on consideration it seemed likely that they were obtained from the Burr Reed (*Sparganium*). I put the problem of diagnosis before one of our Botany Professors, and he kindly examined a number of possible "flagges," with the result that he also came to the conclusion that they must be *Sparganium*. It may be noted that *Ballet* in *L'Art de Greffer* gives high encomium to this material, second to which comes the leaf of Typha. It may well be that he was attracted to it from tradition. Anyhow, it is a good material and common enough in some parts of the country, though I have not yet found it close to Hereford. *H. E. Ditcham*.

* The previous articles by Mr. Farrer were published in our issues for June 21, June 28, July 12, August 9, August 23, September 6, September 27, October 18, November 1, November 22, and December 6, 1919; January 3, January 17, February 7, February 28, March 20, April 24, May 29, July 10, July 31, September 4, October 2, December 4, 1920; January 1, January 29, February 19, April 2, April 30, June 4, July 9, August 6, September 24, October 22, November 12, December 3, December 17, 1921, and February 11, 1922.

DEFINITION OF "ISABELLE."

It is encouraging to find that Dr. Durham thinks the correct use of the word Isabelle is desirable, and that he goes straight to his Littré for the meaning of a French word rather than to a French-English dictionary as recommended by Sir Herbert Maxwell. At the best of times a dictionary is a good servant but a bad master; hence the higher the authority the greater the value of the information. It is fair to presume that Sir Herbert really meant that some French-English dictionaries give dove-coloured as one of the meanings of Isabelle, and if dove-coloured means a brown in any shade or variation, there is an end of this question so far as I am concerned, but according to common usage it does not. Following his advice given, I turned up Boyer's, the first French-English dictionary that I always use for old words, and there read: "Isabelle, a light bay. It is also subs.: *Voilà un bel isabelle*, this is a fine isabella colour." Nothing is said in that definition about doves or the colour of them.

Isabelle is not only a French colour name, but a German one, too, and with the slightest deviation in spelling it is also an English and an Italian word used to denote a colour. What the exact shade of that colour is, or, in fact, any other colour, I venture to say is impossible to define by any art of mere verbal description. Some other more effectual means must be employed, as will be shown later.

But we can arrive at something like a general idea by consulting standard authorities. The invaluable "Larousse," like others, gives us the romantic story of Isabella and her vow, which we may dismiss as a mere fairy tale. Fortunately the authenticity of this story is a thing apart from the definition of the colour, and, true or false, does not affect the question. Larousse tells us that Isabelle is *café au lait* colour—very explicit, no doubt, if one knows precisely what quantity of "lait" is put into the "café."

As we are considering the word as a French one we must go to Littré. He gives a most copious account of it. Dr. Durham has condensed the definition rather severely, or perhaps it would be better to say he has omitted to quote all the most forceful examples of the use of the word, that appear to bear upon the case. A very material omission on Dr. Durham's part is that of Sect. 3. "Isabelle," says Littré, quoting a passage from the memoirs of the great Cardinal de Retz, "is to-day what we call *ventre de biche*." There is not much dove-colour about that. The great French lexicographer evidently paid scant attention to the Ostend siege story, for he dismisses it thus—*rien ne garantit cette historiette*.

Now as an English word, Isabelle can be found in many of our dictionaries, and is entitled to be considered such, particularly when it can be proved historically to have been in use for more than three centuries, as we shall see when we come to deal with another authority. But, firstly, let us turn to Dr. Brewer, who in his *Reader's Handbook* speaks of Isabella or Isabelle in these terms: "A pale brown colour or buff, similar to that of a hare." He, too, relates the story of its origin. The same writer in his *Dictionary of Phrase and Fable* states: "Isabelle, the colour so-called is the yellow of soiled calico. A yellow dun horse is called in France *un cheval isabelle*, or, as we English term it, especially in connection with those horses used to draw the royal carriages in processions, cream-coloured."

Without unduly multiplying examples, Ogilvie and Annandale's *Student's English Dictionary* has this entry: "Isabel, Isabella. French Isabelle said to be fr. for a queen or princess of this name. A pale brownish yellow colour." The popular Nuttall includes it, and states: "Isabel, a brownish yellow colour, so-called from the colour of the linen of Isabella of Spain."

Now comes a very severe blow to the authenticity of the romantic story which is currently supposed to have given rise to the use of the name as a colour. In the *Oxford Dictionary*,

Vol. V., p. 499, there is, in a way similar to that adopted by Littré, not only a definition following each word given, but also examples of its use, with dates and references to the works from which those examples are taken. Quoting from Webster under Isabel, it gives: "Isabel yellow is a brownish-yellow with a shade of brownish red," while Isabella is described as "greyish yellow, light buff." Then follows the oft-repeated story about Isabella's vow. The first example given of the use of this word in English absolutely demolishes the authenticity of its derivation. The siege of Ostend lasted from 1601 to 1604, prior to which latter date the colour name Isabelle is not supposed to have been in existence. Yet it was, notwithstanding. A quotation, dated 1600, shows

In pomology Isabelle or Isabella is probably no longer in use. And yet the great French gardener, La Quintinie, used it to describe the colour of a Pear. In his *Instructions pour les Jardins*, Vol. I., 1700, p. 354, we read: "*La Poire Rousselin . . . son coloris est d'un Isabel fort clair*," and again on p. 356, "*Poire Chat . . . le coloris est d'un Isabele fort clair, et beaucoup plus que l'Isabele ordinaire de Chat brûlé*."

That this term was not unknown in English at that period finds confirmation in London and Wise's translation of La Quintinie's work, *The Complete Gardener*, 1704, where it is used in the form Isabella in both cases. May I be permitted to inquire were these dove-coloured Pears?

After all, readers can even now have only a



FIG. 44.—MILTONIA LORD LAMBOURNE. R.H.S. FIRST-CLASS CERTIFICATE AND SILVER-GILT FLORA MEDAL, FEBRUARY 14. SHOWN AND RAISED BY MESSRS. CHARLESWORTH AND CO. (SEE P. 83).

that the term was already in use in English; for in an Inventory of Queen Elizabeth's wardrobe item 505 was "one rounde gowne of Isabella colour satten . . . set with silver spangles." So much for the romantic story.

Isabelle, in German, means light bay or cream-coloured for a horse. *Isabellen farbe*, a yellow dun, or cream colour.

In Italian, Isabella is also used as a colour name for dun or bay, and in none of these notices can any reference be found to dove-colour, no matter what the compilers of some French-English dictionaries may have added to the old signification. Although Isabella is a Spanish proper name, it is curious that it does not appear to serve the purpose of a colour name in that language, the nearest equivalent being *bayo*,

vague, and each one probably a different, notion of the exact shade of bay, *café au lait*, pale brown, buff, brownish yellow, dun, or cream-colour, that the above-named writers intended to convey by the use or definition of Isabelle. The proper force of words lies not so much in the words or names themselves as in their application and in the ideas that they convey. And this want of correspondence of the colours themselves with their verbal descriptions is the very reason why a standard colour chart for florists and others was devised some years ago by the French Chrysanthemum Society. Let the reader turn to the *Répertoire de Couleurs*, find plate 309, entitled Isabelle, and there he will at once have ocular demonstration of what that colour is in four different tones. C. Harman Payne.

ORCHID NOTES AND GLEANINGS.

CEPHALANTHERA RUBRA (RICH.) IN BRITAIN.

Your valued and able correspondent, Mr. A. D. Webster, recently drew my attention in your pages (p. 10) to that excellent account of West Ross Natural History by Mr. Osgood Mackenzie. He stated that there is a record of the above plant in it, but I think there is no doubt some other species of Orchid was mistaken for this very local plant.

apparently considered that any narrow-leaved plant with a fibrous root was his longifolia. This led to Haller publishing an elaborate paper on the Orchids professedly to correct his errors. In the later editions of the *Systema Linnaeus* adopted many of Haller's suggestions.

C. rubra was first made known as British in 1797, when it was published as *Serapis rubra* in *Sm. Eng. Bot.*, t. 437, having been gathered in "last June on Hampton Common, Gloucestershire, by Mrs. Smith, of Barnham House." In a letter to Sowerby the Rev. W. Lloyd Baker, however, says he found it some

nomenclature, which they have rather confounded than improved."

In more recent times *Cephalanthera rubra*, to use the authentic name as defined by the French botanist Richard, who established the genus *Cephalanthera* as distinct from *Helleborine*, had been recorded from South Somersetshire by Collins in 1835 (a solitary specimen), but no one else has verified it, and I am not aware if anyone has seen the specimen, and certainly no one has recorded it again. Watson (*Top. Bot.*, 386) gives with a query "Hunts., Mr. Woodward." No one else has found it in that county, and the plant was doubtless a form of *Helleborine*. Watson also brackets York Mid-West, of which no trustworthy record exists. We must say the same of the West Ross-shire record. In more recent times my friend Mr. T. W. Attenborough tells me he has an impression of seeing it near Wye, in Kent—a much more likely locality, and Mr. A. D. Webster seems confident he has seen it near High Elms in that county; but I still await a Kentish specimen. Gloucestershire is still the only British county known to produce it.

The *Helleborines* have occasionally red or reddish flowers, and I feel pretty sure that some of the above records refer to these and not to *Cephalanthera*. I may add that the figure in *Eng. Bot.*, t. 437, and the new plate in *Syme's Eng. Bot.*, t. 1483, are, neither of them, good since they show the flower closed, so I send a photograph (Fig. 45) of a specimen I gathered near Stroud some years ago, which may assist in its correct identification, and by drawing attention to the matter may result in its discovery in another county. I should add that the curvature of the stem in the photograph is not natural, but was caused by its being put in a tin to bring home. *G. Claridge Druce, LL.D.*



FIG. 45.—CEPHALANTHERA RUBRA.

There has been great confusion in Britain respecting the above species, and that is in some measure due to the perplexing changes which the name of the plant has undergone. The plant has long been known on the Continent, although Linnaeus is at his very worst in describing the section to which it belongs: indeed, he has jumbled the Marsh, the Red, and the White *Helleborines* together under one species! He

years ago. Smith (*English Flora*, iv., 46, 1824) gives it another name and calls it *Epipactis rubra*, and he uses some words which are quite applicable to-day and may be worth quoting: "Old authors, indeed, are so full of mistakes respecting [the synonyms] that the greatest attention is requisite to understand what they mean, and they often misunderstand each other. Recent writers have not been more happy as to

NEW HYBRIDS
(Continued from February 4 page 51.)

Name.	Parentage.	Exhibitor.
Odontioda Saga ...	Oda Elissa × O. Doris magnificum ...	Charlesworth.
Odontioda Selene ...	O. Louise × Oda Cooksoniae ...	Charlesworth.
Odontioda Sheila ...	O. Aireworth × Oda Chantier ...	Charlesworth.
Odontioda Syria ...	Oda Joan × O. Kilburneanum ...	Charlesworth.
Odontioda Tacita ...	O. illustrissimum × Oda Royal Gem ...	Charlesworth.
Odontioda Thalia ...	Schroderi × Lambearianum ...	Charlesworth.
Odontioda Thelma ...	O. Dora × Oda Wilsoni ...	Charlesworth.
Odontioda Theresa ...	Oda Dora × Oda Coronation ...	Charlesworth.
Odontioda Thiasa ...	Oda Brewii × O. Aglaon majesticum ...	Charlesworth.
Odontioda Valeria ...	O. Jasper × Oda Cooksoniae ...	Charlesworth.
Odontioda Vera ...	O. Elissa × Oda Joan ...	Charlesworth.
Odontioda Vesta ...	Oda Charlesworthii × O. Prince Albert ...	Charlesworth.
Odontioda Zarina ...	O. crispo-Harryanum × Oda Chantier ...	Charlesworth.
Odontioda Zillah ...	O. Jasper × Oda Diana ...	Charlesworth.
Odontoglossum Asta ...	Dreadnought × Jasper ...	A. Hammer, Esq.
Odontoglossum Camden ...	Lambardeanum × regale ...	E. R. Ashton, Esq.
Odontoglossum Croesus ...	harvengtense × Fascinator ...	Sanders.
Odontoglossum Melpomene ...	Aglaon × Prince Albert ...	Charlesworth.
Odontoglossum Mosaic ...	formosum × ardentissimum ...	Sanders.
Odontoglossum rubescens ...	Rosii rubescens × majesticum ...	P. Smith, Esq.
Odontoglossum Senlac ...	Jasper × Lambearianum ...	Charlesworth.
Odontoglossum Serapis ...	eximium × Dusky Monarch ...	Charlesworth.
Odontoglossum Tagus ...	Othello × Doris magnificum ...	Charlesworth.
Odontoglossum Terentia ...	Maillardianum × illustrissimum ...	Charlesworth.
Odontoglossum Venada ...	crispo-Harryanum × Aglaon ...	Charlesworth.
Odontoglossum Watsonii ...	Aireworth × Maillardianum ...	Charlesworth.
Odontonia ardens ...	Odontonia Louise × O. amabile splendens ...	Charlesworth.
Odontonia Bleu-ardent ...	M. Bleuana × O. ardentissimum ...	Charlesworth.
Odontonia Eurydice ...	" × O. Aireworth ...	Charlesworth.
Odontonia Leila ...	" × O. Promerens ...	Charlesworth.
Odontonia Milly ...	" × O. perculum ...	Charlesworth.
Odontonia Myra ...	O. Ashworthianum × M. Charlesworthii ...	Charlesworth.
Odontonia Olivia ...	M. Bleuana × O. triumphans Charlesworthii ...	Charlesworth.
Odontonia Pierre Chollet ...	Odontonia brugensis × M. vexillaria ...	Sanders.
Odontonia Sheila ...	M. Bleuana × O. Lambearianum ...	Charlesworth.
Odontonia Stella ...	O. Ashworthianum × M. Bleuana, fine variety ...	Charlesworth.
Odontonia Thisbe ...	M. Bleuana × O. crispum xanthotes ...	Charlesworth.
Odontonia Verona ...	M. Bleuana × O. Rolfeae ...	Charlesworth.
Oncidioda Miget ...	Oncidium anthoecore × C. Noezliana ...	Sanders.
Sopbro-Cattleya Eleanor ...	C. Fabia × S. grandiflora ...	Sir J. Colman.
Sopbro-Laelio-Cattleya blatcheyensis ...	C. Fabia × S.-L. Marriottiana ...	Sir H. S. Leon.
Sopbro-Laelio-Cattleya Una ...	L.-C. Geo. Woodhams × S.-L.-C. Nestor ...	Stuart Low.
Sopbro-Laelio-Cattleya Phyllis ...	C. Tityus × S. grandiflora ...	Flory & Black.

JEWEL ORCHIDS.

ANOECTOCHILUS and the allied genera *Macodes*, *Haemaria*, and *Goodyera* are known as Jewel Orchids, and are grown for their beautifully marked foliage. They are small growing plants, and take up but little space in the plant houses. They may be grown in small pots or planted in a fairly deep Orchid pan, filled half its depth with drainage material. If the latter is chosen, several plants should be plunged in a pan eight or ten inches in diameter and then covered with a bell-glass. The compost for these Orchids should consist of Sphagnum-moss and a little peat fibre, with a few pieces of charcoal intermixed. They should be grown in a shaded, moist part of a warm house. *B.*

MESEMBRYANTHEMUM AND SOME NEW GENERA SEPARATED FROM IT.

(Continued from page 80.)

Argyroderma, N.E. Br.

STEMLESS succulent plants. Each plant or growth with two or (when a new pair is forming) four (rarely six) short, thick, ascending-spreading leaves, united for about half their length at the base, flat above, very convex on the back, and sometimes with the dorsal part prolonged beyond the flat face and very obtusely rounded; with or without a faint keel; very firm or hard in substance, with a very smooth white or greenish-white (or rarely rosy-tinted) skin, without dots or markings. Calyx produced above the ovary into a short tube, 6-lobed. Petals numerous, free. Stamens very numerous, erect, arranged in a dense ring at the base of the petals. Stigma sessile on the top of the ovary, circular, entire or faintly crenate. Ovary inferior, 10-24 celled. Capsule 10-24 valved. Seeds numerous in each cell.

This genus is distinguished from all its allies by its sessile entire stigma, and the very smooth white skin of the short broad leaves, the latter characters serving to distinguish these plants at a glance when out of flower. The generic name is derived from the words *argyros*, silver, and *derma*, skin.

Berger associates the type of this genus (*A. testiculare*) with *Mesembryanthemum Bolusii*, but in the nature of the leaves and structure

of the flowers the two plants are entirely different.

The species of this genus are easy to discriminate at sight when seen growing together, yet I find it very difficult to define them in words so that they can be determined from description, especially as I have seen flowers of only two species. They are not difficult to cultivate if properly attended to and not overwatered. Like most of their allies they attempt to grow and flower between October and March, which is their summer season in their native country; during this period the rainfall of that region takes place, so that under cultivation it is necessary to give them just sufficient water to enable them to develop their flowers and new growth during that period. At the same time their roots should be kept fairly warm, for in their native country the ground gets much heated during the day and keeps them from being harmed by the rain. A cold, moist soil does not suit these plants. The following are all the species known to me. For brevity in the synonymy the letter M is used to indicate the genus *Mesembryanthemum*.

* Leaf from nearly as broad as, to broader than long, white, with the edge of the flat face sharp and outlined by a very slender, slightly raised line or ridge that is not cartilaginous.

1. *A. testiculare*, N.E. Br. Plant usually of only a single growth. Leaves with the flat face $\frac{3}{4}$ -lin. long, $\frac{3}{4}$ -1 $\frac{1}{2}$ in. broad, and $\frac{1}{2}$ -lin. thick, broadly ovate or somewhat oblong, pointed like a Gothic arch or broadly rounded at the apex, with the dorsal part often prolonged beyond that apex. Flower sessile between the leaves, with two bracts under it. Calyx-lobes 2-3 $\frac{1}{2}$ lines long, deltoid-ovate, obtuse. Corolla 1-2in. in diameter; petals numerous in about 4 series, white or whitish. Stamens in a dense ring, with yellow anthers. Top of the ovary flat. Stigma 1 $\frac{1}{2}$ -2 lines in diameter, circular or elliptic, concave, entire or faintly crenate. Capsule 6-7 lines in diameter, flattish or very slightly convex on the top, 12-24-valved and 12-24 celled.

M. testiculare, Ait. *Hort. Kew*, ed. 1, v. 2, p. 181 (1789); *Haw. Rev.* p. 85.

Var. *luteum*, N.E. Br. Petals bright yellow. *M. testiculare* β , Sims in *Bot. Mag.* t. 1573. *M. octophyllum*, Verlot in *Rev. Hort.* 1869, p. 35, f. 10, copied from *Bot. Mag.* (This is not *M. octophyllum*, *Haw.*, although quoted as such by him, but wrongly.)

Var. *roseum*, N.E. Br. Petals bright magenta-purple. *M. testiculatum*, Jacq. *Fragm.* p. 20, no. 73, t. 12, f. 2. *M. octophyllum* var. *roseum*, *Haw. Rev.* p. 85.

Var. *Pearsonii*, N.E. Br. Flower with a distinct pedicel up to about $\frac{3}{4}$ in. long. Corolla with the outer petals magenta-purple and the inner ochraceous yellow more or less striped with purple. *M. Pearsonii*, N.E. Br. in *Kew Bull.* 1912, p. 277, and *Bot. Mag.* t. 8463.

A native of Van Rhynsdorp Division; originally introduced by Masson, who discovered it in company with Thunberg, whose type specimen I have seen. This species offers an excellent example of the manner in which some of these plants vary in the colour of their flowers, as stated on p. 290 of vol. LXX. Dr. Rodier Heath has raised from seeds taken out of one capsule some plants with yellowish-white, others with yellow, and others with purple flowers. I now think it probable that the variety *Pearsonii* may be a hybrid between a purple-flowered and a yellow-flowered form. Its flower is exceedingly beautiful.

2. *A. subalbum*, N.E. Br. Plant tufted with age. Leaves with the flat face 2 $\frac{1}{2}$ -7 lines long, 4-8 lines broad, and 3-5 lines thick, broadly ovate in outline, obtusely pointed or circularly rounded, the dorsal part not produced beyond the flat face, obtusely rounded, faintly keeled. Flowers not seen. Capsule 4 lines in diameter, convex at the top, 10-valved and 10-celled. *M. subalbum*, N.E. Br. in *Journ. Linn. Soc. Bot.* v. 45, p. 91.

Van Rhynsdorp Division: Near Bakhuis, Pillans, 5476; Hardeveld, Marloth.

A much smaller species than *A. testiculare*, but very similar to seedling specimens of that species. It becomes tufted with age, and has a smaller and more convex capsule than *A. testiculare*. It has not yet flowered with me. *N. E. Brown*.

(To be continued.)

NURSERY NOTES.

PROGRESS IN PRIMULAS.

It is practically impossible for anyone who has not visited Messrs. Sutton and Sons' Reading establishment regularly for at least a dozen years in succession to fully appreciate the wonderful progress this firm has made in the development of greenhouse Primulas. If an annual inspection has been made for a period of twenty-five years, then the appreciation becomes all the greater, because memory will call to mind the habit, form and colour of the Primulas of those earlier days, and enable comparisons to be made between them and the delightful varieties now offered by the Reading firm.

These latter provided a feast of floral beauty during January and early February that it is difficult to imagine could be surpassed in any

law. Consequently, scientists are intrigued, and progress in Primulas is as fascinating to them as to the gardener, who is more concerned with the result rather than with the manner and method of its achievement.

So careful are the records kept at Reading that if certain Primulas were lost they could easily be produced again provided the parents survive. A most interesting part of the display at Reading this year consisted of sets of parents and seedlings, the latter in the F₁ and F₂ generations. In certain cases the Mendelian ratio was obviously correct; in others it could not be worked out. Again, the special seedlings and selections which will form the basis of future progress in colour were of immense interest, and, perchance, the results of crossing with mixed pollen not the least so. In some of these seedlings the colours were exquisite, especially those of rich pink, crimson and scarlet shades, whilst the arrangement of the colours—picotee edging, blotching, starring



FIG. 46.—PRIMULA SILVER STAR; A PURE WHITE, EYELESS VARIETY.

other establishment in the United Kingdom. Thirty-five thousand plants, each a model of skilful cultivation, mostly in 48 sized pots, and all massed in distinct varieties, arrest attention by means of their beauty and usefulness for home and conservatory decoration. But the appeal is equally to the mind as to the eye, for this wonderful display is not provided for the pleasure it gives the proprietors and visitors, nor for the opportunity it affords Mr. James of showing what a clever successor he is to Mr. James Martin and Mr. J. McDonald, both of whom took a prominent share in the painstaking work, and made the Reading Primulas progressively beautiful over a long series of years. These thousands of plants are grown to provide seeds for customers.

The scientific work carried out by Messrs. Sutton and Sons among greenhouse Primulas is well known to students of Mendelism, because the children of these highly bred descendants of *Primula sinensis* do not always obey Mendel's

and flaming—in certain seedlings, suggests at once that finality has not been reached, and that if quaint colour combinations are desired by the flower-loving public, Messrs. Sutton and Sons have the material already to hand to meet it.

Regarding the Primulas catalogued by Messrs. Sutton and Sons, it is commonly known that they group themselves naturally into Florists', Giant, and Star varieties. Where all are so fine personal taste must always be the final selecting factor, but for ourselves we find no difficulty in choosing Giant Pink, Giant Royal White and Giant Scarlet in the superb Giant section; Coral Pink, The Duchess, the new Etna, The Czar (violet blue), Crimson King, Reading Scarlet and Royal White among the Florists' group; and Coral Pink, Silver Star (Fig. 46), Ruby Star, and White Star in the Stellata group; but we fail to decide whether Light Blue or Dark Blue is the better of the two blue sorts, so they must have equal praise.

VEGETABLES.

MAIN CROP PEAS.

THE period over which seeds of Peas may be sown to obtain pods for successional use is very lengthy as compared with that of most other kitchen garden crops, and may be said to extend from the end of February to June, and even July in some cases.

Whether dwarf, medium, or tall varieties are grown, they require identical treatment as regards the preparation of the ground. Shallow or, as they are sometimes termed, hot soils should be dug as deeply as the nature of the sub-soil will permit, and manure should be freely mixed with both spits. Deeper, naturally retentive soils will grow Peas well without being trenched; in fact, more rows of Peas are spoilt owing to the rooting medium being too retentive of moisture than from any other cause. The roots of culinary Peas are by no means robust, and when they enter a cold, wet sub-soil many of them perish, or become knotted and incapable of performing their functions. Early trenching of the soil may be necessary to ensure the pulverisation of the surface, but if the work is done in fine weather just prior to sowing the seed, and the surface trampled firmly at the time of sowing the seed, the result will be much more satisfactory. In any case trenching alone will not guarantee a healthy growth in very hot weather, and nothing but anticipating dryness at the roots and well moistening the soil to a good depth will prevent a great check being given. Nor do I believe in the plan of digging narrow trenches and filling them with manure. If manure and labour are scarce, then concentrate the former, but not in trenches. Instead of this, double dig the proposed site of the row to a width of 3 ft., and well trample the ground prior to sowing the seed; allow ample space between the rows, which should run north and south. Growing another crop, such as Potatoes, between the rows of Peas, is better than arranging the latter closely together with an idea of economising space.

In any case, the rows should be arranged as far apart as the varieties are known to attain in height. It is not easy to state the exact distances apart at which to sow the seed in the drills, so much depending on the habit of the variety, some branching more strongly than others. Many of the main crop varieties are of spreading habit, and if sown thickly in the rows, the plants produce a light crop, which is soon over. Such sorts should be sown 6 in. apart. The drill should be made fairly wide, and 3 in. or 4 in. deep, and the seed covered with not less than 2 in. of fine mould. Coating the seed with red lead is the surest preventive against mice eating them.

As soon as the plants are through the soil, give them a dusting of newly slaked lime, and afterwards sprinkle each side of the row with soot. These materials will ward off snails and birds, and at the same time act as fertilisers.

Staking requires a little practice to be done well, yet so small an amount of judgment and care is usually bestowed on this work, that before the haulm is half as high as the sticks, it is through on one side and falling over, so that the sticks are of but little use. Small boughs should be placed on each side of the row to support the young plants until the tendrils are strong enough to take hold of the larger stakes. Nor should the final staking be delayed until the plants have fallen about. Better use stakes that are too tall than not tall enough; they need not be very thick, and should not meet at the top, so that there may be plenty of room for the foliage as it grows larger. When staking is finished, fork up the ground on each side of the row, and give another dusting of lime. When the pods commence to swell they will be greatly improved, both in size and fulness, by the application of liquid manure to the roots when the soil is moist and also by thinning the pods and stopping the plant at its growing point as soon as the setting of the pods commences. The rows should also be mulched, where necessary, with manure or other material to check evaporation.

A mixture of one part kainit, two parts nitrate of soda, and four parts superphosphate of lime,

applied at the rate of 6 lb. or 7 lb. to the square rod when the plants are about nine inches high, favours the development of vigorous, healthy growth, which is not very susceptible to attacks by either insect or fungous pests. The mixture should be applied during periods of heavy rain. Those who do not use this special mixture may stimulate the plants with native guano or one of the recognised fertilisers—Thompson's or Clay's, for example. Such stimulants as liquid manure from stables and cowsheds, or that made by immersing soot and manure in tubs or tanks, are also highly beneficial if applied near the roots after the flowers have set; and they greatly assist in improving the plant's growth of both haulm and pods. Soft water, or water which has been exposed to the air for some time, should only be used, as hard, cold water arrests free growth, and in the case of Peas renders them susceptible to attacks of mildew, which seems impossible to cure when once it has attacked the plants.

There are few vegetables that differ so much constitutionally as the different varieties of Peas, and those only should be grown to any extent which by experience have proved to be best suited for the grower's particular district. In giving a list of the best varieties, I do not for one moment pretend to name those only which are worthy of cultivation, or that will succeed best in every county, but simply those which I have proved to be of exceptional merit, and which seldom fail when properly grown. High quality is, in my opinion, the most essential point in this vegetable, and those enumerated below are some of the finest maincrop varieties:

Selected Duke of Albany, Quite Content (one of the best sorts, and I have never known it to fail), Peerless, Centenary, Perfection, and Alderman. Successional sowings should be made—planting one or two rows at a time about every fortnight up to the middle of June; or the old rule followed of waiting until one sowing is just through the soil before making another may be adopted. *James A. Paice.*

FRUIT REGISTER.

THE ORIGIN OF THE PINE STRAWBERRY.

MR. RICHARDSON in his article on the Strawberry (p. 57) speaks of the origin of the Pine Strawberry as being unrecorded. It is, however, very definitely stated by Duchesne in his *Historie Naturelle des Fraisiers* as coming from seeds of the Chili variety as first brought to France and planted at Cherbourg. The following are his exact words:—

Les graines des Frautilles envoyées de Cherbourg en 1760 et Semées, tant dans notre Jardin, qu'à Trianon et au jardin du Roi, y ont produit de véritables Ananas. Nous venons de l'observer dans leurs premiers fleurs, qui sont hermaphrodites parfaites. Cela nous apprend l'origine du Fraisier Ananas; et quelle est la dégénération du Frautiller en Europe.

Frautilles, it should be said, was the name given to *Fragaria chiloensis* when first imported into France, from *frutilla*, a Spanish word meaning a little fruit.

This information is to be found at the end of Duchesne's book, in an appendix, which may account for it having been overlooked by Strawberry historians. *E. A. Bunyard, Maidstone.*

APPLE ST. EDMUND'S RUSSET.

HAVING known and grown this variety of Apple for a number of years I can fully endorse the remarks of your correspondent, Mr. G. M. Taylor, on p. 46.

This Apple was first brought to my notice by my old friend, Mr. H. French, who was at the time in charge of the gardens at Forthampton Court, Tewkesbury, Gloucestershire.

In the autumn of 1914 I procured some espalier trained trees of this variety from Messrs. Wheeler and Sons, Gloucester. These were planted at Moreton House, near Dorchester. The soil in that district is light and sandy, but the trees have never failed to carry a crop of good, clean fruits, which are just the right size for dessert purposes. My employer (who is very keen on a really good Apple) asked me

on one day early in October what kind I was bringing in for dessert at that time. When I told him it was St. Edmund's Russet he remarked: "What a splendid flavour. I wish for nothing better." I always recommend this variety to those contemplating planting Apple trees and should not hesitate to include St. Edmund's Russet in the most select collection. *F. C. Tribble, Stowell Park Gardens, Foss Bridge, Gloucestershire.*

APPLE ORLEANS REINETTE.

YOUR correspondent, Mr. G. J. Warren, is quite right in his statement (p. 23) that Orleans Reinette has also been known as Court Pendu de Tournai. There seems, however, no evidence to connect it with Tournai. The matter is fully discussed in Leroy's *Dictionnaire de Pomologie*. *E. A. Bunyard.*

APPLE CALVILLE BLANC.

(See pp. 11, 47.)

CALVILLE, according to Littré, is a masculine substantive (e.g., voilà du beau Calville), and means a kind of Apple; he, however, states that some lexicographers make it feminine. The authoritative spellings may be considered to be those of the Soc. Nat. d'Hort. de France and of the Soc. Pomologique de France; the former (*Meilleurs fruits*, etc., 1907) gives the feminine form as a synonym; the latter (*Cat. descript.*, 1906) does not even mention it.

Among synonyms there also appears to be confusion in German, for both Weisser Winter Calvill and Weiss Winter Calville are given. Leroy only gives the feminine form as a synonym; he maintained that the correct spelling should be Calleville, a place name in Normandy, whence he derives the origin of the term; but his spelling does not seem to have met with favour. Some authors, e.g., Mas, give the feminine form.

A similar state of things exists among Pears; for instance, with Doyenné, which is masculine; hence "un doynenné d'hiver, du Comice," etc., are correct; but if the full academic or pedantic expression is used, the terms become "une poire de doynenné d'hiver, du Comice," etc. *H. E. Durham.*

APPLE COURT-PENDU PLAT.

THE name of this Apple appears to have suffered confusion, and what is known in this country under the name is, apparently, the Capendu, or "Court-Pendu rouge," chiefly a cider Apple, which is all that it is fit for, except, perhaps, for drying, when cored and peeled, to make "Normandy pippins." The French authoritative societies make the term the proper synonym of the Court-Pendu gris, which is described as having little, if any, red about it. *H. E. Durham.*

RUSSET APPLES.

THERE is no doubt, as *Pomona* mentions in the issue of this journal for Dec. 31 (p. 337), that the russet varieties include some of the best-flavoured of our Apples, whilst in several cases the habit of the tree and the cropping qualities are all that could be desired. This being so, it is a pity that the public are not prepared to pay a fair price for russet Apples, so that they might be worth growing for market. It is the old story of bright colour being worth more in a market Apple than flavour. We are said to be badly in need of a good variety to follow Cox's Orange Pippin, and we have it in several of the russets, if only the public would forgive the dull appearance. Curiously enough, the Canadian Golden Russet sells freely enough; but the fact remains that attempts to market English russets are not encouraging.

I am thinking particularly of Duke of Devonshire, which is not included in *Pomona's* list, and is possibly not a true russet. A fine tree of this variety in my garden gives me the nicest Apples I can find to eat at Christmas and after. It crops well and regularly, makes a big tree, and is perfectly healthy. Nothing better for market culture could be desired, if only one could be sure that the fruit would realise the price which its high quality deserves. *Market Grower.*

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Gloxinias.—All plant-lovers will have read with interest the very instructive articles by Mr. John Heal on the Gloxinia in your issue of January 7. The Gloxinia deserves all the praise he gives it as a decorative plant, and it is a pity that the plant cannot (owing to its requiring a relatively high temperature and moist atmosphere) become a plant "for the million." As an ornament for the conservatory its weak point is its foliage, which is in most cases not very attractive and easily broken or injured. With a view to remedying this defect, Mr. Ernst Benary, of Erfurt, some years before the war, did a good deal of hybridising between the finest types of Gloxinia and a species of *Sinningia* (or *Gloxinia*) introduced from Brazil, the specific name of which has escaped me. The flowers of this species were small and drooping, but the foliage was handsome, being of a deep purple with silvery veins. The object was to combine the best Gloxinia flowers with ornamental and stronger (tougher) foliage. The seedlings from these crosses gave all sorts of results, mostly inferior, but amongst them were some good plants, notably one with erect, bright purple flowers and handsome, dark, silver-veined leaves, which would withstand a considerable amount of handling. I do not know what further measure of success Mr. Benary achieved, but I see he offers seed of these hybrids in this year's catalogue as "*Gloxinia* (or *Sinningia*) *Regina* hybrids or *Imperial Gloxinia*," and lovers of this beautiful genus would do well to give them a trial. *L. S. A., Richmond.*

Begonia martiana gracilis as a Bedding Plant.

—Mr. G. Horne, on p. 56, having referred to the bulbils of this plant, recommends it with great justification for the decoration of the conservatory. The bulbils of this species I had quite forgotten when I replied to the inquiry of *Coombe*. There is no other *Begonia* that produces so many bulbils, but they are small, while those of *B. Evansiana* are large and comparatively few. To this I need not refer, but as an ornamental plant I should point out that it is a lovely and uncommon-looking subject for a bed. It has the disadvantage, however, of not being propagated easily, like the majority of ordinary bedding plants. There was a very charming bed of it one year in the Cambridge Botanic Garden, and there may not be great difficulty with it if proper attention can be devoted to it. *Begonia martiana*, according to the *Kew Handlist* of *Tender Dicotyledons*, is a synonym of *B. gracilis*. *B. martiana gracilis* is, I expect, merely a garden name. I have known a *B. martiana* (without the *gracilis*) much weaker in habit, said to be hardy, at Tregoney, in Cornwall. *R. Irwin Lynch.*

Are Plants Aware of Time? (see pp. 31, 47).

In answer to Mr. Diver's query as to what is a klinostat, it may be described as a clock-work arrangement in connection with a mechanism for revolving the subject under experiment, or for altering its position with relation to the earth or to light, at intervals of time determined on. An account of its use and some of the experiments performed by its aid will be found in any good modern work on plant physiology. It is a somewhat expensive apparatus, and I suggest to Mr. Diver that he can get a result without its use in the Dandelion stem experiment to which I referred, if only he can find time to devote to it. I would suggest that he select a vigorous Dandelion stalk nearly, but not quite, fully grown; let the lower end be wrapped in wet moss, and lay it flat on the table. When the stalk has turned up in its attempt to assume the vertical, he should note the time. This done, place it on the edge of the table or on the edge of a box, with the tip pointing downwards. Note the time, and, when it again

turns upwards, observe how long it has taken to turn from one position to the other. At this interval now indicated, keep the stem turned, as by the klinostat, until the stem bends by itself automatically without any turning over. I am sorry I can give no reference to a book in which this experiment is described. I believe the account I give must be perfectly reliable. It was told to me by the late Sir Francis Darwin, I, no doubt, having provided the Dandelion stalks, and there would have been nothing for me to remember, had it not been the automatic and periodic turning of the stalk, all the rest being commonplace enough. It is well known that certain plants do flower, as in the case of the Aloe, about the time they are in flower in the country of origin; but I am very anxious for precise information as to what happens, in the case of such plants, when seedlings are raised from seed saved in this country. How far does the dormant seed convey a knowledge of the calendar to the seedlings? There must, I think, be some conveyance of this knowledge—if I may use this word for want of a better term. *Begonia Gloire de Lorraine*, a hybrid raised in Europe, blooms, I believe, as required by parentage, at a time not the happiest for its comfort in our plant houses; the parents were *B. socotrana* and, I believe, *B. Dregei*. *R. Irwin Lynch.*



FIG. 47.—*PHACELIA CAMPANULARIA*.

A Good Blue Flowered Annual.—To those who are fond of blue flowers, I would recommend sowing seeds of *Phacelia campanularia* (see Fig. 47), as it is one of the earliest of annuals to bloom, and a succession of flowers is maintained over a long period. This strikingly beautiful annual did exceptionally well in the hot, dry summer of 1921, and it is especially effective as an edging plant, for it only grows some 8 or 9 in. tall. The flowers are bell-shaped and of a brilliant ultramarine blue. In some respects the foliage is very ornamental, for the colour is sage green with a purple sheen about the margin, which is very deeply lobed. *Phacelia* was formerly included in the genus *Whitlavia*, of which the most useful species is *gloxinioides*, so named from the resemblance of the flowers to a Gloxinia. The blooms have a blue lip and white throat. *Annual.*

Apple Trees Damaged by Voles.—A case has been reported to me of Apple trees being gnawed by voles to a very serious extent. I advised painting the stems with a strong mixture of lime and cow manure. This is stopping the pests, but the operation is too slow as there are fifty acres of fruit trees concerned. I think I remember reading something in the *Gardeners' Chronicle* a short time ago about voles, and I wonder if your readers can give any information about stopping the depredations of these pests that would be helpful. *G. H. Hollingworth.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

JANUARY 31:—*Present*: Mr. E. A. Bowles (in the chair), Rev. W. Wilks, Messrs. Balfour, Loder, Hales, Arkwright, Hosking, Fraser, and Chittenden (hon. sec.).

Hybrid Plums.—Mr. J. FRASER showed a series of dried specimens of hybrid Plums which he had collected, growing wild, in various places, and commented upon their probable derivation.

***Quercus coccifera*.**—Mr. WORSLEY showed acorns of an Oak growing in the mountains of Arragon, from which he had cut walking sticks. The Oak was apparently *Quercus coccifera*, which usually makes a bush not more than six feet in height.

Awards to Broccoli.

THE following awards have been made by the Council of the Royal Horticultural Society to the undermentioned varieties after trial at Wisley.

AWARDS OF MERIT.

No. 29, *Early Angers*, from Messrs. NUTTING AND SONS; Nos. 30, 31, *Early Feltham*, from Messrs. WATKINS AND SIMPSON and Messrs. BARR AND SONS; No. 38, *Spring White*, from Messrs. SYDENHAM; No. 53, *Snow White*, from Messrs. SUTTON AND SONS; Nos. 54, 57, 58, *Leamington*, from Messrs. J. CARTER AND CO., Messrs. BARR AND SONS and Messrs. COOPER TABER AND CO; Nos. 69, 70, *Champion*, from Messrs. BARR AND SONS and Messrs. NUTTING AND SONS; No. 75, *April*, from Messrs. FINNEY; No. 79, *Evesham Giant*, from Messrs. WATKINS AND SIMPSON; No. 81, *Easter tide*, from Messrs. SUTTON AND SONS; No. 82, *Reading Giant*, from Messrs. SUTTON AND SONS; No. 98, *White Emperor*, from Messrs. BARR AND SONS; No. 96, *Alexandra*, from Mr. SCARLETT; No. 99, *Edinburgh Market Late*, from Mr. SCARLETT; No. 101, *Eclipse* (Cattell's), from Messrs. COOPER, TABER AND CO. (these last-mentioned three varieties were considered to be much alike); No. 103, *Swan*, from Mr. CLUCAS; No. 106, *Late Queen re-selected*, from Messrs. J. CARTER AND CO.; No. 112, *White Mammoth*, from Messrs. BARR AND SONS; No. 122, *Edmonton*, from Messrs. WATKINS AND SIMPSON; Nos. 125, 126, 127, *June*, from Mr. CLUCAS; Messrs. FINNEY and Messrs. NUTTING AND SONS.

HIGHLY COMMENDED.

Nos. 51, 52, *Late Feltham*, from Messrs. WATKINS AND SIMPSON and Messrs. BARR AND SONS; No. 63, *Victory*, from Mr. H. HILL; No. 88, *Model*, from Mr. DAWKINS; No. 91, *Tender and True*, from Mr. WOODWARD; No. 93, *Satisfaction*, from Messrs. SUTTON AND SONS; No. 94, *Lathom Late*, from Messrs. ARTINGSTALL; No. 97, *Longstander*, from Messrs. BARR AND SONS; No. 104, *May*, from Messrs. NUTTING AND SONS; No. 116, *Latest of All*, from Messrs. SUTTON AND SONS.

COMMENDED.

No. 39, *Mid Feltham*, from Messrs. WATKINS AND SIMPSON.

CARDIFF GARDENERS'.

At the January meeting held at the Queen's Hotel, Cardiff, Mr. M. Toy presided. Mr. C. Chipman, a representative from the Bristol Gardeners' Association, read a paper on "*Dry Wall Gardening*." This subject is finding favour in the Cardiff district, and is one of which Mr. Chipman is a master.

The CARDIFF PARKS DEPARTMENT exhibited very fine *Lachenalia*s, and Mr. FREEMAN some good Roman *Hyacinths*. Some fine sprays of *Pyraeantha angustifolia* and *Hamamelis mollis* were also shown.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

The monthly meeting of this Society was held in the R.H.S. Hall, on Monday, February 13, Mr. Chas. H. Curtis presiding. Seven new members were elected. Two members over the age of 70 years were allowed to withdraw £36 3s. 9d. and £55 5s. 5d. respectively, from their deposit accounts, and two members withdrew interest amounting to £12 9s. The death certificate of one deceased member was received, and the sum of £20 13s. 1d. was passed for payment to his nominee.

The sick pay for the month on the private side amounted to £102 13s. 6d., and on the State side to £90 13s. Maternity benefit claims came to £6. Seven members were assisted in respect of cost of dental treatment.

The draft of the Committees' annual report and balance-sheets of both sections of the Society was read and passed for presentation to the annual general meeting, which will be held at the R.H.S. Hall on Monday, March 13, at 7 p.m.

EAST ANGLIAN HORTICULTURAL CLUB.

At the February monthly meeting of this Club, J. A. Christie, Esq., Framingham Manor, gave a most interesting discourse on "The Loesette system of fruit tree pruning." Mr. Christie has made a close study of it and carried it out with great success with his fruit trees. A striking evidence of this was that from trees so pruned he won the first prize in the large class for Pears at the R.H.S. 1921 Fruit Show.

Mr. Christie, by means of a blackboard and chalk, showed how this system of pruning is done, down to the finest details.

DIDSBURY AND DISTRICT HORTICULTURAL.

A MEETING of the above Society was held on the 19th ult., and in the absence of the President, the chair was taken by Mr. Doidge.

A lecture on "The Cultivation of the Sweet Pea" was given by Mr. Hamblett, of Stockport. The lecturer dealt with such details of cultivation as the chipping or soaking of the seeds: seed-sowing, which, he said, is best done in October; planting the seedlings in the open, for which operation the month of April is to be preferred if the weather is favourable; tying, disbudding and feeding. He recommended removing all the soil from the roots before transplanting the seedlings in the open. The following varieties were recommended by Mr. Hamblett:—Constance Hinton, Elegance, Mrs. T. Jones, Charity, Splendour, Hawmark Pink, Melba, Royal Scot, Tangarine, R. F. Felton, Gladys, Annie Ireland, Picture and Mrs. A. Hitchcock.

At the meeting held on the 2nd inst., the President, P. Schill, Esq., occupied the chair, and Mr. Leach, of Altrincham, gave a paper on the "Culture of Peas and Beans."

ROYAL CALEDONIAN HORTICULTURAL.

THE ordinary monthly meeting of this society was held at 5, St. Andrew Square, Edinburgh, on the 7th inst., Mr. David King, president, in the chair.

Mr. King delivered the opening address for the session, taking as his subject "The Training of the Youth Who Takes up Horticulture as the Serious Business of Life." Any youth of ordinary capacity, said Mr. King, might become a gardener, but to be a successful gardener he must have a real love of plants and for all that is beautiful in Nature, and he must make up his mind to take his share in all the work connected with his profession when he enters on his apprenticeship and to perform it to the best of his ability. He was not one of those who thought that the day of the fine private garden had gone, but their number was becoming fewer, and when it became a matter of choice with a well-trained young gardener whether he should aim at becoming a head gardener in a private establishment or

enter commercial gardening he unhesitatingly said that, if ability was to be rewarded to the full, the latter held out the greater inducement. But only those who had plenty of grit, and well-directed energy and perseverance, could hope to succeed in a business of this nature.

Dr. Burns, Economic Botanist to the Bombay Government, gave a short address on "Horticulture as it is Practised in India."

Obituary.

William Bain.—The news of the death of Mr. William Bain, for 47 years gardener to the late Sir Trevor and Lady Lawrence, will be learned with regret by our readers. He died at Gairloch, Ross-shire, on the 2nd inst., in his 30th year. Mr. Bain retired from the position of gardener at Burford Lodge when Lady Lawrence died in 1916, and went to spend the evening of his life at his native village of Gairloch. He resided with his nephew and enjoyed good health up to some three months ago; he was able to be about a week before his death, although during the last few days he suffered intense pain. The older generation of gardeners will remember the many rare and interesting plants which Mr. Bain brought to the meetings of the Royal Horti-



THE LATE WILLIAM BAIN.

cultural Society from Sir Trevor Lawrence's garden at Burford Lodge, which was not only full of interesting plants, but charmingly designed, and under Mr. Bain's care maintained in great perfection. In a letter to us Mr. Aubrey T. Lawrence refers to Mr. Bain as a devoted friend of his family and states that he was happy in his retirement and greatly interested in his little garden, and that he was laid to rest in his mother's grave in one of the most beautiful spots in Gairloch.

Samuel Tisdale.—We learn with much regret that Mr. Samuel Tisdale died on the 14th inst., aged 88, at the residence of his son-in-law, Mr. Wm. Wiles, florist, 33-34, Upper George Street, Brvanston Square, W. Mr. Tisdale started his career as Rose propagator with the firm of Messrs. Richard Smith and Co., of Worcester. He afterwards entered the service of Messrs. Barr and Sugden (now Messrs. Barr and Sons) as manager of their nursery, Garrett Lane, Tooting, where the firm's famous collection of Daffodils was grown, and where they conducted their seed trials, and he remained with this firm some 25 years, retiring in 1901, when Messrs. Barr and Sons were establishing their nursery at Surbiton. He then went to live with his son-in-law at Bryanston Square, assisting him in his florist business. Mr. Tisdale was always a very active and intelligent gardener, and was closely associated with the cultivation of the famous collections of new seedling Daffodils raised by Edward Leeds and William Backhouse which were acquired by the late Mr. Peter Barr.

He was buried on Saturday, the 18th inst., at Streatham Cemetery, which occupies the site of Barr's old nursery, where for so many years he was cultivator of the many plants which were grown there.

ANSWERS TO CORRESPONDENTS.

NAMES OF FRUIT: Gardener, Herts. Pear Vicar of Winkfield; Apples: 1, Calville St. Sauveur; 2, Mannington's Pearmain.—*E. A. H.* 1, Lady Henniker; 2, Golden Noble; 3, Christmas Pearmain; 4, Newton Wonder; 5, Lord Derby; 6, Annie Elizabeth.—*A. E. H.* 1, Scarlet Nonpareil; 2, Reinette Van Mons; 3, Newton Wonder; 4, Small's Admirable; 5, Round Winter Nonsuch.

NAMES OF PLANTS: Mrs. P. 1, Begonia fuchsoides; 2, Eupatorium riparium; 3, Echeveria secunda.—*Tyehurst.* Impossible to identify with certainty the specimens sent; send when in flower or fruit.

PRIMULA OBCONICA CROSS: J. E. M. The variety appears to be pure *P. obconica*. Reputed hybrids of *P. obconica* and *P. sinensis* have been exhibited at the R.H.S. meetings. On May 8, 1917, Adeline Duchess of Bedford showed a variety stated to be a hybrid between *P. obconica* and *P. sinensis*, and it received an award of merit under the name of *P. obconica Eureka*.

PROPAGATION OF PLANTS: C. W. Durban. We do not know of any special work dealing with this subject, but it is fully dealt with in the larger dictionaries of gardening, such as *Thompson's Gardener's Assistant*.

SEEDS OF PRIMULA GERMINATING SLOWLY: G. J. H. The reason of your Primula seed taking so long in germinating is probably due to its being old; old Primula seed that has become very hard always comes up very erratically. Seeds of most Primulas germinate best if sown as soon as they are ripe, and in some cases even before being perfectly ripened. Another cause may be careless watering of the seed pan. If the soil is not kept continuously moist, the seed coats, after having become soft, will harden again, and this is especially likely to happen in the case of the *sinensis* type, resulting in irregular germination.

STOCKS FAILING: R. S. B. As no fungus was present in the plants we can only assume that the trouble is due to some cultural error, probably an excess of moisture at the roots.

SWEET PEAS DYING AT THE ROOTS: J. C. The roots are not attacked by a fungous disease, but a few eelworm were present and these may be the cause of the trouble. Take the precaution to sterilise your potting soil by steaming or baking, as eelworm is evidently present in your garden.

THE LATE MR. G. MASSEE: W. H. S. Mr. George Massee, author of *Diseases of Cultivated Plants and Trees*, died in February, 1917 (see *Gard. Chron.*, February 24, 1917).

TOMATO FLOWERS: D. S. F. The flowers of the Tomato are hermaphrodite, that is, the stamens and pistils are both present in the same blossom.

WHITE FLY ON OUT-DOOR PLANTS: F. K. So far as we are aware there is no effectual remedy for White Fly on out-door plants.

WORMS IN SOIL: Mrs. C. M. E. The droppings collected from your fowlhouse would make useful manure if allowed to become dry and then mixed with a good quantity of dried soil before applying it to the land. The white worms have nothing to do with eelworm, which are microscopic creatures, and you need not fear that they will follow through the use of poultry manure. Fowl manure is a very rich nitrogenous fertiliser, and, if you use it in the way advised—that is, allow it to become dry and then mix it with several times its bulk of dry soil—it may be used with advantage for any kind of crop.

Communications Received O. T. T. T. T. T. A. C.—M & Co. H. M. C.—A. E. T.—D. A.—H. T.—A. R. B.

THE

Gardeners' Chronicle

No. 1836.—SATURDAY, MARCH 4, 1922.

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COLOURED SUPPLEMENT: Exacum macranthum.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 40.4.

ACTUAL TEMPERATURE:—
Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, March 1, 10 a.m. Bar. 30.1; temp. 52°.—Weather—Fine.

Allotments. The Report of the Departmental Committee appointed by the Ministry of Agriculture to investigate the present position with respect to the provision by local authorities of allotments in Great Britain* was briefly referred to on p. 50. The brief historical review which prefaces the Report traces the origin of the small allotment to the nineteenth century, but—no doubt because of the devotion of the committee to more pressing subjects—it contains no reference to the interesting and early experiments in small cultivation which were made during that and probably earlier periods. The number of allotments increased considerably during the years 1909-1914. Those provided by local authorities numbered 58,648 in the former year and 130,526 in the latter. The great expansion of allotments which, as is well-known, occurred during the war, was in large measure due to the powers taken by the Board of Agriculture under the Defence of the Realm Regulations to enter on land for the purpose of cultivating it; which powers were delegated to urban local authorities. Of the large numbers of new allotments which came into existence during the war many, and particularly those provided by urban local authorities, were situated within town boundaries, and hence the allotment problem has become in increasing measure an urban problem. The extraordinary powers taken under D.O.R.A. expired in 1920, and the powers of possession in September, 1921, but by a subsequent Act the possession may be continued for two years from the termination of the war, and for a further three years with the consent of the Railway and Canal Commission. Holders of allotments were naturally con-

* Published by His Majesty's Stationery Office, 1922. Price 7d. post free.

cerned at the prospect of the land they cultivated ceasing to be available, and it was largely as the result of this widespread feeling of apprehension that the Departmental Committee was appointed. The committee speak highly of the value of allotments from the national and social points of view, and that the beneficial effects operate on large numbers may be judged from the fact that the number of allotments in 1920 is estimated at over one million, occupying 157,620 acres. The committee recognise the importance of security of tenure to allotment holders, and recommend that local authorities should adopt a long-sighted policy and purchase land for allotment purposes whenever practicable, also that where the land so acquired is on the outskirts of towns the authority should be empowered to give special transport facilities to allotment holders. The committee further recommend that loans for the purchase of allotment lands should be excluded from the debt of the local authority under the Public Health Act, and in order not to diminish the borrowing power of the authority for other purposes. They hold also that provision of land for the purpose of allotments should be borne in mind in preparing schemes under the Housing and Town Planning Acts. The committee recognise that in large towns the cost of conveniently situated land may be beyond the purse of the local authority, and urges therefore that in those circumstances, and when State finance shall admit of it, the central authority shall have power to make grants towards the acquisition of land. Other recommendations concern the length of notice to terminate tenancy, and include the sensible suggestion that notice given between Lady Day and Michaelmas in any year shall be invalid, but on the contrary they advise, if their own recommendations are adopted, that compensation shall not be paid for disturbance or for crops, provided that a proper six months' notice be given. The committee offers the following definition of an allotment garden: "A piece of land not exceeding forty poles in extent which is cultivated by a person not as a market garden, but for the production of vegetables and crops mainly for consumption by himself and his family." The Committee suggests that twenty poles is the largest area which, if used for vegetable production, can be cultivated properly by an individual in his spare time, and therefore proposes that the maximum size of an allotment should be of this dimension.

Coloured Plate.—The subject of the coloured illustration presented with the present issue, *Exacum macranthum*, is remarkable for the deep and rich blue colouring of its flowers. As blue is a popular colour, and blue-flowered plants for flowering under glass are comparatively few in number, it is regrettable that *Exacum macranthum* is so seldom grown. That it severely tests the skill of the cultivator would appear to be a reason for, rather than against, its inclusion in a selection of choice flowering plants for the stove and greenhouse. On p. 104, Mr. J. Coutts, Kew, gives directions for the cultivation of this handsome plant.

Cup Competition for Hove Allotment Holders.—Mr. E. Bull, a member of the Hove Town Council, has signified his appointment as chairman of the Hove Allotment Holders' Association by offering a Silver Cup, to be competed for by allotment holders at the next annual exhibition. The former chairman of the Hove Allotment Holders' Association was Sir George Casson Walker.

Two Forthcoming Exhibitions in Paris.—M. Lucien Chauré advises us that the National Horticultural Society of France will hold, in 1922,

at the Jardin d'Acclimatation, Paris, two International Horticultural Exhibitions. The first will open on May 26 and continue to June 2; it will consist of Roses, flowering shrubs, flowering plants, forced fruits, vegetables, horticultural sundries, horticultural fine arts, etc. The second exhibition will be held from October 27th to November 5th, and will consist of Chrysanthemums, seasonable flowering plants, fruits, fruit trees, vegetables, etc. Horticulturists, arboriculturists, market gardeners, working, professional or amateur, of all allied and neutral countries are invited to exhibit. There will also be conferences, excursions, and meetings in connection with these exhibitions. The full programme may be obtained from the secretary of the society, 84, Rue de Grenelle, Paris, 7, on and after March 15th.

Demand for Bulb Land at Spalding.—At a public auction at Spalding, on the 22nd ult., there was keen bidding for properties at Podge Hole, near Spalding, that came under the hammer, and which were in a high state of cultivation and suitable for bulb growing and market gardening. A farmhouse and 68 acres of land, known as Trent Farm, in the occupation of Mr. Charles Scott, under a lease expiring April next, realised £4,200, Mr. A. E. Simons, of Ramsey, being the purchaser; 21 acres of land in the same occupation, with cottages, were bought by the same gentleman for £1,350, and he also gave £900 for 17 acres of grass and arable land.

The Queensland Fruit Crops.—Following upon very favourable weather conditions, a record crop of all varieties of fruit is indicated this season in Queensland. Late varieties of Orange were marketed fairly early, when a good demand existed. In the Cook district there is a frequent variation in the season of ripening for this fruit, and by the aid of irrigation ripe Oranges may be obtained in any month of the year. The quality is exceptionally good. The area under Pineapples has greatly increased during the past few years, and up to the present canning has been the only means of dealing with the increased product. In addition to Bananas, Papaws now find much favour with planters, chiefly because they give early returns, a tree being usually productive within twelve months of planting. Cherrimoyer trees, though usually about five years before coming into bearing, were much in demand last season, and inquiries suggest an increased demand for the next planting. This luscious fruit is rather exacting in its choice of location, but under favourable conditions is very profitable. Mangos are doing well in the more tropical parts of the State, and even in cooler regions good results are obtained by inarching the trees.

Flower Paintings at the Brook Street Art Gallery.—A visit to the exhibition of paintings by H. d'Arcy Hart, at the Brook Street gallery, is like stepping straight out of the cold rain of February into the warm sunshine of full summer, for nearly all the subjects are taken from the summer garden. Zinnias, Delphiniums, Scabious, Antirrhinums, and Pansies adorn the walls and provide the rich colouring which makes a herbaceous border so cheerful and satisfying. From the point of view of arrangement, most of the flowers which form the subjects of the various paintings are too tightly packed in the vases, reminding one of the compressed posies from a hospitable cottager's garden. The colours, however, with very few exceptions, are excellently blended, and tone well with the blue vases in which most of them are displayed. "Zinnias and Larkspur" is a pleasant arrangement of Zinnias and Delphiniums, with a few Pansies intermixed, set in a pot of blue china. "Tulips and other Spring Flowers" is a very bold picture, and well illustrates the value of long-stemmed flowers for decoration. In two paintings of Tulips the colours tone excellently with the china of the vase. "Autumn Flowers" is one of the larger paintings, in which Delphiniums and Zinnias also figure. The flowers are well done, but again it must be remarked that they are too tightly packed in the vase to look really artistic.

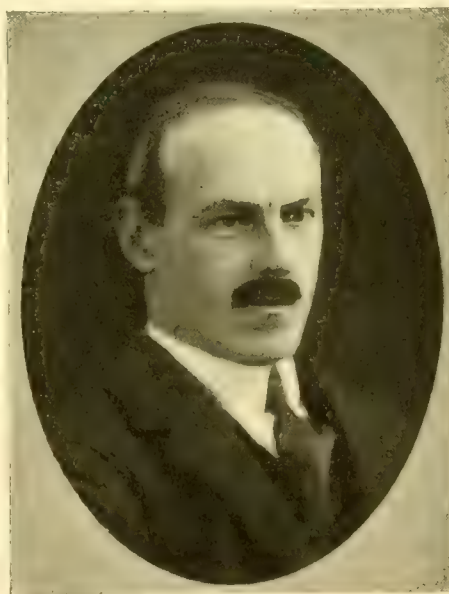
"Marigolds" is a really delightful picture of Marigolds set in a position where they get, and hold, the sunshine. "A Summer Bouquet," is, from our point of view, the best picture in the exhibition. The Zinnias have plenty of room to display themselves to the best advantage, and are thoroughly well painted. Three spikes of Delphinium behind give just the variety that is needed. There are several pictures of Anemones, of the St. Brigid type; one of the prettiest arrangements consists of blue and red flowers, possibly a trifle too closely packed. "Asters in a Glass" is a very simple but very pleasing conception, and the one next to it, "Autumn Tints," is another illustration of the advantages of high top light on Marigolds and single Asters.

Orchid Mycorrhiza.—The value to the gardener of a complete knowledge of the habits of the plants he cultivates is shown in a striking degree in the case of Orchids, a race of plants that includes some of the most beautiful subjects in the floral world. These plants are amongst those which Dr. Rayner refers to on page 102 in her interesting article on plant partnerships, wherein she shows that certain plants are dependent on fungi in association with them, for their successful growth. It has been found that the roots of Orchids have a sort of mantle about their roots, which, when examined under the microscope, is found to consist of the mycelium of a fungus. Should the medium in which the Orchid is grown be sterile of the particular fungus which it favours, the flowering plant is unable to succeed, but it is not likely to be absent when the plants are propagated vegetatively, for the roots will carry sufficient of the particular fungus—to which the general term mycorrhiza is applied—with them when they are repotted. In the case of Orchids raised from seed the medium in which they are germinated is not likely to contain any of the necessary mycorrhiza, and this explains the difficulty the earlier raisers had in obtaining seedlings. Our present knowledge of Orchid mycorrhiza is most lucidly summed up by Mr. J. Ramsbottom in an article included in Messrs. Charlesworth and Co.'s catalogue of Orchids, 1922, accompanied by several excellent illustrations showing sections of Orchid roots and seedlings with the fungus associated with them. Mr. Ramsbottom refers to other plants which show the same consistency of fungus infection besides Orchids, and we hope to deal with his paper in greater detail in a subsequent issue, for the subject is one of absorbing interest to raisers.

St. Lucia.—The success of our Empire depends upon the good will and industry of all its parts, but few other than those who have travelled extensively, fully understand how great is the good will and industry of the officials who deal with horticultural and agricultural matters in the smaller and distant colonies. To this office come copies of many and varied annual reports indicating progress in these directions, and the one just to hand, from St. Lucia gives a very good idea of the work performed under the Imperial Department of Agriculture for the West Indies. We learn that in 1920 no fewer than 36,208 plants and cuttings, chiefly of economic subjects, were distributed to planters from the nurseries attached to the Botanic Station, in addition to a large number of seeds. The control of insect and fungous pests which attack Bananas, Sugar Cane, and Coco-nut Palm, occupies a great deal of attention from the Department, and the need and use of preventive measures is emphasised in the programme of agricultural education carried out in the primary schools at St. Lucia, and in connection with the instruction given to teachers in practical agriculture. The report of the Government Ground Provisions Depot show that the public institutions in St. Lucia were kept regularly and fully supplied through the year with Potatoes, Farine, Peas, Yams, Bananas, Breadfruit, Plantains and Pumpkins, and that on the occasion of the visit of His Royal Highness, the Prince of Wales, in September, 1920, this depot supplied the ships accompanying him with 2,000 Oranges, 57 bunches of Bananas, six barrels of Mangos, two barrels of green Limes, and a few dozen Pineapples. It is interesting to

observe that there are numerous Agricultural Credit societies in St. Lucia, and that the total loans against these societies at the end of the year was £2,811.

Dr. A. W. Hill.—The new Director of the Royal Gardens, Kew, Dr. A. W. Hill, has already proved himself to be a man of great ability, with a thorough knowledge of botanical science and wide horticultural sympathies. Moreover, he has travelled extensively and held many positions of importance. Dr. Hill is a native of Harrow. After early schooling at Margate, he entered Marlborough College in 1890, and while there displayed a great taste for biology, a taste subsequently developed into keen study. From Marlborough he went as an Exhibitioner to King's College, Cambridge, becoming a scholar of his college in 1896, and obtaining a First Class in Part I. of the Natural Science Tripos in 1897, with a First Class in Part II. of the same Tripos in the following year. He worked for some time under Dr. W. Gardiner, and in 1899 became Senior Demonstrator in Botany at the Cambridge University, and in 1905 University Lecturer in Botany. Since his appointment at Kew, Dr. Hill has applied botanical knowledge to the



DR. A. W. HILL, F.R.S.

furtherance of economic ends, and in this connection he has added to his knowledge of economic botany, and its value to the Empire, during an official visit to the West Indies in 1912, and more recently during an official visit to the Cameroons. In 1910 he paid a naturalist's visit to Algeria. Dr. Hill's work in connection with the War Graves Commission is well known. Apart from his official duties, Dr. Hill shows a warm interest in those employed at Kew, and his sympathy with the large body of Old Kewites, by whom he was appointed President of the Kew Guild for the year 1920, has been shown on numerous occasions. To follow in the train of a succession of such a series of directors as Kew has enjoyed might intimidate a weak man, but on the contrary it must, and we are convinced will, serve as a stimulus and inspiration to the new Director, for whom we wish as long and brilliant a career as that of his predecessors in this great office.

Potinara: a New Multi-generic Hybrid Orchid.

—Among many remarkable hybrid Orchids exhibited at the Royal Horticultural Hall, Westminster, on the 28th ult., none was more interesting than Messrs. Charlesworth and Co.'s new Potinara Juliettae, derived from a cross between *Sopbro-Laelio-Cattleya* Marathon and *Brasso-Cattleya* Ena. As the parentage indi-

cates, the new hybrid is a combination of four genera—*Cattleya*, *Laelia*, *Brassavola* and *Sophrontitis*. The new generic title follows the general rules for such names and has been given in honour of M. Potin, Vice-President of the National Horticultural Society of France, and President of the Orchid Committee of that Society. M. Potin gave a prize of 1,000 francs last year for the finest hybrid obtained by crossing the genera *Cattleya*, *Laelia*, *Brassavola* and *Sophrontitis*, and this was awarded to M. Marcoz, of Brunoy, for *Brasso-Cattleya* Chandon (*Cattleya* Jeanne Payet × *Brasso-Cattleya* Mrs. Leemann). M. Potin has announced that he will give a prize of the same value during 1922 for a hybrid raised under similar conditions.

Appointments for the Ensuing Week.—Tuesday, March 7: Royal Caledonian Horticultural Society's meeting; Bournemouth Gardeners' Association's meeting. Wednesday, March 8: East Anglian Horticultural Society's meeting; Sheffield Chrysanthemum Society's meeting; Wimbledon and District Gardeners' Society's meeting. Thursday, March 9: Bristol and District Gardeners' Association's meeting. Friday, March 10: Paisley Florists' Society's meeting; Saturday, March 11: Ringwood Society's meeting.

"The Gardeners' Chronicle" Seventy-five Years Ago.—Covering Vine Borders with Glass.

—I have covered Vine borders with glass in a temporary way, and with such beneficial results that I have made provision for covering with glass the outside borders of an extensive range of vineries erected here last summer. It is a move in the right direction, and will do away with the unsightliness of fermenting materials, but will never supersede them in beneficial results, when the latter are supplied with proper care. In the case of early forcing through a long and severe winter, borders covered with glass alone will not produce that equality of temperature betwixt root and branch, which is so essential to the Vine, that fermenting manure and leaves would do. My outside borders are 20 feet in width, with a fall from the houses of 2 feet 8 inches; and I have run a flue along the front of the border and up the ends, working into wing walls; next the soil is a 4½-inch brick wall, then a 4½-inch vacuum next a flue 15 inches deep and 11 inches wide, and upon the cover of the flue is placed at 3 feet distances bricks on edge, which carry a stone coping bevelled off on the surface in order to throw the water off to the walk in front. The coping is so contrived that the heat from the flue is thrown on the surface of the border. Other minor details, as temporary rafters, etc., will be supplied when the border is about to be covered with glass. The glass will be something like 10 inches above the soil, a space sufficient for the heat given out by the flue to circulate in. The furnace is placed in the centre, so that I can either heat the border of two houses or of four at the same time. I shall not be able to fix glass on the border, however, before the winter of 1848, or until my young Vines have become permanently established; till then, dung and leaves must suffice, a covering to which I am very partial. James Roberts, Raby Castle. *Gard. Chron.*, February 27, 1847.

Publications Received.—*Manual of the Trees of North America.* By Charles Sprague Sargent. Houghton Mifflin Co., 4, Park Street, Boston, Mass. Price \$12.50. *City Homes on Country Lanes.* By William E. Smythe. Macmillan and Co., St. Martin's Street, W.C. Price 13s. net. *Planting and Care of Street Trees.* By F. L. Mulford. *Farmers' Bulletin* 1209. *Take-all of Wheat and its Control.* By Harry B. Humphrey. *Farmers' Bulletin* 1226. *Kanred Wheat.* By J. Allen Clark and S. C. Salmon. Department Circular 194. *The Beet-Sugar Industry in the United States in 1920.* By C. O. Townsend. *Bulletin* 995. *Control of the Argentine and in California Citrus Orchards.* By R. S. Woglum and A. D. Borden. *Bulletin* No. 965. All published by the United States Department of Agriculture, and obtainable from the Government Printing Office, Washington.

ORCHID NOTES AND GLEANINGS.

COLOUR AND FORM IN CYPRIPEIDIUMS.

AMONG hybrid Cypripediums we see more plainly than in most other genera the wonderful results obtained by raisers in the development of rich colours and the improvement of size and form of the flowers. In Cypripedium, as in *Laelia*, *Cattleya*, *Sophronitis*, and *Cochlidia* Noezhiana crosses, the smaller and least florally perfect species have played the most important part in the production of the magnificent hybrids which have commanded the attention of modern Orchid lovers.

Cypripedium Boxalli, a species which was slighted on its introduction on account of its smaller size and narrow dorsal sepal, with the edges rolled back, as compared with *C. villosum* (of which some wrongly considered it a variety), has in its ungainly dorsal sepal intense, almost black, blotching on a shining surface. This species alone could have conveyed to the charming set begun in *C. Hera* (Euryades), resulting from the cross between *C. Boxalli* and *C. Leeanum* (insigne $\times$ Spicerianum), the colour combination, which appears with intensified beauty in *C. Eurybiades*, *C. Pyramus*, and a host of others. The size of the blotching, and its ultimate blending into a broad central band of colour on the dorsal sepal, are marked features that appear in intensified form in *C. Mrs. Wm. Mostyn* and allied forms, of which *C. Boxalli* is an ancestor.

C. insigne in its many varieties has laid the foundation of one of the largest, best and most popular sections of Cypripedium. *C. exul*, however, of smaller size, stood in the same position to *C. insigne* as *C. Boxalli* did to *C. villosum*, and it was at first thought to be a small form of *insigne*. But the hybridist proved the error, as its pretty little flowers, of model shape, with well-defined dark blotching on the shining surface of its dorsal sepal, produced a characteristic section commencing with *C. Earl Tankerville*, and quite distinct from the *C. insigne* crosses.

C. Spicerianum, beyond reproach as a species—it has a large, pure white dorsal sepal, with, in some varieties, a broad median band of dark claret colour—heads another section of excellent form, but the important point is that the broad coloured band on the dorsal sepal gives a feature which no other species could supply, and this appears in many hybrids having this species as an ancestor. One of the best examples is *C. Viking* (*Buchanianum* $\times$ *illustre*), one of the finest of Cypripediums, and which can only have obtained the deep violet band on its white dorsal sepal through the *C. Spicerianum* in its ancestor *C. Lathamianum*.

C. Fairrieum, small of stature, beautiful to the artist, but far from perfect from the florist's view, gave us one of the most beautiful of sections in the Cypripedium family. The delicate tracery on its flowers, and the characteristic form appear in some degree in the larger and more ornate varieties raised from it.

C. niveum, *C. Godefroyae* and *C. bellatulum* give a beautiful and distinct section, ranging from pure white, purple spotted, to heavily blotched forms, the characters of which appear in repeated crossings with dissimilar hybrids.

C. Chamberlainianum, *C. Rothschildianum*, *C. Stonei*, and others of this class, give us sections with longer spikes of several beautiful flowers; all are favourites in gardens, but the most deservedly popular classes are those usually giving but one flower to the scape, such as the *C. insigne*, *C. villosum*, *C. barbatum* and *C. Spicerianum* groups.

We see these remarkable flowers obtained by crossing very dissimilar parents, but few stop to consider the wonder of it all. Imagine, for example, the strap-shaped, leathery, green leaves and totally different flowers of *C. insigne*, and then examine the smaller and more delicately formed *C. bellatulum*, with its thick, mottled leaves, with a glassy layer on its upper surface covering the cellular tissues beneath, and then call to mind the fairly intermediate *C. Helen II.*, resulting from the crossing of the species

named and one can but marvel at the powers of adaptation in nature whereby two such dissimilar structures—and others equally wide—could be merged. J. O'B.

TREES AND SHRUBS.

OLEARIA STELLULATA.

OF the fine species of *Olearia* described by Mr. W. J. Bean in his indispensable work on *Trees and Shrubs Hardy in the British Isles*, he specifies *O. stellulata* as the least hardy; but here, on the west coast of Scotland, it has stood uninjured for many years. It has a longer flowering season than any other member of the genus known to me, usually beginning with a few scattered flowers in January, and gradually increasing the display, until in May the bushes are closely sheeted with snowy, or rather with chalky, bloom. The flowers produced in winter seem as insensible of cold as those of the *Witch Hazels*. We had a snowstorm last week (early February) with 8°, 9°, and 8° of frost on three

makes, every February, a picture visible a good many yards away. Seen against the occasional blue sky that even dull February gives, the jewelled branches of the *Parrotia* are particularly beautiful. It is strange that a plant so hardy, so glorious in crimson and gold in autumn, and so pleasant a sight in earliest spring, is not more often planted. F. J. Chittenden.

LITHOSPERMUM ROSMARINIFOLIUM.

BLUE flowers are always welcome. We never grow tired of them, and we never have enough of them. Unlike the better-known *Lithospermum prostratum* of trailing habit, the species under notice is of compact and upright habit, growing from one foot to two feet in height. It is an evergreen shrub with bright green, narrow, Rosemary-like foliage and pure Gentian-blue flowers.

That distinguished writer and traveller, the late Mr. Reginald Farrer, formed a very high opinion of this plant, as witness the following excerpt from his historical musings in *Among the Hills*. "It is seldom, indeed, that the



FIG. 48.—LITHOSPERMUM ROSMARINIFOLIUM.

successive nights, yet the sprays of blossom on this *Olearia* never drooped, and I gathered some on February 6th quite fresh.

In the figure of this plant in Mr. Bean's book, Vol. II., page 107, the leaves are represented as having smooth margins, but in our plants they are distinctly and symmetrically toothed.

Of the amazing profusion of seed ripened by this and most other species of *Olearia* not one in a million gets a chance of germinating here owing to the rankness of our native herbage. We grow eight species, but I have found only a single self-sown specimen of *O. nummularifolia*. On the other hand, another shrub from the same region, *Veronica parviflora*, is a positive nuisance owing to its multitudinous progeny. Herbert Maxwell, Monreith.

PARROTIA PERSICA.

You do well, on page 74, to call attention to the flowering of *Parrotia persica*. Mr. Gerald Loder tells me that at Wakehurst it has been quite conspicuous this year, and others have remarked upon its beauty. There is a specimen at Wisley, planted in 1905, and now forming a large spreading bush about 14 feet in height, with every branch set densely with the curious scarlet-anthered flowers. Probably it is flowering in most places with greater freedom than usual, but for the past five years this plant has annually produced a good many flowers. The hazy, red effect they give composes well with the dangling tassels of the *Hazel* and the yellow and red *Hamamelis arborea* near by, and

plant-collector in Europe can escape the ubiquitous royalty of Queen Mary; as Duchess of Milan it is she who allows him to pluck her Saxifrages from the cliffs of Tenda; as Countess of Tyrol she watches him hammering out *Daphne rupestris*; as Queen of Naples and Jerusalem she has a vested right of guardianship over *Iris Lortetii* and *Lithospermum rosmarinifolium*; as Queen of Spain she is the sovereign lady of *Erinacea pungens*; and to the Queen of Sicily I am quite happy to leave her monopoly of ugly little *Antirrhinum siculum*."

Lithospermum rosmarinifolium has been found wild in Italy and Greece. It is said to be hardy in many English gardens—in others not. It is certainly a plant for a warm and favoured spot. The plant should be protected in winter with branches of Box or Pine, though it has withstood several winters unprotected in an Essex garden. Speaking generally the *Lithospermums* prefer soils of peaty character, though *L. rosmarinifolium* has been known to thrive amazingly over chalk. The flowering season of this species varies. It will persist in producing stray blooms in winter, and should there be a mild spell of weather between snowstorms this *Lithospermum* is almost certain to open its lovely blue flowers. The main season of flowering is May and June, though it will throw a strong bloom here and there in the autumn, as it does in its native habitat on the rocks of Naples and Capri. Herbert Cowley.

The Week's Work.

THE FLOWER GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

The Shrubberies.—The moving and replanting of shrubs and trees should be completed as soon as possible, and the work of pruning, staking and tying completed. Staking is an essential operation where standard trees are concerned, not only in the young stage, to train a suitable leading shoot, but also with older subjects that have been moved, to support them against heavy winds, otherwise they may grow out of the upright and lose many of their finer roots through the tree being swayed to and fro by the force of the wind. Creepers should be examined, trained in position, and relieved of wood, so far as this is considered necessary, to prevent severe crowding of the shoots. Especially look to climbing subjects trained



FIG. 49.—AGAPETES MACRANTHA (see p. 101).

up poles, with a view to tying the growths, to prevent an untidy appearance. At the same time carefully examine the poles, to see if they need reinforcing or replacing. Where it is desired to plant creepers, the present is a suitable time to do this work, and those of a tender nature should receive wall protection. There are many beautiful subjects that may be trained up poles in shrubberies, adding considerably to the interest and beauty of the latter. When all necessary operations are completed, the soil should be forked over carefully, leaving the surface rough for the time being. Care should be exercised so as not to fork too deeply, or too closely, around the plants, otherwise detrimental root disturbance may be caused.

Cuttings in Frames.—Plants of Pentstemons and Violas, raised from cuttings inserted in frames in the autumn, should be ventilated freely and the soil around them stirred occasionally with a pointed stick. It will sometimes be found that plants of Pentstemons raised in this way appear to have died off, but this is generally found only to be a fading-off to the base from whence healthy young growth will appear at a later period.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir C. NALL-CAIN, Bart The Node, Odiotote, Welwyn, Hertfordshire.

Hydrangea hortensis.—Where these plants have been kept under very cool conditions during the winter, a batch may be started into growth. Examine each specimen carefully, cut away the weak and useless growths, and, where it is considered necessary, repot them into larger receptacles. Specimens that do not require repotting should have some of the surface soil removed and be top-dressed with a rich compost. Plants raised from cuttings last autumn and now in small pots may be transferred singly to 4½-inch pots, or three may be grown in a 6-inch pot. Presuming the cuttings were well ripened when inserted the plants should, in most cases, produce excellent flowers this season.

Salvia splendens.—Old stock plants of *Salvia splendens* may be cut back and stood in gentle warmth to obtain young growths suitable for use as cuttings. Syringe the plants occasionally to induce them to break into growth. When the young shoots are a suitable size insert several of them around the edge of a small pot and root them in a propagating frame. Roots

HARDY FRUIT GARDEN.

By H. MARSHAM, Gardener to the EARL OF STRAFFORD, Wrotham Park, Barnet.

Strawberries.—In favourable weather, trench and heavily manure land that is required for planting with Strawberries that have been forced in pots under glass, so that by the time the fruits have been gathered, and the plants duly hardened, the soil will have settled down again. The plants may then be planted firmly in good time, and will thus have a longer season to develop sturdy crowns, which are so very necessary for the production of good crops of fruit the following season.

Young Strawberry Plants in nursery beds or in pots propagated from layers last August should be planted in rich land which has been prepared for them in advance. Plant rather firmly at 20 inches by 24 inches apart, and put two or three in a clump if they are somewhat small and weak. Last season, owing to the continued spell of drought, strong, healthy layers were not plentiful, and those that were raised and planted early did not make satisfactory crowns; and especially was this the case on light, porous soils.

Old Strawberry Beds.—When the soil is in a workable condition, remove any weeds that may be present, stir the soil amongst the plants with the Dutch hoe, dress the land freely with soot and apply a good mulching of rich farmyard manure. All Strawberries, and especially those growing on light land, are somewhat weak, and I greatly fear the coming crops will not be good. Plants that received good attention and were freely mulched as soon as the crops were gathered are looking much stronger than plants that did not receive this attention.

Fruit Room.—Keep the fruit room clean and well ventilated in favourable weather. Remove any decayed fruits, and see that the atmosphere is sweet, as the flavour of Apples is quickly impaired when the fruits are stored in a musty fruit room.

THE ORCHID HOUSES.

By J. T. BARBER, Gardener to His Grace the DUKE OF MANSFORD, K.G., Blenheim Palace, Woodstock, Oxon.

Cymbidium.—The *Cymbidiums* comprise some of the most popular and beautiful Orchids in existence. They are easy of culture, and do not require much fire heat. They are evergreen, and send up long spikes of flowers, which may be used for a variety of purposes in decorations. Plants that have passed out of bloom (either species or hybrids), and sending up young growths, should, if they are in need of fresh material, be attended to when the new roots appear from their bases. These Orchids resent disturbance at the roots, and if the compost is still suitable, and there is room in the pots for the new pseudo-bulbs to develop, it will be wise to defer the operation of repotting until next season, as the plants produce flowers more freely when in a pot-bound condition. The species and hybrids of this useful genus grow well in a cool position in a house having an intermediate temperature, and should not be subjected to the direct rays of the sun at any time. Red spider will sometime attack the leaves, especially if the plants are grown in a dry atmosphere, and should be kept in check by sponging the plants from time to time with a weak insecticide. These Orchids will succeed in a similar compost to that used for *Cypripediums*, but slightly more loam may be added, provided it is of good quality. They should be potted firmly, and watered with extreme care for some considerable time. Those that are now developing their flower spikes may have attention at a later date. These should have water afforded them whenever they become dry, and well rooted plants will benefit from weak liquid manure given the roots occasionally.

Temperatures.—As the days lengthen, and the sun has more power, the temperatures of the different houses should be gradually increased; at the same time the atmospheric moisture should also be increased.

will develop readily in such conditions, and when suitably established may be potted singly. This plant is subject to attacks of red spider, and white fly is also very partial to it; in view of this fumigating or spraying with an insecticide will be necessary on frequent occasions.

Salvia leucantha.—Cuttings of this strikingly pretty *Salvia* may be inserted in small pots. This species roots readily in very cool conditions. Although very rarely met with, this Sage produces flowers over a very long period and makes a useful plant for grouping with foliage and other plants indoors. When rooted the plants may be grown on in 7-inch pots, using a compost of loam, leaf-mould and manure from a spent Mushroom-bed.

Primula obconica.—A sowing of one of the best strains of this *Primula* should be made now. From this sowing fine plants may be had in flower during the early autumn and winter; in fact, *P. obconica* may be termed a perpetual greenhouse flowering plant, for, fed judiciously, it will continue to flower throughout the year. The sprays of flowers are invaluable for use as cut blooms in vase decoration.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

Pot Vines.—Yearling vines that were cut down to two buds last month and kept dry in a cool house may now be placed in heat, where they must be gradually moistened to cause them to break into growth before they are shaken out for repotting. If the cut surface received a dressing of styptic, little or no bleeding will take place. When the shoots have grown from one to two inches long the strongest and most promising plants should be selected for repotting. Meanwhile prepare a suitable number of 11-inch pots, and get the crocks and compost ready for use. All composts in which bone-meal or other highly concentrated stimulants form a part are greatly improved by lying for two or three weeks in a dry, warm potting shed or vinery before they are used.

Fruit Trees in Pots.—The chief points to observe in pot fruit culture are to grow the trees in a light, well ventilated house, with at least one row of 4-inch pipe running around the interior, and to have healthy thoroughly established trees that have filled their pots with roots at the time the plants are taken in for the mildest forcing. Experienced gardeners buy maiden trees, pot and grow them on, and in this way prepare them for forcing. Amateurs lacking the convenience to do this may purchase mature trees specially prepared by the nurseryman. None but the very best sorts of each kind should be grown under glass, and the grower will do well to duplicate some of the best varieties. The secret of success in growing hardy fruits in pots lies in preventing a high temperature or close atmosphere when the weather is fine, and seeing that the temperature does not fall below 40° in severe weather. Those who observe these conditions with the usual cultural attention should succeed in forcing pot fruit trees successfully. Pears and Apples may be quickly increased in size, once the pips are formed, by closing the house for three or four hours on fine afternoons.

THE KITCHEN GARDEN.

By JAMES E. HATHAWAY, Gardener to JOHN BRENNAND, Esq., Baldersby Park, Thirsk, Yorkshire.

Parsley.—To maintain a good supply of Parsley leaves a succession of sowings should be made throughout the season. The first sowing should be made in boxes filled with soil sifted through a half-inch sieve and placed in a gentle heat. Covent Garden Garnishing is one of the best varieties.

Red Cabbage.—Where the autumn-sown Red Cabbages have not been a success, a sowing of Dwarf Blood Red should now be made in boxes and the seedlings brought on in gentle warmth. These seedlings will form good heads by the autumn.

Jerusalem Artichokes.—As soon as the soil is in a favourable condition this crop should be planted on ground manured the previous season. The tubers should be planted 4 in. deep and in rich land, in rows made 3 ft. apart, allowing 2 ft. between the tubers in the lines. Sutton's White is the best variety. Artichokes are very accommodating subjects, and will thrive in corners where not much else will grow. They should be planted much more extensively, especially by cottagers.

Asparagus. Where new beds are required it is a good plan to sow seeds in thumb pots and raise the seedlings in gentle warmth. Place about two seeds in each pot; by this method strong plants will be available for planting in the beds in May.

General Remarks.—The weather during the week has been favourable for ground operations and all trenching and digging should be completed at the first available opportunity.

NEW OR NOTEWORTHY PLANTS.

AGAPETES MACRANTHA.

This is certainly one of the most beautiful of the tender *Vaccinads*, a class of plant that is now rarely seen in gardens. The flowers have a very attractive appearance, and a good description of them is given by the late Sir William Hooker in his remark that "in texture and marking they resemble some handsome piece of china or porcelain." I have rarely seen a more lovely plant. The individual flowers are larger and handsomer than those of *Thibaudia pulcherrima*, which was at one time looked upon as the prince of East Indian *Thibaudias*, both these plants at that time being included in the latter genus, but under more recent revision the Asiatic species are referred to the genus *Agapetes*, while the *Thibaudias* are all American.

The flowers of *Agapetes macrantha* (Fig. 49) last a long time; they are 2½ inches long and

but, unfortunately, like so many others, it is seldom met with outside botanical collections.

When in flower, this plant immediately attracts attention with its broadly ovate, acuminate spathes, 4 inches long, which recurve after opening, and are of a beautiful yellow colour inside and out, with a large, suffused purple blotch at the base. The spadix is 1½ inch long, the upper third being free and densely clothed with hexagonal anthers that are shortly columnar, the lower two-thirds densely clothed with ovaries which are hemispherical and two-celled, with a five-angled discoid stigma surrounded by five to eight short clavate staminodes.

The leaves are oblong-ovate, acuminate, peltate, concave, with distinct notches at the base and a strong midrib which proceeds back as from the insertion of the petiole; the upper surface is dark green, while the under surface is glaucous green, with two large purple blotches between each pair of nerves, which



FIG. 50.—*STEUDNERA DISCOLOR*, HORT. BULL.

1 inch in diameter, and produced on the woody parts of the stem, two or three peduncles sometimes springing from the same point. The peduncles are red, and thicken from the base up to the flower. The corolla is white and five-angled; between the angles are numerous distinct, oblique, wavy, red lines, more or less V-shaped; the mouth is contracted, while the five acute lobes are reflexed. The stamens and styles are exserted, the styles being longer than the stamens. The somewhat leathery leaves are lanceolate acuminate, quite entire and glabrous.

Agapetes macrantha was first raised in this country by Messrs. Veitch, of Exeter, from seeds received from the Kola Mountain, Moulemein, and sent by the well-known collector, Mr. Thomas Lobb. It is sometimes spoken of as being sub-epiphytic, but here at the Botanic Gardens, Cambridge, it is easily cultivated in peat in a pot, just as in the case of *Pentstemonium serpens*.

STEUDNERA DISCOLOR, HORT. BULL.

THERE are numbers of Aroids that are worth a place in the warm greenhouse, and the subject of this note is certainly one of them.

makes the plant very decorative as a foliage subject.

S. discolor (Fig. 50) is often confounded with *Steudnera colocasiaefolia*, and sometimes known by that name, but *S. colocasiaefolia*, C. Koch, described and figured in Regel's *Gartenflora*, Vol. XVIII., page 323, t. 633, and in *L'Illustration Horticole*, Vol. XIX., t. 90, is quite a distinct plant in many respects, the spathe being yellow on the outside and a rich purple brown within, with only two staminodes and the ovary is five-celled, while the leaves are scarcely notched at the base and are green on both sides. *Steudnera discolor* is said to have been introduced from India, but probably is not indigenous to that country, for, according to Koch and Regel, it is a native of South America and was first imported by Linden, while the other species, and the genera most nearly allied to *Steudnera*, belong to Schott's section, or tribe, *Asterostigmeae*, which are for the most part American, although *S. discolor* is said to closely resemble in the form of foliage *Colocasia atkinsii* var. *Jenningsii*, which is found in the Khasia Mountains. F. G. Preston, Cambridge Botanic Gardens.

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NOTES ON MYCORRHIZA PLANTS.

ALTHOUGH partnerships of one kind or another are so familiar, the frequency of such associations in the plant world and their resemblance to those known to us in the social and political worlds, is probably little realised. In the case of many associations between plants, especially those between green and non-green plants, the original relation was not improbably one of attack and defence; from this has been evolved the more or less stable condition frequently described as symbiosis and regarded as involving a state of mutual benefit between the partners.

It is proposed in this and a succeeding article to give some account of what has been revealed by recent research about those curious and unexpected partnerships between vascular plants and fungi known to botanists as mycorrhiza.

It is well known, not only to botanists, but also to practical gardeners, that the roots of many plants are beset with fungus threads or hyphae. The mycelium may invest the tip and the younger part of the root, forming a conspicuous sheath from which project numerous thread-like hyphae, as in the Beech and many of our forest trees, or it may ramify sparingly upon the surface of the root and penetrate deeply into the living tissues. When thin slices of such roots are examined microscopically, it is often difficult to realise that the tissues are indeed those of a healthy plant, so vigorous is the development of the fungal invader. This remarkable combination of root tissue and fungus in healthy plants was named mycorrhiza by Frank nearly half a century ago, and to this botanist and his immediate successors we owe much detailed knowledge of the occurrence of the condition among flowering plants and the distribution of the fungus upon and within the root tissues.

Frank and his colleagues distinguished rather sharply between the condition common to so many forest trees, in which fungal hyphae form a conspicuous sheath about the tip of the root, penetrating the tissues slightly or not at all, and that found in plants such as Orchids, in which mycelium is scantily developed upon the outside of the root but deeply distributed in the tissues. Extreme forms of the two conditions certainly occur, although it is somewhat doubtful if they are so sharply distinguished from one another as was believed when Frank named them respectively ectotrophic mycorrhiza and endotrophic mycorrhiza. What impressed the earlier workers was the invariable presence of mycorrhiza in the roots of plants belonging to certain families, and the fact that the relation between vascular plant and fungus was evidently very different from that which exists when a parasitic fungus invades the tissues of a flowering plant and gives rise to the symptoms of disease.

Speculation naturally followed as to the physiology of the relationship. For long, nothing was known of the systematic position of the fungi concerned, since they do not form spores when growing in and upon roots, and the isolation of any such fungus from the root with which it is associated has only recently been accomplished. On the other hand, sections of the roots of Orchids and certain other plants when examined microscopically yielded evidence pointing to an exchange of food material, and the view became current that mycorrhiza was a manifestation of so-called symbiosis between flowering plants and various fungal species, i.e., that in each case the two organisms were growing together in an intimate partnership involving exchange of food materials and some degree of mutual benefit.

Since mycorrhiza is specially characteristic of the roots of woodland and other plants frequent-

ing soils rich in organic remains, and since there is great competition in such soils for water and mineral salts, the somewhat obvious suggestion was made that the fungus partner aids in absorption of water and mineral salts from the soil.

Until quite recently it was assumed by botanists that the fungi present entered the roots from the soil, and experiments were put on record which were believed to show that plants which normally formed mycorrhiza did not do so and did not thrive when planted in soil which had been "sterilised" in such a way as to destroy the mycelium, or spores present.

Beyond the fact that an exchange of nutritive materials obviously takes place in certain cases in which there is ocular proof of digestion of mycelium by the cells of the invaded root, little or nothing has been known with certainty of what may be called the bionomics of these plant associations. Working partnerships of this kind between plants so different in their food requirements and mode of life as vascular plants and fungi must always be of great interest to the biologist. Recent discoveries bearing on the nature of the "symbiosis" which exists in certain mycorrhiza plants are not only of great scientific interest, but have a practical bearing on horticulture, inasmuch as they relate especially to two groups of commonly cultivated plants—the Orchids and the Heath.

The discovery of the real state of affairs in Orchids at once threw light upon the difficulty experienced by growers in raising plants from seed and the favourable effect produced by mixing small pieces of root from the parent plant in the seed pans, a procedure long familiar to practical men.

In the mycorrhiza of Orchids, hyphae occur sparingly upon the outside of the roots; within, the tissues are extensively invaded by mycelium, which penetrates to the very limits of the vascular tissue in the centre of the root. Certain cells show the fungus in an active condition, others contain only a dense mass of structureless material. It is not difficult to relate these two types of cell one to another by others showing an intermediate condition and to satisfy oneself that in the first case the fungus is growing freely at the expense of a supply of starch and other food materials obtained from the Orchid plant, while in the second case the tables have been turned, and the root cells have digested the mass of mycelium contained in them. Now recent researches have shown that invasion of the roots of Orchids is not due, as was formerly supposed, to a casual infection from the soil in which the seedling Orchid plant is growing. More interesting still is the fact with which we are now familiar, that infection by the root fungus ordinarily is essential for development of the embryo within the seed into an Orchid plant.

When the minute seeds are taken from an unopened Orchid fruit, they are free from contamination by any other organism. When sown under controlled conditions on a sterilised substratum they do not develop a seedling plant unless the fungus present in the roots of the parent is also introduced. The stage of development which can be reached by the seedlings without this preliminary infection varies with the species of Orchid. It may be a very early one or extend to the formation of a couple of leaves. In the vast majority of Orchids root-formation awaits the signal of infection and does not occur without it. Failing infection at the stage critical for each species, development ceases and the embryo perishes prematurely.

The root fungi have been isolated from the roots of many Orchid species, their behaviour on different kinds of artificial media is known, and their manner of forming spores when grown independently outside the plant. As a rule, only the fungus strain present in the root can induce development of the seedling in any given species, and in this and many other ways is indicated how advanced is the degree of adaptation between the two partners. Let us now review what is known of the nutritive relations of the two partners in Orchids.

It is clear that the fungus can profit by a supply of sugar and can thus indirectly tap

sources of supply otherwise inaccessible except to green plants. Since it is not possible to raise an Orchid plant without its appropriate fungus, it cannot be proved definitely that absorption of water and salts by the plant is really facilitated by the distribution of the fungus within and without the roots. On the contrary, it seems clear that the green plant can profit by the wholesale digestion of hyphae which takes place in the root-cells, because the fungus can utilise sources of nitrogenous food in the soil and in this way place them indirectly at the disposal of the plant. There is at present no evidence whatever that any of the Orchid fungi can use atmospheric nitrogen as a source of food. It may possibly be assumed that advantages associated with the increased food supply counterbalance the drawbacks attendant upon the indispensable character of the association. The latter will certainly operate as a check upon the spread of any Orchid species in nature, since a seed carried away by the wind can grow into a new plant only under conditions favourable to infection, e.g., in the neighbourhood of roots of the same species.

The bionomics of the partnership is even more puzzling in the case of those curious non-green Orchids, e.g., the Bird's Nest Orchid—which grow in Beech woods and elsewhere. These species are not infrequently rootless, and in no case can they serve as sources of sugar formed from the carbon dioxide in the air. It would seem that here the fungus is the working partner, since it can draw upon the soil humus for both its carbonaceous and nitrogenous food materials. Indeed, in the case of a remarkable Japanese species, *Gastrodia elata*, it has been proved that the Orchid plant is parasitic upon the fungus during part of the life cycle; a turning of the tables indeed! and one, moreover, of the most unexpected kind, since the fungus host is that well-known and troublesome parasite, the Honey Agaric (*Armillaria mellea*).

The *Gastrodia* plant consists of a rootless tuber which periodically throws up an immense inflorescence. Owing to the absence of roots and the corky covering of the tuber, fresh supplies of food material can enter the plant only through the root-like strands or rhizomorphs of the fungus. These invade the tuber in the manner usual to any fungus parasite, but for once have found a victim well able to cope with their activities. Food materials pass into the tuber from the soil mycelium, with which the penetrating strand is continuous, and eventually the whole of the invading hyphae are digested and the soluble products absorbed by the cells of the tuber. Only when this happens can the plant reproduce itself by means of seed. Those tubers which escape infection develop small branch tubers which dwindle in size as the food material contained in the mother tuber becomes exhausted. The behaviour of the seed at germination is not known.

To label these non-green Orchids "saprophytes" is but to advertise our ignorance of the facts. The story of *Gastrodia* gives an indication of the possibilities provided by the relationship, although it is quite probable that each species may have solved the problems of nutrition in a different manner; and when studied experimentally, each may unfold a life history of equal or even of greater interest.

In the light of our present knowledge, it is clear that the satisfactory raising of Orchids calls for control of infection at germination, and that this can best be ensured by bringing seeds into contact with a "pure culture" of the appropriate fungus soon after they are sown. It is satisfactory to learn that this method of culture has already been adopted with excellent results. The most recent researches on the conditions controlling the germination of Orchids tend to show that it may be possible to replace the effect produced by entry of the appropriate fungus by other means, for example, by the addition of certain substances to the substratum on which the seeds are germinating. It remains to be seen whether such methods can be utilised commercially by Orchid growers. *M. C. Rayner.*

PLANTING GLADIOLUS.

THESE beautiful bulbous flowers may be planted during March and the beginning of April, the time varying according to the locality and kind of soil. On light, warm soils they may safely be planted now, but in the case of cold, heavy ground, it is wise to defer planting until the end of the present month or beginning of April. On light soils the corms should be placed at least four inches deep; on heavy soils the planting should be done more shallowly and a little coarse sand sprinkled around each corm. There is a wide range of colours to choose from, and the plants are useful for various situations, such as in large beds or borders by themselves, or in groups in the herbaceous border. In the last situation they may be planted for a succession between Paeonias, Oriental Poppies, or other early-flowering perennials. They may also be grown in beds of dwarf shrubs, or in vacant spaces in the front of shrubbery borders. The ground should have been well prepared some time in advance of planting; and, just before putting in the corms, it is well to lightly fork the surface, after first dusting the surface freely with lime. J. C.

GARDENING BOOKS AND THEIR DISPOSAL.

DURING the past two years I have sold hundreds of gardening books, to buy rarer items for my library and to make room for others. The best medium for the sale of these books has proved to be *The Gardeners' Chronicle*, the sales being obtained by advertising in a small way and following up inquiries for other books. As regards the general Press, no paper beats *The Publishers' Circular*.

Readers who wish to dispose of their books must be careful not to ask five or six times as much as they are worth. Thus, to offer twelve volumes of a gardening paper for £7, when the volumes are obtainable for 15s. the lot, is waste of both time and money. I have refused thousands of offers of books which, if prices had been "possible," I would have taken, and much time is wasted in needless correspondence with those who do not wish to dispose of their books except for a small fortune.

Some idea of suitable prices for works readers often wish to dispose of is given below:—*R.H.S. Journal*, 1s. each part, or 3s. a volume unbound. For bound volumes, in the usual poor condition (needing rebinding), 5s. a volume is the maximum. *The Gardeners' Chronicle*, unbound, sale practically nil. Bound and complete before 1900, 4s. to 5s. a volume maximum; after 1900, 6s. to 7s. 6d. For completing sets there is a market for single volumes up to 15s., but they must be "very much wanted." *The Garden*, early bound volumes, 2s. 6d. each, later 4s. to 5s. each, for quantities much less. *Horticultural Society's Transactions*, 1820-26, about 25s.; badly soiled incomplete sets much less. *Bunvard's Fruit Garden*, if for re-sale, 25s. to 30s., otherwise up to £2 for clean copies (not £4 as sometimes offered). *Thompson's Gardeners' Assistant* varies in price. Old sets are sometimes valued as low as 30s.; good clean recent sets fetch £4 to £5. Old *Floral Magazines* about 2s. 6d. each, sometimes less. These very often have missing plates, and are then quite unsaleable. *Cottage Gardener*, complete, 1s. a volume, sometimes up to 2s. 6d. *Lowe's Ferns*, 8 volumes 30s. *Nicholson's Dictionary of Gardening* up to £7 for really good sets; no sale at all for parts. *Schlich's Forestry*, if complete, about £4; and *Loudon's Arboretum et Fruticetum Britannicum*, eight volumes, up to 50s.

Many books offered by gardeners are use less, but in some cases such items can be disposed of if the would-be vendor makes up collections containing a proportion of works the public wants. It pays to price big books

low if one wants to turn this class of thing into money. It is possible to come across stray cases where garden libraries are being made up, and where those who are planning them will be glad to take one or more parcels; if not, certain purchasers may buy the useless with the useful and burn the former. The writer has on occasion bought several such collections. Parcels of 25 books for a round sum, say £4, are saleable.

Messrs. Dulau and Co. Messrs. Foyles also buy a fair number. I am on the look-out for about 500 books at the present time, and may be able to relieve readers of some of their rarer works. If these books are offered to dealers, however, take one-third off the prices (and do not quibble about post or carriage extra), so that they may make something on the transaction. Send them full details of title, author, and publishers' name, date



FIG. 51.—PRIMULA MALACOIDES VAR. PRINCESS MARY.

R.H.S. AWARD OF MERIT, FEB. 14, 1922. SHOWN BY MESSRS. J. CARTER AND CO. (see p. 83).

Odd parts of periodicals are the worst bug-bears in unsaleables. Collate these and complete them in as long a run as possible, however, and it will be surprising what good prices they fetch.

Failing to dispose of the books by advertising, they should be offered to booksellers, such as Messrs. Wheldon and Wesley, Ltd., and

edition, size, binding, illustration, coloured or plain, number of volumes, and, above all, whether clean or soiled, as these details are essential. Above all, do not work on the principle that those who reply to your advertisements are out to "do" you, otherwise you cannot expect to transact business. 4 Book Collector.

INDOOR PLANTS.

EXACUM MACRANTHUM.

(SEE COLOURED SUPPLEMENTARY ILLUSTRATION.)

THE subject of the coloured plate presented with this issue is a native of Ceylon, where it is found at elevations of 6,000 ft. It is really a variety of the older *E. zeylanicum*, which was figured in the *Bot. Mag.*, t. 4423, in 1848, while the subject of the coloured plate was first flowered in 1853, and figured in *Bot. Mag.*, t. 4771, the seed being sent from Ceylon by Mr. Thwaites.

There are some twenty species of *Exacum*, natives of India, Eastern Asia, the Malayan Archipelago and Socotra. Of this number, only four or five have ever been in cultivation. The subject of this note differs from the type, *E. zeylanicum*, in its larger and more richly-coloured flowers. The latter are bright blue-purple, with large yellow stamens, consequently a freely flowered plant is a very striking and beautiful object.

It is a matter for regret that *E. macranthum* is a scarce plant in gardens, for since Messrs. James Veitch and Sons gave up business seed has not been offered in any home or Continental list. That this *Exacum* was never a common plant in gardens, is, no doubt, due to the fact that, like many other beautiful plants belonging to the natural order Gentianeae, its successful cultivation is by no means easy. It is best treated as a stove biennial, and grown in a temperature of about 60°, although when in flower it will do well in a warm greenhouse.

The seed is very fine, and should be sown on the surface of the soil, and covered with the merest sprinkling of sand; cover the pots with a piece of glass until germination takes place. It is best to defer sowing until the latter part of July, as the smaller plants have a better chance of coming through the winter in good condition and flowering is deferred until the following summer, when weather conditions are all in their favour. The potting compost should consist of one half good fibrous loam, and one half peat, adding some charcoal and enough clean, coarse sand to render the mixture porous. Plants of *Exacum macranthum* require careful watering during all stages of cultivation, especially during the winter months; and I suspect it is in the lack of care in this respect that most cultivators have gone wrong. If kept in a fairly dry atmosphere and artificially pollinated, the flower will set and ripen seeds under cultivation. But although best raised from seeds, this *Exacum* may be propagated by means of cuttings. Among batches of seedlings a pure white flowered form has appeared at rare intervals. Well grown plants should attain a height of eighteen inches.

E. affine is a native of the island of Socotra. It is figured in the *Bot. Mag.*, t. 6324, and has small bluish-lilac coloured flowers, which are sweetly-scented. It is a small, compact growing species, some six to nine inches high, and is generally classed as a warm greenhouse biennial, but is best treated as an annual, for if seed is sown early in the year, the seedlings will flower towards the end of summer.

E. tetragonum var. *bicolor*, figured in the *Bot. Mag.*, t. 1847, is a native of the East Indies.

E. bicolor, which has been in cultivation, is, I believe, a rare species, endemic to Ceylon, where it is found at elevations of 5,000-6,000 ft.; the flowers are described as nearly white, shaded with blue. *J. Coult.*

ANTIRRHINUMS FOR SUMMER BEDDING.

As the days grow longer and brighter, the thoughts of all garden lovers turn naturally to the arrangement of their flower beds and borders for the coming season; to those who may be in doubt as to what plants would make the best and most effective display all through the summer and autumn at a minimum cost, the following remarks may be useful. Apart from Pelargoniums (Geraniums), I consider that the

Antirrhinum is the most adaptable plant for furnishing a succession of bloom, and a bed of the newer named varieties rivals in brilliancy some of the finest beds of Pelargoniums, and the plants certainly withstand the weather conditions of our fickle climate much better. There are three types of *Antirrhinums*; tall, intermediate and dwarf or Tom Thumb, and these may all be grown to advantage in masses of one colour or in ribbon borders. To obtain a display of bloom about the first week in July the seed should be sown at the end of January or early in February. I usually sow the seed in boxes filled with compost consisting of three-parts good sifted loam, one part leaf-mould, and sufficient sharp sand to render the soil porous.

The compost should be pressed moderately firmly in the boxes, leaving the surface level, and well watered the day before sowing the seed. Sow thinly, and cover the seed lightly with a mixture of half fine soil and half sand. Place a sheet of glass over the box and stand the latter in a house or frame having a temperature not over 50°, until the seed germinates.

As soon as the seedlings are large enough to handle, prick them off into boxes about two inches apart. Grow them as near the roof glass as is convenient, admitting plenty of air after the first week. I advise sowing the tall and intermediate varieties a fortnight earlier than the Tom Thumb type.

About the middle of March, place the boxes of seedlings in cold frames and grow the plants on slowly, removing the lights altogether during the day time in dry weather, as the *Antirrhinum* is very hardy, but thrives best when the soil is not excessively wet. With cool treatment it is quite safe to plant *Antirrhinums* in the beds in which they are to flower, the first week in May.

Antirrhinums will grow well in any soil, but to get the best results it is necessary that they should be planted in well-prepared soil containing a liberal quantity of well-rotted manure; it is not advisable to use rank or fresh manure. Tread the soil almost as firmly as for an Onion bed and rake the surface level before planting. As subjects for a dry situation there are few plants superior to *Antirrhinums*; the addition of well-rotted dung to the soil will serve to retain moisture about the roots in hot weather besides furnishing food to the plants.

There are so many good varieties to choose from that come true from seed that it is difficult to know which to select, but I have found the following 12 varieties of the intermediate type make a most effective show of colour when grouped in beds: Amber Queen; Bonfire, orange-scarlet; Coccinea, intense orange-scarlet; Cottage Maid, rose-pink with a white tube; Crimson Queen; Prima Donna, apricot, with white tube (an immense flower); White Beauty; Fascination, pink self (a very charming variety); Fiery Belt, brilliant orange with a white tube; Maize Queen; Mauve Queen; and Yellow Queen.

For borders, the finest of the tall section are: Crimson King; Moonlight, apricot with red flush; Cottage Maid, rose pink with a white throat; White King; Torchlight, orange-scarlet with a yellow centre; and Dobbie's Yellow King, the finest *Antirrhinum* of its colour.

To prolong the flowering period, cut away all exhausted flower spikes before they seed. A good plan to prevent robbing the flower beds for house decoration is to plant a bed of mixed varieties in some odd corner of the garden. The flowers from these surplus plants may be used for cut blooms, and will last in water from ten to fourteen days. *Donald Allan, Marks Tey.*

THE ALPINE GARDEN.

PRIMULA GRANDIS.

THE specific name of *grandis* has an attraction to many, conveying, as it does, the impression of flowers of massive proportions, or, at least standing out above those of other species by a considerable degree. We are apt to imagine that it is only the flowers which are referred to by

this specific name, forgetting that a plant has other features which might justify the appellation. In the case of *Primula grandis*, the specific name refers to the large size of the heart-shaped leaves. At flowering time, there rises from amid these large leaves a tall scape bearing a cluster of flowers. The plant seems to have exhausted itself in its effort to produce such big leaves and so tall a stem, and has little material left to form flowers at all commensurate with its other features. The tubular yellow flowers hang from long pedicels, but their size is so insignificant that they seem out of place on such a commanding plant. This *Primula* is a native of the Caucasus, and appears to be hardy in this country, but it resents drought in spring and summer. It is most suited for the bog garden, but will grow in a moist border, or, better still, in a low spot at the base of the rock garden, where, planted in peat and loam, it will receive the moisture draining from above. The plant is easily, though slowly, raised from seeds, and is also increased by division. *S. Arnott.*

CALCEOLARIA POLYRHIZA.

CALCEOLARIA POLYRHIZA has small, curiously-formed yellow flowers and neat leaves. It is of creeping habit, and a stretch of it rambling among the stones of a retaining wall makes a pretty sight in summer when it blooms. Although it has not the large flowers of such *Calceolarias* as *C. plantaginea*, *C. Kellyana*, or the still more tender *C. violacea*, it is a distinct and pretty alpine of easy growth, and hardy well into Scotland. It is increased by division, and seems to prefer a rather peaty soil, moist in summer but rather dry in winter. I have, however, grown it quite well in a dry, sandy loam. It likes the sun, but will do in partial shade. Those who desire a pleasing addition to the usual subjects planted in the crevices of paved paths will find this *Calceolaria* valuable for the purpose. *S. A.*

THE PROBLEM OF IMMUNITY TO WART DISEASE IN POTATOS.

IN the summer of 1917 a number of Potato seed balls were collected from large crops growing in Scotland. In each case the fruits were taken from near the centre of large areas, the presumption being that the flowers would be selfed and would not be cross-fertilised, at least by any other varieties. In the spring of 1918 the seed was sown, and in the autumn the tubers produced by each seedling were saved. In the spring of 1919 the best half-dozen or so tubers of each variety were planted in the workshop grounds at Ormskirk. They were lifted at the end of September, and accurate records made as to their immunity from Wart Disease. The records were mislaid after Mr. John Snell's death, but they were recently found and forwarded to me by Mrs. Snell. They consist of 163 pages of notes on nearly 500 seedlings. The following are the most interesting, and, I think, indicate that a Potato will be found that will breed true to immunity from seed:—

Number of plants.	Parent of Seed.	Number clean	Number affected with Wart Disease.	Doubtful or failed.
29	President ...	14	15	—
8	Priory Queen ...	8	—	—
17	Favourite ...	14	2	1
29	Climax ...	26	2	1
38	Templar ...	28	5	5
62	Admiral ...	43	5	9
63	Majestic ...	48	22	3

Priory Queen, Favourite, and Admiral are all varieties of the Abundance type, and carry a strong resistance to Wart Disease. Had Mr. Snell been spared, the work would, no doubt, have been continued on these lines. *W. Cuthbertson, Duddingston, N.B.*

THE GREAT DROUGHT OF 1921 AND ITS EFFECT ON GARDEN PLANTS.

(Concluded from page 80.)

LONDON.

It is, no doubt, difficult for some of us whose interest lies in the land to realise that the great heat and drought of 1921 may be for the general good.

Large trees suffered for want of moisture, to say nothing of field and garden crops, herbaceous plants and shrubs, and the presence of hordes of insect pests. But underneath all the temporary loss and inconvenience there lies a very deep vein of good, which, I think, ought not to be lost sight of. Perhaps one of the most potent reasons for satisfaction lies in the effect of the sun's hot rays on the physical condition of the soil. On fallow land, that which was sparsely cropped, and to a limited extent on land which was fully cropped, the effect was similar to that brought about by winter frost, and the more nearly the soil approximated to clay the more was this effect noticed. If the surface of heavy land is kept loose, cracking of the soil will never be a formidable danger.

The sweetening of the soil during such a period must be a real gain to much cultivated land, while many enemies failed to survive such a course of drought as we were subjected to. I am convinced that many ground insect pests are dependent on at least a certain degree of moisture to enable them to move about easily and multiply, if not quite dependent on it to live. Moreover, these pests are searched for, in a droughty period, much more intensively by the birds which prey on them, for at such times birds have a difficulty in finding sufficient food. In this connection one often observes a disturbance by birds in places they do not trouble to search at times when their quarry is found by much less intimate searching.

Hot and dry conditions are very trying to all forms of vegetation, but there is little doubt in my mind that in the long run they may be very beneficial to the cultivator, enabling him to get better returns afterwards for his labour. *E. J. Platt, Parkfield Gardens, Highgate.*

DEVONSHIRE.

THE remarkable amount of sun-heat during 1921 enabled many tropical plants to blossom in the open air which are not often seen in perfection in our gardens. This is especially true of the scarlet Pomegranate (*Punica Granatum*), which opened many brilliant, waxen blooms of the brightest scarlet here in the open garden. The plants grow in a sheltered corner facing the south-west, in South Devon; but if grown in an embrasure between two sunny bow-windows, or on a south wall, this beautiful plant will grow in colder parts of the kingdom if the site be well-drained and fully exposed to sunshine. As it drops its leaves rather early (i.e., as soon as the weather becomes frosty) and remains in a bare state until the following May, it is not often injured by a late frost; it blossoms every year in the writer's garden from August to the beginning of October, although not always in such profusion as in 1921. *I. L. Richmond, Lustleigh.*

LEICESTERSHIRE.

THE interesting articles on the effects of the dry season of 1921 raise the question as to what effect the hot, dry weather will have on all kinds of vegetation during the season now opening? Hardly a week passes but that some unusual change in plant life is observed. I am sure it will prove highly interesting and instructive to take careful note of the progress of vegetation in gardens. Fruit trees that were planted on good soil and carefully tended do not appear to be much the worse for the hot weather, in fact, there is less wood and more fruit buds. Pears and Plums were scarce last season, no doubt owing to frosts when the trees were in bloom. The weather during the first two months of 1921 was unseasonably warm,

hence the flowers were too far advanced to withstand the cold spell. Apples escaped, and there was a great crop. This year, all fruit trees are full of fruit buds, and promise another good crop, and as we have not had what is called a "summerish January," we may hope for a mild spring and the opportunity for fruit blossom to set properly.

Many Apples produce good crops in alternate years, and as last year was an "Apple year," it will be interesting to note if these particular trees produce a good crop two years in succession. They certainly look as though they will do so. I have never seen so many fruit buds on our Pear trees before, and conclude the past season is responsible for this. This year's report on the fruit crops will, no doubt, give us many surprises.

I should have thought berry-bearing shrubs would have been likewise affected, but, evidently, this is not always so. Some bushes of *Berberis Wilsonae* growing on a partly-shaded border were loaded with berries, while others in full sunshine had none at all, neither did they make so much growth. *Chimonanthus fragrans* on a south wall has flowered abundantly for several weeks, and I gathered a quantity of seed, which is encased in large green pods. Our plant has flowered before, but never produced seed. *Rhododendrons* look exceedingly promising, especially those that were well watered, and all are well set with buds. *Azaleas* planted in partial shade are covered with buds, while those in exposed places are almost without any. It was exceedingly difficult to soak the roots of these latter specimens with water, as the peaty

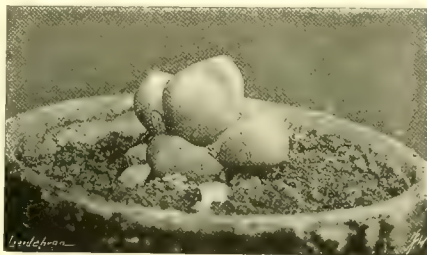


FIG. 52.—*ARGYRODERMA ROSEATUM*, N.E. BR. NATURAL SIZE.

soil became so hard; however, of about a hundred plants, we were fortunate enough not to lose one.

The hot weather of 1921 assisted the ripening of seeds. Such seeds as have been sown here have germinated quickly, and I should say, this will be true of all kinds of seeds, and especially those of outdoor subjects. *R. W. Thatcher, Carlton Park Gardens, Market Harboro'.*

MESEMBRYANTHEMUM AND SOME NEW GENERA SEPARATED FROM IT.

(Continued from page 93.)

3. *A. roseatum*, N.E. Br. (Fig. 52). Plant solitary, or perhaps tufted with age? Leaves 2-6 to a plant or growth, but probably in nature only 2-4, with the inner pair sub-erect, united below for nearly half their length and but slightly separated above, with the inner face flat; 4-6 lines long and 5-6 lines broad, broadly ovate, sub-acute, with sharp edges, and the back very rounded and distinctly keeled at the apical part, which is not prolonged beyond the flat face, about 4-5 lines thick; surface very smooth, white, prettily tinted with rose, especially at the margins and keel. Flower and capsule unknown.

Little Namaqualand: Locality and collector unknown, possibly from the vicinity of Warmbad.

I obtained this distinct and very pretty species from the late Mr. W. J. Doree, but have no other information concerning it. In size and form it somewhat resembles *A. subalbum*, but

the rosy tint of its leaves at once distinguishes it from that and all known species.

4. *A. necopinum*, N.E. Br. Plant tufted with age. Leaves 6-12 lines long, 5-9 lines broad on the flat face, and 3-6 lines thick, deltoide-ovate, obtuse, the dorsal part not or but shortly produced beyond the flat face, obtuse, faintly keeled. Flower sessile between the leaves, with two compressed bracts under it. Calyx 6-lobed; tube obconically campanulate, about 2 lines long and 2½ lines in diameter; lobes 1-2 lines long, ovate or oblong, obtuse, green with membranous margins. Corolla 7-9 lines in diameter; petals numerous, in 2-3 series, widely spreading, 3-4 lines long, linear, bright yellow. Stamens very numerous, in a dense ring at the top of the calyx-tube. Stigma less than 1 line in diameter. *M. necopinum*, N.E. Br. in *Journ. Linn. Soc. Bot.* v. 45, p. 90. *M. testiculare* var. *v*, Haw. *Misc.* p. 24, and *Synop.* p. 205. *M. octophyllum* var. *β*, Haw. *Rev.* p. 85.

Locality unknown. Introduced by Masson, and by Pillans.

** Leaf distinctly much longer than broad, with the edge of the flat face blunt or somewhat rounded and somewhat cartilaginous, and when decaying often becoming reddish-tinted.

5. *A. duale*, N.E. Br. Plant tufted with age. Leaves with the flat or slightly convex face 4-10 lines long and 3-6 lines broad at the base, thence tapering to a more or less acute point or narrowly oblong and obtuse, with the dorsal apex sometimes produced shortly beyond it, slightly keeled, up to 4 lines thick. Flowers unknown. *M. duale*, N.E. Br. in *Journ. Linn. Soc. Bot.* v. 45, p. 89. Van Rhynsdorp Division: on ridges near Bakhuys, Pearson and Pillans, 5453.

This species is very similar to *A. necopinum* in general appearance, but readily distinguished by the blunt, somewhat cartilaginous edges and keel of the leaves. It has not yet flowered with me.

DOUBTFUL SPECIES.

Possibly the plant I described as *M. socium* (*Journ. Linn. Soc. Bot.* vol. 45, p. 91) may belong to the genus *Argyroderma*, but I have not yet seen its flowers, and the skin of the leaves does not seem to be of quite the same texture. It is a small species, quickly forming a tuft, with half-cylindric, suberect leaves 3-10 lines long, 3-4½ lines broad, and 2½-4 lines thick, obtusely rounded and faintly keeled at the apex, whitish-green tinted with rose when exposed to the sun.

Another plant that may also prove to belong to this genus is *M. octophyllum*, Haw. (*Rev.*, p. 85, excluding the reference to the figure of *M. testiculare* in the *Botanical Magazine*, t. 1573, and all varieties). From Haworth's descriptions of this plant (which is as follows, "Leaves on the living plant 6-8, oblong-ovate, half-terete, more erect than those of *M. testiculare*") it is impossible to form an opinion of it, especially as he quotes the *Bot. Mag.* figure as belonging to it, which is most certainly due to some error, I think probably by Haworth entering the reference by mistake in the wrong place in his manuscript. Fortunately there is a drawing of it preserved at Kew, which is labelled "*M. octophyllum*, Haw., May 7, 1827. Received in 1826 from A. H. Haworth Esq." This drawing, therefore, represents the typical plant of Haworth, and is all that is really known of it. For the only plant I have ever seen of it was in the rich collection of Mr. W. Wilson Saunders at Reigate, about the year 1866, when Mr. T. Cooper called my attention to it and said it was believed to be a descendant of Haworth's original plant. That plant, to the best of my recollection, was the same as in 1873 I found to be represented in the Kew figure. It is a tufted species, each growth with three or four pairs of smooth, whitish-green or whitish leaves about 7-12 lines long, 3-4 lines broad, and 2½-3½ lines thick at the much thickened or dilated apical part, which is twice as thick as at the base, flat on the face, very convex on the back, and keeled at the apical part. Flowers sessile and yellow, according to Haworth. Locality unknown. *N. E. Brown.*

(To be continued.)

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

A New Kind of Fuel for Heating Green-houses.—Having seen an advertisement in *The Gardeners' Chronicle* of a new fuel, and as the cost of fuel is a serious consideration in these times, especially where the consumption is a heavy one, I thought I would give the new material a trial. Previously we used anthracite coal and coke, but the new fuel surpassed them in the maintenance of a steady temperature. I believe the new fuel contains a mixture of anthracite, coal, and other materials; it is machine-pressed into egg-shaped lumps, and easy to handle. One great recommendation in its favour is the lasting heat it produces, and I believe it will be possible to bank the fire to last several days during the summer months, where a gentle artificial heat is required for the growing of Cucumbers, etc. There are no clinkers; the material burns down to a fine ash, which is of a gritty nature, and valuable as a dressing for heavy land. In addition to the recommendations mentioned, the use of this fuel has effected a very considerable saving on our fuel bill. *J. W. Forsyth, Putteridge, Luton.*



FIG. 53.—STAPELIA GIGANTEA; MUCH REDUCED.

Stapelia gigantea.—This very interesting, large-flowered, succulent plant is not often seen in bloom. After cultivating a specimen for six or seven years it has at last condescended to produce a flower, of which I send a photograph (see Fig. 53), in the hope that it may interest those of your readers who are interested in Cacti and other succulents. The flower measured 14½ in. in diameter. *T. Sharpe, Horticultural Instructor, Wiltshire County Council.*

Musa Cavendishii.—Your readers may be interested to learn that we have fruited *Musa Cavendishii*, and that our specimen carried a bunch of thirty fruits, one of which I enclose. I think you will agree that the flavour is far superior to that of imported fruits. *Musa Cavendishii* does not occupy so much room as some Bananas, and the specimen referred to was grown in a pot and is about four feet high. I have grown much larger specimens, but never had one fruit before. The plant just fruited was grown in a pot in a compost of equal parts of rotten manure and turfy loam, with a little sand. It is about four years old, and was grown in a house the temperature of which never fell below 50°. *W. Hill (gr. to G. W. Ryder, Esq.), Broadhill, Hassocks, Sussex.* [The photograph

accompanying the above note was unfortunately unsuitable for reproduction. The fruit received was of particularly fine flavour.—EDS.]

Trapping Mice and Voles.—At this time of the year, when bulbs are coming up and gardeners are beginning to set their house in order, it is very necessary to deal with mice. I believe that the damage market gardeners suffer from mice throughout the country must run into many hundreds of thousands of pounds, and the greater part of this waste could be saved by careful trapping. My own experience, which extends over very many years, has taught me that by the use of a balance trap it is possible to deal with the spring invasion and to keep vermin in check. For forty years past I have used the old Colin-Pullinger Trap, as made by the late inventor. Four traps kept set in a garden, with woods and meadows adjoining, have caught annually from 200 to 400 field mice and bank or field voles. Perhaps it might be of interest to your readers to learn something of the simple precautions that experience has taught me to adopt. In the first place, the trap stands on a piece of slate or a thick piece of wood about an inch wider than the trap itself, and covered with an inverted lidless box large enough to leave a space of four inches or more above and around it. This

affords the concealment which mice like, and also protects the trap from the weather, and allows it to work effectively, as mine has done for twenty years or more. The bottom of the box needs to be covered on the outside with oil-cloth or sheet metal to keep out the wet. Pieces of wood projecting about an inch and a half, and nailed at each corner for supports, serve to keep the box raised from the ground. I use no other bait than a drop of oil of aniseed on a piece of flannel on the bait rack. This is renewed by the garden boy every fortnight. The trap, being a balance trap, is always set, and I find that most voles and field mice are caught on a wet night. If market gardeners and the many amateurs who delight in raising choice flowers, and often find their best efforts spoilt by mice, would care to follow my plan, they would be able to carry out their work in complete security. Certainly as a result of my own efforts I am able to raise garden produce without molestation, even in years when the number of field mice assumes the proportion of a plague. The increased number of allotments has favoured the spread of these troublesome pests in many parts. *Mark Hovell, Lemsford House, near Hatfield, Herts.*

Topiary as an Aid to Advertising.—Garden-lovers who have a leaning towards topiary work, have now an opportunity of turning their surplus, trimmed trees to account. A London firm of advertising agents has formulated a scheme by which Yew trees, grown and clipped to resemble animals, birds or other objects, may be utilised as an adjunct to advertisements of food-stuffs, beverages, polishes, pocket pens, and other commodities in general demand. The idea is that suitably-shaped Yew trees, bearing the name of the manufacturer, his branded goods or trade-mark, are to be planted alongside railway lines, near popular highways, or on suitable sites in cities, to call attention to the wares so advertised. Thus, for a brand of tinned milk, butter or cheese, they offer the figure of a cow; for eggs—presumably of the preserved variety—they have Yews shaped like a hen, or a duck; while for a certain make of margarine, they propose trees cut to resemble a pheasant. Yew trees can easily be grown in an open, circular form, which, resembling a life-buoy, would obviously fit a certain brand of soap which rejoices in that somewhat incomprehensible sign as its cognomen. Figures of swans, again, are easily trained in Yew, and trees so shaped would

serve to advertise a certain fountain pen. So great is the variety of forms of these clipped trees that the promoters of the scheme profess their readiness to supply suitable shapes for practically any article now prominently placed before the public. The charges vary according to complexity of the design. This novel method of advertising obviously opens up a new market for specimens of the topiary art. *E. W. R.*

Mistletoe on an Almond.—Since writing your *re Mistletoe*, two years ago, I have noticed a strong clump of the parasite on an Almond; it is the first case of a stone fruit having Mistletoe on it that I have met with. *Geo. W. Stacey, The Gardens, Chorleywood Cedars.*

SOCIETIES.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

FEBRUARY 16.—*Committee present:* The Rev. J. Crombleholme (in the chair), Messrs. B. J. Beekton, J. Birchenall, A. Coningsby, D. A. Cowan, J. C. Cowan, J. Cypher, J. Evans, J. Howes, A. Keeling, J. McNab, D. McLeod, E. W. Thompson and H. Arthur.

AWARDS.

FIRST-CLASS CERTIFICATES.

Odontoglossum Orestes var. *Mary*.—A fine variety, of good shape; the clear, white ground is covered with brown spots and blotches. *Lycaste Skinneri Our Princess*: A large flower, the broad sepals light rose, the petals darker rose, lip claret colour, from Mrs. GRATRUX.

Cypripedium Odin, West Point var. (Antinous × Beektonii).—The dorsal sepal is white with a green base and dark purple spots up the centre; the petals are yellow, barred with brown; ground yellow, from S. GRATRUX, Esq.

Odontioda Bradshawiae var. *Brilliant*.—A large flower of fine shape and well coloured, from A. HANMER, Esq.

Cattleya Tityus var. *The Emperor*.—A large flower with broad sepals and petals coloured dark mauve; the lip is deep purple and the side lobes yellow, from P. SMITH, Esq.

Cattleya Douai var. *Prince Henry*.—A large pure white flower of fine shape, from D. LOSH-THORPE, Esq.

AWARDS OF MERIT

Cypripedium Hestia Edgemoor var., *Odontoglossum amabile Princess* (crispo Harryanum × crispum); *O. Iphis* (harvingtense × Queen Alexandra), all from A. HANMER, Esq.

Cypripedium Pyramus West Point var. and *Lycaste Skinneri Perfect Gem*; both from S. GRATRUX, Esq.

Cypripedium aure-Euryades var. *Whitecap*.—From the Rev. J. CROMBLEHOLME.

CULTURAL CERTIFICATE.

To G. GILES for a fine specimen of *Odontioda Bradshawiae* var. *Brilliant*.

GROUPS.

S. GRATRUX, Esq., *West Point* (gr. Mr. J. Howes), was awarded a Silver-Gilt Medal for a group. The Rev. J. CROMBLEHOLME, Clayton-le-Moors (gr. Mr. E. Marshall), staged a group for which a Silver Medal was awarded.—Messrs. CYPHER AND SONS, Cheltenham, were awarded a Silver Medal for a collection.

CARDIFF GARDENERS'.

A MEETING of the above association was held on February 14th at the Queen's Hotel, Cardiff, Mr. M. Toy presiding. A paper on "Spring Bedding" was read by Mr. A. E. Gibson, of Llanishen. Prizes for the best six pots of encrusted varieties of *Saxifraga* were given by Mr. W. Rockey, and there was an interesting competition. The first prize was won by Mr. G. Wilkins; second, Mr. P. Myers; third, Mr. Fry.

ROYAL HORTICULTURAL.

FEBRUARY 28.—Those who turned aside from the surging crowds after Princess Mary's wedding on Tuesday, and paid a visit to the Royal Horticultural Hall, were amply repaid. Although the exhibition was not an exceptionally large one, it was bright and springlike, as Tulips, Daffodils, Crocuses and Hyacinths were well displayed, in addition to other early flowers. The Orchids were, however, the great feature of the exhibition, and the outstanding feature among these flowers was the superb exhibit of new, home-raised *Cymbidium* hybrids from Sir GEORGE HOLFORD. The Orchid Committee recommended a Gold Medal for the group; a Silver-Gilt Lindley Medal to Mr. H. Alexander, the grower, for excellence of culture; and no fewer than eight awards to new and distinct plants in the group. The latter is probably unique; we do not remember any exhibitor having so many awards for plants of one genus on any previous occasion.

Novelties, apart from Orchids, were few in number, and no award was made by either the Fruit Committee, the Floral Committee or the Narcissus Committee.

Orchid Committee.

Present: Frederick J. Hanbury, Esq. (in the chair), Messrs. Jas. O'Brien (hon. secretary), R. Brooman White, S. W. Flory, Chas. H. Curtis, Fred. K. Sander, J. Cypher, W. H. Hatcher, H. T. Pitt, A. McBean, T. Armstrong, H. G. Alexander, Gurney Wilson, J. Wilson Potter, and E. R. Ashton.

Awards.

FIRST-CLASS CERTIFICATES.

Cymbidium Miranda var. *Bronze Beauty* (*Lowio-grandiflorum* × *Alexanderi*), from Sir GEO. L. HOLFORD. A superb, yellow-ground variety with bronze hue, and yellow lip with heavy claret marking.

Cymbidium Redstart var. *Bright Eyes* (*Dryad* × *Pauwelsii*), from Sir GEO. L. HOLFORD. Flowers of perfect form, milk white with dark ruby-red blotches on the lip.

Cymbidium Thrush (*Schlegelii* × *Holfordianum*), from Sir GEO. HOLFORD. Flowers large and finely formed, yellow, beautifully marked with red.

Cattleya Tityus var. *Wedding Bells* (*Enid* × *Octave Doin*), from Messrs. SANDERS. A noble variety, and the best of a very favourite class. The very large flowers have rosy-mauve sepals and petals and rich purple lip, with yellow markings on the disc.

Angulo-caste Sanderæ (*Anguloa Clowesii* × *Lycaste Skinneri alba*), from Messrs. SANDERS, St. Albans. A charming and distinct bigeneric hybrid with large lemon-yellow flowers, having a darker yellow centre to the lip which has a claret-red blotch at the base.

Potinara Juliettæ (*Sophro-Laelio-Cattleya Marathon* × *Brasso-Cattleya-Ena*), a splendid production by Messrs. CHARLESWORTH AND CO., and named after Mons. Potin, President of the Paris Orchid Society. It is a new multi-generic cross. The large *Cattleya*-like flowers have orange-red sepals, with the petals intense reddish-violet, and the white mid-rib displayed at the base. The pretty lip is rich ruby-red with a rose flush and some fine gold lines at the base.

AWARDS OF MERIT.

Cymbidium Miranda (*Lowio-grandiflorum* × *Alexanderi*), from Sir GEO. HOLFORD. Flowers large, greenish-yellow, with dark markings on the lip.

Cymbidium Redstart (*Dryad* × *Pauwelsii*), from Sir GEO. HOLFORD. A perfect, light rose flower with darker lines, and claret markings on the lip.

Cymbidium Curlew var. *Rosy Gem Butterfly* × *Alexanderi*), from Sir GEO. HOLFORD. Flowers of a good, clear rose-colour, with darker markings and bronze-red blotches on the lip.

Cymbidium Kittineake (*Gottianum* × *Dryad*), from Sir GEO. HOLFORD. A fine, clear white flower with ruby-red markings on the lip.

Cymbidium Butterfly (*Lowio-grandiflorum* × *insigne*), from Sir GEO. HOLFORD. A beautiful yellow hybrid, with red markings on the lip.

Sophro-Laelio-Cattleya Mars. (*S.-L.-C. Marathon* × *C. Clotho*), from Messrs. ARMSTRONG AND BROWN, Orchidist, Tumbidge Wells. A fine, purplish-red flower, with a heavy purple band on the petals, and a rich ruby-purple lip.

Odontioda Venus (*Odm. Agioun* × *Oda. Coronation*), from Messrs. ARMSTRONG AND BROWN. A grand hybrid with the general characters of *Oda. Coronation*, but with larger flowers, which are blush-white, finely blotched with rose.

Odontioda Cissie (*Oda. Lambeauiana* × *Odm. King Arthur*), from Messrs. J. and A. McBEAN. A grand, rich red flower, with a reddish-purple blotch on the lip in front of the yellow crest.

Brasso-Laelio-Cattleya Camada (*L.-C. Artemis* × *B.-C. Mrs. J. Leemanii*), from Messrs. CHARLESWORTH AND CO. A remarkable hybrid with large, clear yellow flowers which have a lightly fringed margin to the lip.

Odontioda Latona var. *Lilacina* (*Oda. Bradshawiae* × *Odm. crispa-Harveyana*), from Messrs. STUART LOW AND CO., Jarvisbrook. The plant bore a noble spike of fine flowers, with blush-white ground, heavily marked with claret-red.

GROUPS.

Lt.-Col. Sir GEO. L. HOLFORD, K.C.V.O., Westonbirt, Tetbury, was awarded a Gold Medal for the grandest group of *Cymbidiums* ever staged, and his gardener, Mr. H. G. Alexander, received the Silver-Gilt Lindley Medal, for the marvellously fine cultural perfection attained, and indicated by the profuse flowering of all the plants, many of which carried five or six grand, arching spikes. The group occupied nearly the whole of the broad staging across the end of the hall, and fine specimens, all raised at Westonbirt, exhibited every shade of colour and variety of form known to the genus. A number of the best are enumerated in the list of awards above, but many well worthy of distinction remained, the richly-coloured *C. President Wilson* being specially selected by the Committee to see again when the flowers were fully expanded. *C. Redstart Purple Gem* and *C. Merlin* var. *Jasper* were also much favoured, but where all were so far beyond the average, selection was difficult.

Messrs. CHARLESWORTH AND CO. were awarded a Silver Flora Medal for a select group, the central plant of which was a grand specimen of *Odontoglossum ardentissimum* album, with a branched spike of seventy flowers. *Neo-Moorea imbricata*, a very rare species, *Dendrobium Bancroftianum*, and a showy selection of *Cattleyas* and *Laelio-Cattleyas*, were also noted in this display.

Messrs. SANDERS were awarded a Silver Flora Medal for a good group of varied hybrids and species, among the latter being an entirely pale yellow form of *Oncidium splendidum* and the fine *Angulo-caste Sanderæ*.

Messrs. STUART LOW AND CO. secured a Silver Flora Medal for a showy group, in which *Dendrobiums* and *Sophronitis* crosses were conspicuous arranged with handsome *Cattleyas*, *Laelio-Cattleyas* and *Odontoglossums*. Messrs. J. and A. McBEAN were awarded a Silver Flora Medal for a showy group of *Cymbidiums*, *Odontiodas* and *Odontoglossums*. With the *Laelio-Cattleyas* was a very large golden-salmon tinted *L.-C. Linda*, with a rose flush and richly-tinted lip quite distinct from the several fine forms for which certificates have been obtained by this firm.

Messrs. FLORY AND BLACK, Slough, were awarded a Silver Banksian Medal for a very interesting selection of hybrids, with several good white *Cattleyas*.

OTHER EXHIBITS.

R. G. THWAITES, Esq., showed the prettily marked *Odontoglossum Meridithiae*. T. A. STEPHENSON, Esq., Aberystwyth, showed a fine collection of beautifully executed paintings of British Orchids. Messrs. ARMSTRONG AND BROWN showed their handsome *Odontoglossum The Prince* (*Colossus* × *Doris*). PANTIA RALLI, Esq., Ashted Park, sent the white *Cattleya Gravesiana alba*.

Floral Committee.

Present: Messrs. H. B. May (in the chair), W. R. Dykes, W. B. Cranfield, G. Reuthe,

M. Williams, R. C. Notcutt, George Harrow, Amos Perry, Donald Allan, J. F. McLeod, W. Howe, J. Jennings, C. R. Fielder, Hugh Dickson, G. W. Leak, Thomas Stevenson, H. J. Jones, M. C. Allwood, W. B. Gingell, Arthur Turner, Chas. E. Pearson, D. B. Crane, W. P. Thomson, W. G. Baker, W. J. Bean and J. W. Barr.

GROUPS.

Forced trees and shrubs made several dainty and attractive displays in the hall. Messrs. L. R. RUSSELL, LTD., made a central feature of a group of particularly well-flowered *Wistarias*, and also gave special prominence to the graceful *Prunus triloba*. Various *Lilacs*, *Azaleas*, *mollis* and *indica*, with *Camellias* and a bordering of *Azalea Hexe* were all tastefully arranged (Silver-Gilt Banksian Medal).

Such flowering shrubs as *Pyrus Malus* varieties, *P. spectabilis*, *P. purpurea*, *P. floribunda* and *P. Sargentii* were shown by Messrs. WM. CURRISH AND SON in association with an informal rock garden in which the Japanese forms of *Azalea Kamperi* were represented by well-flowered little specimens. The miniature bush named *Azalea Hidomango*, which was covered with small salmon coloured flowers, was particularly good (Silver Flora Medal).

The earliest Himalayan *Rhododendrons* were shown by Mr. G. REUTHE, who, at the other end of his exhibit, staged a goodly quantity of the decorative *Andromeda japonica*. Amongst a number of alpine groups of *Iris reticulata* and *Narcissus minimus* made bright patches of colour (Bronze Flora Medal).

Iris reticulata was also shown in quantity by Messrs. J. CHEAL AND SONS. *Rhododendron praecox* was represented by several floriferous bushes, and these, together with the long catkins on a plant of *Garrya elliptica*, attracted considerable attention. Besides these shrubs, there were many shapely little *Conifers* and some early alpine (Bronze Flora Medal).

Carnations were the subject of several large groups. Messrs. ALLWOOD BROS., LTD., had a very bright display, in which the scarlet *Edward Allwood* was very prominent. Amongst several perpetual "Malmaison" varieties the yellow flowered *Jessie Allwood* was particularly meritorious, and a large stand of mixed sorts was also very effective (Silver Flora Medal).

By the use of artistic earthenware jars in place of the conventional stands and green vases Mr. C. ENGELMANN displayed his excellent Carnations to great advantage. The American varieties *Maine Sunshine* and *Laddie* near the dark crimson *Nigger* were again prominent in Mr. Engelmann's collection (Silver Banksian Medal).

A very good *Hippeastrums* (*Amaryllis*) were included in an exhibit by Messrs. STUART LOW AND CO., who again showed *Daphne indica* and *Acacia Baileyana* with *A. ovata*, various *Camellia* and *Azalea* varieties (Silver Banksian Medal). A nice little group of well-grown plants of *Primula malacoides* *Pink Beauty*, arranged by Mr. WILLIAM YANDALL made an effective display (Bronze Flora Medal).

Alpines were shown in rather greater numbers than at the previous meeting. Messrs. TUCKER, Oxford, submitted a series of blue and violet purple *Primulas* obtained by crossing *P. Juliae* with *P. Wilson's Blue*; there was considerable variation in length of flower stem and form of flower. Purple *King* and *Brilliant* were two of the best. In a group in the hall Messrs. TUCKER had some attractive plants of *Primula Juliae*, various *Saxifrages*, *Soldanella montana* and the yellow flowered *Anemone ranunculoides* (Silver Flora Medal).

In a well-conceived rock garden Messrs. WATERER, SONS AND CRISP displayed *Adonis amurensis*, many *Crocuses*, *Iris reticulata*, *Iris sibirica* and a dainty bush of *Cytisus White Gem* (Silver Banksian Medal).

The bronzy green foliage of *Berberis dulcis* nana served as an excellent foil to the flowers of *Erica darleyensis* in the collection of Messrs. SKELTON AND KIRBY, who also had various alpine and *Nandina domestica* (Bronze Banksian Medal). Besides various *Saxifrages* and other alpine, with *Ericas* and *Iris reticulata*, Messrs. MAXWELL AND BEALE showed some excellent *Violets*. The blooms of *La France*

were grown under glass, while the bunches of Princess of Wales were from the open ground (Bronze Banksian Medal).

Several vases of attractive Narcissi, including the dainty *N. cyclamineus*, with *Hyacinths*, were displayed by Messrs. BARR AND SONS. Besides the ordinary Snowdrop, there were bunches of the larger *Galanthus nivalis grandis*. Some attractive Crocuses and Hellebores were also on view (Bronze Flora Medal).

Under the clock Messrs. SUTTON AND SONS had a colour scheme in Crocuses. The shades used were purple and lilac with white, and these made an attractive display. All the flowers were exceptionally large and fresh (Silver Banksian Medal).

From the MAYTHAM GARDENS, Rolvenden, was shown a batch of *Anchusa myosotidiflora*, which attracted a great deal of admiration. The blue Forget-me-not-like flowers were freely produced, and made quite an effective display.

Narcissus and Tulip Committee.

Present: Messrs. E. A. Bowles (in the chair), J. Jones, G. Churcher, G. W. Leak, F. H. Chapman, W. B. Cranfield, W. R. Dykes, A. R. Goodwin, G. Reuthe, Herbert Smith, W. A. Watts, and Chas. H. Curtis (Hon. Sec.).

This Committee made no awards to novelties. A particularly effective group, composed entirely of Tulips, was arranged by Messrs. SUTTON AND SONS in the centre of the hall. The flowers were set almost on the ground level, arranged in bowls of various size, and in large baskets, over a ground work of black velvet. About fifty-six varieties of Tulips were displayed, and their quality and arrangement well maintained the high reputation the Reading firm has achieved with bulbous plants (Silver-Gilt Flora Medal).

Another capital group was the one from Messrs. R. H. BARR, LTD., and in this display practically every Tulip and Narcissus, in every bowl or pot, was of outstanding merit from the point of view of high cultivation. Tulips Brunnhilde and King of the Yellows attracted general attention and merited all the admiration they received (Silver-Gilt Flora Medal). Mr. W. A. WATTS, St. Asaph, showed an early incomparable *Daffodil* named Princess Victoria; it has yellow flowers carried on stems 2 feet long.

Fruit and Vegetable Committee.

Present: Messrs. O. Thomas (in the chair), E. A. Bunyard, Geo. F. Tinley, S. B. Dicks, W. F. Giles, G. Reynolds, W. Pope, Geo. Kelf, J. C. Allgrove, W. H. Divers, Rev. W. Wilks, and J. Harrison.

Mr. W. POPE, Welford Gardens, Newbury, showed a seedling Apple named Pope's Nonesuch. It is of the Radford Beauty type, has a large, wide eye without any depression, and a stalk about three-quarters to an inch long set in a fairly deep cavity. The fruit is round in outline and heavily flushed with red on the sunny side, the shaded portion being a rich mellow yellow. It is a late-keeping Apple of good quality, and the fruits shown had the appearance of keeping in good condition for another two months or more.

Captain H. B. TATE (gr Mr. A. E. Moss), Billesly Manor, Alcester, Warwickshire, showed a dozen dishes of Hanwell Souring Apple.

An interesting example of Burr-Knot on Apple shoots was brought to the notice of the Committee. This abnormal condition of growth is caused by the development of adventitious roots and might be mistaken for galls caused by woolly aphids. The abnormality gives the name to the old Burr-Knot variety of Apple (syn. Bide's Walking Stick), a good culinary sort in use during October and November. Hogg states in *The Fruit Manual* that "the tree is a close and compact grower, and a profusion of burrs are produced on the branches, which emit incipient roots. If a branch furnished with these burrs is inserted in the ground it will take root and become a tree. The name of 'Bide's Walking Stick' originated from a person of that name having cut a branch from a walking-stick in Cheshire and brought it to his place near Hertford, when, having inserted it in the ground, it took root and became a tree."

Obituary.

George Tough.—We regret to record the death, at his residence, The Neuk, Banchory-Ternan, Kincardineshire, of Mr. George Tough, forester, Crathes Castle. He had reached the goodly age of 74, and was 37 years in the service of Sir Robert Burnett, Bt., and Sir Thomas Burnett, Bt., of Leys, Crathes Castle, Kincardineshire. A highly respected member of the community, Mr. Tough was well versed in his profession, and had under his charge one of the finest and most valuable wooded areas in Scotland. Few, indeed, were the strangers who visited Scotland in quest of information on woods and woodcraft who failed to pay a visit to Crathes Castle Woods, and never did they go away disappointed. Mr. Tough was steeped in the lore of the profession he loved so well, and a day spent with him was an education, and a pleasure not soon forgotten. The large and representative body of tenants and estate staff which followed his remains to the grave showed the respect and esteem entertained for him. He is survived by a widow, six sons and four daughters.

NEW HORTICULTURAL INVENTION.

LATEST PATENT APPLICATIONS.

- 3,639.—Bradbury, B. M. F.—Combined flower holder and watering can.—February 8.
3,894.—McIntyre, J.—Means for supporting plants.—February 10.
4,099.—Rayner, G. H. T.—Spades, shovels, and forks.—February 11.
3,320.—Kershaw, W.—Apparatus for supplying grease to fruit trees, etc.—February 4.
2,030.—Gaunt, C. F.—Apparatus for seed-sowing.—January 23.
1,775.—Alder, G. C.—Garden shears, hedge-clippers, etc.—January 20.

SPECIFICATIONS PUBLISHED LAST MONTH.

- 174,521.—McBride, T. J.—Machines for distributing seeds and, or, fertilisers.
167,452.—Witzel, K.—Hand tools for cultivating the soil.
148,560.—Eberhead, R. P.—Process for the manufacture of a natural plant manure.

ABSTRACT PUBLISHED LAST MONTH.

Insecticides.—Patent No. 172,462.
A new insecticide particularly for use on fruit trees has been invented by Mr. W. Coker of Canberra, Linton Road, Hastings. The insecticide is applied either by spraying or by saturation of rag, etc., wrapped around the trunk. It is made by soaking Tomato plants, after the fruit has been picked, in water, or by expressing the juice therefrom.

Messrs. Rayner and Co. will obtain printed copies of the published specifications and forward on post free for the official price of 1s. each.

This list is specially compiled for *The Gardeners' Chronicle*, by Messrs. Rayner and Co., Registered Patent Agents, of 5, Chancery Lane, London, from whom all information relating to patents, trade marks, and designs, can be obtained gratuitously.

ANSWERS TO CORRESPONDENTS.

ARAUCARIA IMBRICATA TIMBER: S. R. A. The wood of *Araucaria imbricata* may be cut up into boards and used much in the same way as the timber of Scots Pine is employed. It should not be allowed to come into contact with the ground unless it is first creosoted. *Araucaria* wood may be used for interior work in buildings or for the making of common

furniture, boxes and many other purposes. It is one of the most widely used soft woods of South America.

LAWN GRASS SEED: *Wulfruna*. The approximate weight of seed needed to sow an area of 100 feet by 40 feet, in order to make a good lawn quickly, would be 27 lb. The value of lawn grass seed has increased considerably of late, so that its present price cannot be stated definitely, but we should not expect it to be less than 3s. per lb. The seed may be sown as early in March as the conditions of the soil and weather permit. A dry, calm day should be selected for the sowing, and the suitability of the soil is generally tested by treading on it; if it adheres to the boots, the work should be postponed until it is drier. To ensure even distribution of the seed, it is good practice to set out the ground into strips, three feet wide, with the garden line.

LILY-OF-THE-VALLEY AS A MARKET FLOWER: H. F. The average prices for Lily-of-the-Valley in Covent Garden market last year were 3s. per bunch for spikes of extra special quality; 2s. per bunch for special quality, and 1s. per bunch for spikes of second grade quality. These grades are known in the market as extra specials, specials and seconds respectively; each bunch contains twelve spikes with a little foliage. These flowers travel best packed in shallow boxes. We know of no special work on the Lily-of-the-Valley.

"BULBS" FROM A PHEASANT'S CROP: G. A. C. The "bulbs" are the swollen root stocks of *Arrhenatherum avenaceum* var. *bulbosum*, the Onion Couch. This is a tall growing kind and one of the Oat grasses. The swollen root stocks develop just below the surface of the soil. Each "bulb" is solid, round, and smooth, about the size of a large Pea, and capable of withstanding drought for a long time.

MUSHROOM GROWING IN A CELLAR: L. G. J. Turn the manure about four times on alternate days in a cold shed, until it is well mixed and the rank gases of fermentation given off into the air. Make the bed about 15 in. deep, ramming the materials as firmly as possible. When the heat has declined to 75 deg. or 80 deg. the spawn should be inserted just under the surface, about 9 in. apart, using pieces about 2 in. square. The surface should then be made firm and cased over with about 1½ in. of fine loam and again made firm with the back of a spade. The bed should not be watered during the first month or six weeks; a covering of two or three inches of long, light litter will help to conserve the moisture arising from the manure. Should water be necessary afterwards, it should be applied through a fine rose over the litter. If you maintain a temperature of 50 deg., a little more or less warmth according to the weather, loss of moisture will be much less marked, and when no fire heat is employed syringing or damping is not necessary or advisable. If you harvest 25 or 30 per cent. of the Mushrooms that show you will have a good crop.

MUSHROOM HARDENED BY DISEASE: W. F. The specimen received is a somewhat large form of the ordinary cultivated Mushroom, but the gills have become somewhat malformed and drawn away from the stem, as a consequence of an attack of *Mycogone perniciosa*. The disease appears to be in an early stage, as only the verticillium is at present apparent.

NAMES OF FRUIT: T. A. C. 1, Broad Eye Pippin; 2, Sturmer Pippin.—D. I. Winter Strawberry.—J. H. Bramley's Seedling.

NAMES OF PLANTS: J. M. The large leaf represents an *Aristolochia*, probably a form of *A. gigas*. The spotted-leaved plant is *Maranta maculata*, and the other is an Orchid.

Communications Received.—G. C.—H. F.—W. H. F.—L. and B.—J. B.—Y. S. H. M.—R. J.—J. P.—C. E. S. R. W. R.—T. R. M.—A. F.—A. B. W.—A. G. L.



EXACUM MACRANTHUM—A STOVE ANNUAL.

(Habitat. Ceylon. Nat. Ord. Gentianeae.)

THE

Gardeners' Chronicle

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 49.9.

ACTUAL TEMPERATURE.—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wedne-day, March 8, 10 a.m. Bar. 30.1; temp. 44°. Weather.—Raining.

The National Institute of Agricultural Botany.

The second annual report of the Council of the National Institute of Agricultural Botany is a record of achievement of which the Council, and particularly the chairman, Sir Lawrence Weaver, have every reason to be proud. Notwithstanding building difficulties, the Institute has been provided with a permanent and worthy home. The buildings at Cambridge are admirably planned, adequate, at all events for many years, for the manifold work which is carried on there, and, thanks to the good taste of the architect, Mr. P. Morely Horder, they demonstrate that it is possible in the laboratory-type of building to combine utility and grace. As we have explained on a previous occasion, the work of the Institute is two-fold—the improvement of crops and the testing of seeds. Both branches of work call for a high degree of experience and skill, and out of both important advantages to British agriculture and horticulture are bound to accrue. It is, however, to the former branch that general interest will be chiefly directed. The work of this branch falls into several sections, the chief of which are those concerned with Cereals and Potatoes. The methods employed cannot by the nature of the case be quite identical in the case of these two crops. The latter of them stands by itself, and the task of improving the Potato is in the charge of a committee presided over by Dr. Salaman, who has had wide experience in Potato breeding and whose enthusiasm for and devotion to this work are a guarantee that the interests of Potato raisers and growers will be most actively promoted by the Institute. Beside the immunity trials carried on at Ormskirk on behalf of the Ministry

of Agriculture, there have been established by the Institute an important series of maturity trials, the object of which is to gain and impart certain information as to the time of maturing of the chief varieties, particularly those belonging to the early section. Knowledge of this subject, which is of great practical importance, is still very scanty. In the absence of certain information it cannot even be asserted—although it is probable enough—that the times of maturity of given varieties of Potatoes are constant relatively to one another. Visitors to the Royal Agricultural Show, which is to be held at Cambridge this year, will have an opportunity of seeing the methods adopted by the Institute with the object of investigating time of maturing. About one and a half acre of the ground on which the show is to be held has been set aside for demonstrating trial plots of Potatoes, Wheat, and other Cereals. What is to be regarded as the main function of the Institute is to bridge the gap between the producer of a new variety and the commercial exploitation of that variety. Before a new and promising variety can be put on the market, it must be tested thoroughly and a sufficient stock of it worked up. These tasks are heavy and tedious, and it says much for the enterprise of British seed houses that they have in the past been discharged so well. It is by no means the object of the Institute to enter into competition with firms engaged in this work, but rather to provide a means whereby everyone who has a good thing may secure its being put to a searching and authoritative test. Already numbers of promising new varieties of Potatoes are under trial, and so also are several new hybrid, winter, white Oats, which have been raised at the Plant Breeding Institute at Cambridge. The plan to be generally adopted in these trials is to provide, first, a preliminary trial for the purpose of ascertaining that each new variety comes up to a certain standard, and for providing seed grown under known conditions, sufficient for the full trial which will take place in the following year and in several localities simultaneously. We hope that everyone interested in improvement of crops will lend support to the Institute. It is open to all to do so by becoming Fellows of the Institute, and when it is realised that 2,000 Fellows would suffice to provide the Institute with a means sufficient to enable it to carry out its programme in its entirety, we are sure that that number will speedily be enrolled.

Arnott Lectures at Aberdeen.—There was concluded on Friday evening, 3rd inst., in Robert Gordon's Technical College, Aberdeen, the annual Arnott course of lectures. Founded a considerable time ago for the benefit of the humbler classes these lectures have ever proved a great success. This year the lecturers and the subjects they dealt with were as follow:—"American Forests," by Mr. Peter Leslie, M.A., B.Sc.; "Insect Gardeners and Flower Lovers," by Dr. Macgregor Skene; and the "Measurement of High Temperatures," by Dr. William Maitland. All these gentlemen hold lectureships in Aberdeen University, and with the aid of lantern slides, specimens, etc., worthily upheld the traditions of the Arnott lectures. Naturally, horticulturalists predominated in the audiences.

Scottish Forestry Commission's Work.—Keen satisfaction is being expressed in the Highlands of Scotland on the good news that, despite the recommendations of the Geddes Committee, the work of the Forestry Commission is to be continued. Lord Lovat, chairman of the Commission, has received intimation that the Government has decided to continue its grant. The sum arranged is understood to amount to about

£220,000. True, this is considerably less than the amount sought, but it will be adequate to enable the Commission's work in the Highlands to be continued. Complaint was made in certain quarters regarding the large allocation to Scotland, but those now carrying out afforestation operations in the north very quickly impressed upon the Government authorities that the Scottish Highlands offered the best opportunities for the successful development of the scheme. Needless to say, the good news will remove apprehensions which existed regarding unemployment and other consequences which might have arisen had the work of the Commission been upset.

Holland County Potato Show.—The Holland County Potato Show is to be held in Boston on Thursday, October 26, 1922. All the local Agricultural and Farmers' Societies are co-operating with the Show Committee, and representatives have been appointed by the following Societies:—Boston Farmers' Union, Boston Agricultural Society, Holland Farmers' Union, South Lincolnshire Potato Merchants' Association, and the Boston Allotments' Association. A preliminary schedule is to be issued immediately for the information of competitors: it will include open classes for traders, classes open only to the County of Lincoln, and also a class for new or improved implements used in the cultivation of the Potato.

Proposed National Daffodil Society.—A meeting to consider the proposal to form a National Daffodil Society will be held in the Lecture Room at the R.H.S. Hall at 4 p.m. on Tuesday, March 14, and not on Wednesday, March 15, as previously announced. All who are interested in Daffodils are invited to attend the meeting.

Standardised Plant Names.—We learn that the American Joint Committee on Horticultural Nomenclature proposes to issue an "Official Catalogue of Standardised Plant Names." This work will represent the labours, extending over five years, of Messrs. Frederick Law Olmsted, Frederick V. Coville, and Harlan P. Kelsey. These gentlemen have had all possible help from the Bureau of Plant Industry in the Department of Agriculture at Washington, together with the aid of many capable collaborators. The "Catalogue of Standardised Plant Names" will include the approved scientific names of plants in American commerce, and the synonyms which have been most generally used for such approved names; the approved common names of such plants where the names have been formulated, and important synonymous or unapproved common names; authoritative lists of varietal names, in important classes, such as Rose, Iris, Paeony, Dahlia, Lilac, Rhododendron, Chrysanthemum, Sweet Pea, etc.; and the approved varietal names of fruits, according to the newly revised code of the American Pomological Society. These important lists will be included in the main alphabetical order, or where more than five pages long, in an appendix, such lists being either supplied by the various organisations devoted to the subjects treated, as the American Rose Society, the American Iris Society, or by a known authority. A distinct arrangement of type faces will indicate the various values of the names listed. Orders for this catalogue sent to Mr. Harlan P. Kelsey, Salem, Mass., U.S.A., prior to March 31, will be executed for \$3.75 if remittance accompanies the order; after March 31, the price will be \$5.

Journal of the R.H.S. Gardens' Club.—The issue of this journal for 1921 has as a frontispiece the handsome tablet that was erected as a memorial to the Wisley students who fell in the war, of which an illustration was given in *Gard. Chron.*, June 25, 1921, with a notice of its unveiling by Lord Lambourne. The fauna and flora of Wisley are dealt with in articles by Mr. G. Fox Wilson and Mr. Edwin E. Turner, in "Wild Plants as Hosts of Insect Pests at Wisley" and "The Wisley Flora," respectively. There is also an interesting paper on "Insects and their Environment," delivered by Mr. W. J. Lucas, before the Wisley Scientific Society. A short notice of Wisley Church, by "W.D.C." shows the present building to be

of late 12th century date, although there are traces of the foundations of a Saxon church. The most imposing feature of the church is considered to be the rounded chancel arch. There is a good deal of old timber in the roof, and on a rectangular panel in one of the oaken pews is the date 1650 in raised figures. The church received extensive restoration in 1872, and all the internal fittings are modern, except an old, 16th century, wrought-iron hour-glass bracket fixed on the wall near the pulpit. The cup and paten of the church date back to 1713 and 1714 respectively. Mr. J. Fraser gives an account of a botanising expedition on Ben More in June. This mountain has an elevation of 3,840 feet. Amongst the plants which he discovered were *Caltha palustris* minor, *Salix myrsinites*, *S. herbacea* and *S. Lapponum*. Mr. Fraser repeated his visit in September, when he found *Saxifraga stellaris*, *S. aizoides*, *S. nivalis*, *Polygonum viviparum*, *Carex atrofusca* and *Juniperus sibirica*. On this occasion he experienced one of those storms of rain and driving cloud which are common in the Highlands, and he states "I got wetted for half my length, and my boots would hold no more water. When I got on the public road they made such a noise that I removed and emptied them, wrung my stockings and soon forgot all about it, as the wind dried me long before I got to Killin, as on many a previous occasion." The activities of the various clubs associated with the gardens, and the doings of old students, are recorded, and there is a list of the Club members, with their addresses.

Trial of Potatoes in Wales.—Trials of Potatoes conducted in various centres by the Department of Agriculture, University College of North Wales, Bangor, in association with the County Councils of Anglesey, Carnarvonshire, Denbighshire and Flintshire show great differences of yields of the same variety in the different centres; in some cases as much as one hundred per cent. The highest average yields amongst early varieties were Dargill Early, 7 tons 14 cwt., and Witch Hill, 7 tons 1 cwt., compared with Arran Rose, 6 tons 16 cwt., and Resistant Snowdrop, 6 tons 12 cwt. The highest yield in the second earlies was King George, 12 tons 18 cwt., while amongst late sorts Lochar, 13 tons 19 cwt., and Kerr's Pink, 13 tons 13 cwt., gave the heaviest yields. As showing the influence of district on the yield, the crop per acre at the centres in Flintshire was in every respect higher than in the four other stations. At Tre Eden Owain, Flintshire, Great Scot gave a yield of 15 tons 4 cwt., the average of four centres in Flintshire for this variety being 14 tons 5 cwt. This was also the average yield in the Flintshire centres for Kerr's Pink. The second earlies, Ally and Arran Comrade, gave yields of 12 tons 8 cwt. and 12 tons 11 cwt. respectively. Most of these varieties have been tested for three years by the University College, Bangor, and the results of the different years agree very closely.

Lime Sulphur.—Messrs. E. S. Salmon and E. Horton* have discovered that calcium caseinate is a valuable material for adding to lime-sulphur for increasing the wetting properties of the fungicide. Their experiments were conducted with Hop plants, grown in a greenhouse, affected with the Hop mildew. Although calcium caseinate has been used in conjunction with lime-sulphur as an insecticide, there are no records of its having been previously used in improving lime-sulphur as a fungicide. In the first experiments one per cent. of calcium caseinate was used with lime-sulphur (1.30 sp. gr.) at the dilutions 1:99, 1:149 and 1:199, containing respectively 0.16, 0.11 and 0.08 per cent. of polysulphide sulphur. At the first two strengths the patches of mildew on the sprayed leaves were killed, but at the strength 1:99 the specific was clearly not quite fungicidal. In another series of experiments the lime-sulphur was used at the dilution 1:99 with 0.5 per cent. of calcium caseinate, and this again proved completely fungicidal. The value of calcium caseinate appears to be simply to secure the

* *Lime-Sulphur and Calcium Caseinate as a Fungicide.* By E. S. Salmon and E. Horton. Research Department, S.E. Agricultural College, Wye.

complete wetting of the fungus, and is made by stirring two parts of commercial casein and one part of slaked lime in twenty parts of water for about two hours and allowing any undissolved solid to settle. The supernatant liquid used without filtration, is, roughly, ten per cent. solution of calcium caseinate and half a gallon or one gallon of it is used in the preparation of ten gallons of lime-sulphur wash according as it is desired to have 0.5 or 1.0 per cent. of calcium caseinate present. It is considered probable by the experimenters that lime-sulphur mixed with calcium caseinate would be valuable for use against American Gooseberry mildew, and with this dilution there would be little risk of disfiguring the ripening Gooseberries.

Mr. J. Fraser, V.M.H.—The Royal Horticultural Society has recently awarded its highest honour, the Victoria Medal of Honour in Horticulture, to Mr. John Fraser, and on no one has that honour been more worthily bestowed. We doubt whether anyone possesses such a wide general knowledge of horticulture and botany as does Mr. Fraser, and he is ever ready to place that knowledge at the disposal of others. A man of untiring energy, studious, a voluminous note-taker, a careful and kindly critic, always genial, and of a retiring, modest



MR. JOHN FRASER, V.M.H.

disposition, Mr. Fraser is greatly beloved by all who know him, and as he has resided for very many years at Kew, and has visited the majority of horticultural meetings held in London during that period, he has a very wide circle of friends. To this circle he has added many other friends, seeing that he is an ardent British botanist, and has tramped over a very considerable part of England and Scotland in search of, or to verify, native plants. He commenced his gardening career in 1874, and continued his studies for 5½ years in Scotland. In February, 1880, he came south, joined the staff of the Royal Horticultural Society, at its famous old Chiswick gardens. There he remained two years, and left to take charge of the new rock garden at Kew. Later, he had care of some of the glasshouses, and altogether he remained in the gardens at Kew for three years. In 1885, he commenced work in the Jodrell Laboratory on behalf of Sir John Lubbock, who later became Lord Avebury. Mr. Fraser's chief work was the study and description of seedlings, seeds, buds, stipules, pollen, and other botanical matters for Lord Avebury's classical works on *A Contribution to Our Knowledge of Seedlings*, and *Buds and Stipules*, and he remained as botanical assistant to Lord Avebury from 1885 to 1912. In 1887 he became Assistant Editor of the *Gardening World*, and was its Editor

from 1895 until 1909. Several books on horticultural subjects have been written by him, whilst he has contributed to such well-known works as *Thompson's Gardeners' Assistant*, *Cassell's Popular Gardening*, and *Cassell's Popular Science*, and edited the 1917 edition of *Johnson's Gardener's Dictionary*. Mr. Fraser has also been a regular contributor to *The Gardeners' Chronicle* since 1883. He is a member of the Floral and Scientific Committees of the R.H.S., and probably no one contributes more specimens for the consideration of the latter body than does Mr. J. Fraser.

Appointments for the Ensuing Week.—Monday, March 13.—United Horticultural Benefit and Provident Society's Annual meeting; Bath Gardeners' Society's meeting; Purley Horticultural Society's meeting. Tuesday, March 14.—Royal Horticultural Society's Committee meeting (two days); lecture by Dr. A. B. Rendle on "Plants of Interest in the Day's Exhibition"; Cardiff Gardeners' Society's meeting. Wednesday, March 15.—Hertford Horticultural Society's meeting. Thursday, March 16.—Manchester and North of England Orchid Society's meeting; Linnean Society's meeting at 5 p.m.; Wargrave and District Gardeners' Society's meeting. Friday, March 17.—Perthshire Royal Horticultural Society's spring flower show; Eastbourne Horticultural Society's meeting. Saturday, March 18.—British Mycological Society's meeting at Cambridge.

"The Gardeners' Chronicle" Seventy-five Years Ago.—*Quinoa.*—In 1841 my employer, Sir J. S. Richardson, Bart., gave me a package of Quinoa seed, with instructions to sow it on a warm border about the end of March, in rows 18 in. apart. The plants came up in about three weeks very closely; they were thinned out to 4 in. apart in the row when 2 in. high, and the thinnings were transplanted the same distance from each other as those left. They all grew most luxuriantly till the beginning of August, the plants being then about 5 ft. high, with an extraordinary quantity of seed, which was ripened by the middle of September. The seed was cooked in various ways, and tried by my employer; but I do not think it was relished by any of the family. I also had it boiled both with milk and with water, and made in the form of a pudding, but none of my family liked it. Sir John sent plants of it for inspection to the late Dr. Graham, of Edinburgh, who replied: "Your plant is called in S. America Quinoa, and is, in botanical phrase, *Chenopodium Quinoa*. It is much cultivated in mountainous situations and very extensively used as food on the western side of the continent. I believe it is used in various forms, but the principal are two—first, boiled with water into a kind of gruel, and variously seasoned according to taste; second, roasted, boiled in water like coffee, seasoned to taste. The South Americans are said to be very fond of it, and live in great part upon it. Europeans rarely relish it. It is extensively used from Lima all along the west coast. I ought to have said the seeds alone are used in the above way. It bears cultivation well in the open air here, and ripens its seed very freely." I may remark that to sow it in a Cucumber frame answers no good end, as it grows freely in the open air and transplants well. *William Sharpe, Pitfour Castle Gardens, March 1. Gard. Chron., March 13, 1847.*

Publications Received.—*Experiments and Suggestions for the Control of the Codling Moth in the Grand Valley of Colorado.* By E. H. Siegler and H. K. Plank. Bulletin No. 959. *Results of Work on Blister Beetles in Kansas.* By F. B. Milliken. Bulletin No. 967. *Studies in the Clarification of Unfermented Fruit Juices.* By Joseph S. Caldwell. Bulletin No. 1025. *Relation of Initial Temperature to Pressure, Vacuum, and Temperature Changes in the Container During Canning Operations.* By C. A. Magoon and C. W. Culpepper. All published by the United States Department of Agriculture and obtainable from the Government Printing Office, Washington, D.C.

NEW OR NOTEWORTHY PLANTS.

CLEMATIS MACROPETALA, LEDEBOUR.

Though known to botanists for some years through specimens collected in Siberia, the late Mr. Reginald Farrer appears to have been the first to introduce living plants of this distinct Clematis to our gardens. His numbers F. 315 and F. 559, the latter exhibited by A. C. T. Woodward, Esq., Arley Castle, Bewdley, at the meeting of the Royal Horticultural Society on February 14, have been identified as *C. macropetala*.

It is a slender, climbing, deciduous species, belonging to the Atragene section. The leaves are biternate, the flowers solitary, two to three inches across, sepals lilac and white, petal-like segments filling the centre. Mr. Farrer described it as a charming climber scrambling over rough shrubs in Kansu. A. O.

TREES AND SHRUBS.

CEDRUS LIBANI.

The correspondence arising from Mr. Stacey's note on page 56 on the Cedar of Lebanon is very interesting and instructive. I am in accord with Mr. H. Clinton Baker (page 81) that *Cedrus Libani* is not slow of growth, although the nature of the soil would have an influence in this respect. Here at Coombe House, Croydon, are four specimens planted in a row in front of the residence, and it is my opinion that the whole four trees are about the same age, although each tree is entirely different, leading me to believe that they were from seedlings raised about the same time as the Bayfordbury specimens. One of our trees is very much smaller than the other three, which I attribute to it being planted on the site of some ancient underground building. The Chorleywood specimens (see Fig. 54) are, no doubt, about the same age as those at Coombe House. The largest of our four trees is 20 ft. in circumference. The fact of the Chorleywood tree being 5 ft. more in circumference would depend on the rapidity of growth in its earlier stages, and not so much on a given number of years. The falling of the needles every third or fourth year in such large quantities may be due to fogs. The Cedars here and in the neighbourhood drop their leaves annually, and I have noticed that if we have a succession of heavy fogs the trees shed their needles when the latter are in a green state. There are other specimens close to Croydon, namely, at Beddington, Addington, and Hayes, and these appear to be about the same age as those at Coombe House. I give the circumference of each tree at 3 ft. from the ground (they are greater above and below that height) and the spread of branches:—No. 1, circumference 15 ft. 8 in., width of branches 94 ft., height about 75 ft. to 80 ft.; No. 2, circumference 20 ft. 8 in., width of branches 107 ft., height about 90 ft. to 95 ft.; No. 3, circumference 16 ft. 3 in., width of branches 92 ft., height about 75 ft. to 80 ft.; No. 4, circumference 8 ft. 8 in., width of branches 61 ft., height about 60 ft. Nos. 1, 2, and 3 bear cones and produce catkins; No. 4 is barren of both.—Mark Mills, Coombe House Gardens, Croydon.

With reference to the correspondence on the Cedars at Chorleywood, I used to know these as a boy, and I thought the estimate of their age—from 450 to 1,000 years—was excessive as well as vague. I wrote to a gentleman who is well informed and who knows the Cedars, and he writes as follows:—"It is not definitely known when the first Cedar was introduced into England, but the fact that it is not mentioned in John Evelyn's *Sylva*, written in 1664, is fair evidence that there were no big specimens in the country then. The first brought to Europe is said to have been introduced to France in 1549. A tree still (1901) growing at Bretby Park, Derbyshire, has been thought to be the oldest in England; this was planted in 1676." F. L. Govett, Laversham Homestead, Windlesham.

THE ALPINE GARDEN.

THE CORSICAN HEDGE-NETTLE.

It will be news to many who have seen the little *Stachys corsica* offered as a novelty at distant intervals to know that it has been in cultivation for almost one hundred years. I am informed on good authority that it was introduced to this country in 1823. The fact that the plant is occasionally lost in winter is one which has a good deal to do with its being offered afresh. Small plants do not suffer so much from adverse weather as large ones, and I have had spreading masses so crippled by rain, followed by hard frosts, that they were not worth retaining and had to be replaced by small ones. It is a remarkably pretty little plant, which makes a close carpet of small, rather hairy-looking leaves, and is almost covered with little flowers in July and August. The plant grows scarcely six inches high.

The plants I have seen have white flowers, but Wooster writes of the flowers as pink, adding the remark that there is a variety with

NOTES FROM WISLEY.

The spring flowers have at last overcome their shyness, and are appearing at Wisley, the most conspicuous being Crocuses, Leucojums and Snowdrops. There are some charming little Narcissi in various parts of the wild garden, including *N. Bulbocodium*, *N. minimus* and *N. cyclamineus*, the last having spread by natural seed distribution. There is also a very pretty hybrid resembling *N. cyclamineus* except that the perianth is not reflexed, but stands out straightly, the arrangement of the parts being very regular and pleasing.

Other gems are *Iris Histrio* and *I. reticulata*, both of which are in flower in the open. There are some ten-inch pans of the latter in the Alpine House, from each of which arise about twenty blooms dispersing a delightful odour like that of Violets. Another fragrant-flowered inmate of the Alpine House is the creeping, evergreen shrub *Epigaea repens*, which grows so well in the peaty soil of woods.

There are now three species of *Daphne* in



FIG. 54—SOME OF THE LARGE SPECIMENS OF CEDRUS LIBANI AT CHORLEYWOOD CEDARS.

white blooms. I rather think that this is a mistake, probably arising from the fact that the flowers rapidly pass off to pink. On the other hand, such a keen alpinist as the late Mr. Reginald Farrer speaks of *Stachys corsica* as giving "such a profusion of blushing flowers that the whole mass becomes and remains a sheeted field of soft and creamy flesh pink." Wooster in his *Alpine Plants* gives on the frontispiece a coloured drawing of *S. corsica* with the white flowers, and this is the plant which I have always had, even from several different sources, and which I have observed in numbers of gardens. Maund also gives a coloured illustration of *S. corsica*, and this shows the flush of pink, which certainly appears after the flowers have been open for a day or two. Nicholson's *Dictionary of Gardening* does not mention *S. corsica*; this omission being followed by quite a number of works wherein one would expect to see some notice of this charming little plant.

So far as regards culture it may be said that it prefers a light, sandy soil with full drainage, and I have grown the plant successfully in a moraine of whinstone chips with a little lime intermixed, although the latter is not necessary. S. Arnott.

flower in the gardens, which lovers of sweet-scented flowers enjoy. On the Rock garden is *Daphne Blagayana* with creamy white flowers, the yellow anthers showing conspicuously at the mouth of the corolla tube, while near the round ponds is *Daphne Mezereum*, whose scent is at times a little overpowering, and close by our native *Daphne Laureola*. The flowers of the last are most fragrant towards evening. The odour of the bark, however, when bruised, is most unpleasant, and the same remark applies to *Daphne Mezereum*, which possesses poisonous properties.

It requires a sharp pair of eyes to see the spathe of the Skunk Flower or Skunk Cabbage (*Symplocarpus foetidus*), which is growing by the Rock garden pond. The inflorescence somewhat resembles that of *Arum maculatum* (Cuckoo Pint), but is of a dirty brown colour.

Another curious plant in flower is *Lathraea clandestina*, a leafless parasite growing on the roots of Willow, and having comparatively large purplish flowers. It was first planted on the island in the round pond, but was thought to have been lost; but it reappeared sometime afterwards on the mainland, where it has remained. J. G. White.

The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Sophrontis grandiflora.—This Orchid is now in bloom, and will continue in flower for some considerable time. The flowers are produced on the partly developed pseudo-bulbs; immediately the flowers have faded is the best time to do any necessary repotting. In some respects they resemble Cattleyas, which succeed in the cool house; they require a similar compost to these plants, and the materials should be cut up finely. The plants are best grown in pans suspended from the roof rafters. Care must be taken that water does not remain in the centres of the young growths, as it would cause them to turn black and decay. These plants resent frequent disturbance at the roots, and if the compost is sweet and in good condition it should not be interfered with. The material should be placed around them quite firmly, as its lasting qualities are greatly prolonged by so doing. This small Orchid dislikes a saturated compost, hence the necessity for ample drainage. While in active growth the roots need to be well supplied with water, but much less moisture will suffice when their small pseudo-bulbs are fully matured. *Sophrontis* is the parent of some gorgeous hybrids, and enjoys all the light available during the winter.

Thunia. The *Thunias* are commencing to grow, and should be repotted before the new shoots commence to push forth roots. The compost should consist of half peat and half loam, from which all the fine particles have been removed, mixed with Sphagnum moss and dried cow-manure. The pots should be well drained, as when in full growth and well rooted these plants need an abundant supply of water. They should not be potted too firmly, as the roots are not capable of penetrating a close, heavy medium. *Thunias* enjoy a sunny position in the warmest house, and should be placed close to the roof-glass. Afford water sparingly at the roots until the flower spikes appear at the anices of the newly made pseudo-bulbs. If the plants are watered too freely in the earlier stages of their growth, flowers will be very sparingly produced. The plants may be potted singly, or made into large specimens, according to the requirements of the cultivator. When in full growth, and the flower sheaths have formed, an occasional watering with weak manure water will assist the development of the flowers.

THE KITCHEN GARDEN.

By JAMES E. HATHAWAY, Gardener to JOHN BRENNAND, Esq., Baldersby Park, Thirsk, Yorkshire.

Outdoor Tomatoes.—To ensure good crops of Tomatoes in the open the seed should be sown early and the plants grown on without a check. Late sowing of the seed is often the cause of failure with outdoor Tomatoes, especially in the north. Seed of *Sunrise* and similar varieties should be sown now in 6 inch pots containing plenty of drainage material and finely sifted soil. As soon as the seedlings are large enough to handle they should be transferred singly to 3½ inch pots. Another batch of *Princess of Wales*, *Aviator* and other types should also be sown for indoor cropping. If a very large Tomato is required *Brotherston's A1* may be grown, but this sort requires much more warmth all through the growing season than most varieties to ensure success.

Peas.—Another batch of Peas should be sown in the open as soon as the weather permits. *Pioneer*, *Chelsea Gem*, and similar varieties may be selected. Place the seeds in rows made 4 feet apart, with a row of Spinach along the centre as an intercrop.

Box Edgings.—Where Box is used as an edging plant in the kitchen garden the present

is a suitable time to make good any gaps in the rows. A reserve supply of plants should always be available for this purpose, and these may be procured by taking up large plants and laying them out thinly in a trench on a west border, leaving about 3 inches of the young shoots above the soil. By the following season they will have rooted freely along the stems and be ready for dividing and planting. If edgings of this nature have become very gappy and untidy it is best to replant the whole. The ground should be dug and afterwards made firm and flat. Place a line along the full length of the edge, make uneven parts level with the spade, then take out a trench on the border side, and place the plants in by hand. In treading the soil firmly about the plants take care to see that they are kept level in the row and upright.

Paths.—When the carting of manure and composts is finished, garden paths should receive attention, and, if necessary, fresh gravel applied and rolled in. If the work is deferred until later, the weather may be so dry that the material will not be moist enough to consolidate, and will remain in a loose condition all the year. Grass paths with bare patches should be made smart by putting down fresh turves where needed.

Slugs. The best means I know for combating slugs is to allow about four runner ducks to ramble about the garden in the winter. I have used ducks in this way for about six years, and have had no trouble with slugs since, and I generally let the birds run round the garden for a short time on a wet morning in summer. The only time I find them do harm is in dry weather; they should be old ducks, as young ones are more destructive. Boards laid flat on the ground and left for a time form an excellent trap for slugs, whilst a free use of new lime also tends to keep slugs in check, but only for a time.

PLANTS UNDER GLASS.

By T. POFFMAN, Gardener to Sir C. NALLCAIN, Bart., The Noddy, Colchester, Walswyn, Hertfordshire.

Winter-flowering Begonias.—These Begonias are valuable for producing brightly coloured flowers during the autumn and winter. They are very easy to cultivate, and may be had in bloom over a very long season provided careful attention is given to their requirements. As one of the chief causes of failure in growing these delightful subjects is attacks of rust and mite, it is very necessary to watch the plants carefully for these pests, and take steps to check them directly they are detected. I find that dusting the plants with sulphur, and especially on the underside of the foliage is a good preventive for rust disease, whilst frequent fumigating will destroy mite.

Tuberous-rooted Begonias.—The newer hybrids which have been obtained by crossing *B. socotrana* with the old summer-flowering tuberous Begonia, such as *Optima*, *Elatior*, *Exquisite*, *Emita*, *Mrs. Heal*, and others, are not so extensively grown as their merits warrant. The varieties enumerated have been in commerce for several years, but for some reason or other they are not so generally grown as Begonias of the *Gloire de Lorraine* type. Plants of these Begonias that have been kept on the dry side, as previously advised, should have the old soil shaken from the roots and be repotted in smaller receptacles than those in which they have been previously grown. The soil for this potting should be open in texture, and may consist of three parts turfy loam, one part leaf-mould, and a dusting of bone-meal, with small pieces of charcoal and sufficient sand added to render the compost porous. At this stage the soil should not be pressed too firmly, otherwise the roots will not ramify freely. After potting, the plants should be grown in a house having a night temperature of 60° with a rise by sun heat. Very little water will be required, beyond frequent sprayings in bright weather until growth commences, but the plants should be shaded from bright sunshine. By this treatment good, strong shoots suitable for use as cuttings will soon be available for propagating purposes.

THE FLOWER GARDEN.

By EDWIN BECKITT, Gardener to the Hon. VISCOUNTS, Aldenham House, Herts. & Co.

Delphinium.—Healthy young shoots obtained from the sides of the old plants may be inserted in 48-sized pots, as cuttings. Use sandy compost for the purpose, and root the cuttings in a cold frame, keeping the light closed until such time as roots have commenced to form, after which air should be admitted with increasing freedom.

Phlox.—These plants form admirable subjects for massing in borders by themselves, as well as being most useful components of the herbaceous border proper. Where large numbers of plants are available, they should be planted out without further delay. They repay for good cultivation, revelling in deeply trenched and enriched soil. If placed on the herbaceous borders they are best planted in groups of five or six plants of the same variety, allowing up to 30 inches from plant to plant, and setting them in irregular clumps. The stock may be increased from cuttings similarly to Delphiniums; small pieces of the old stools will soon make useful healthy plants.

Sweet Peas. The ground selected for growing Sweet Peas should now be prepared. Choose land that has been well trenched, and open trenches of sufficient width to accommodate a double row of plants, about 30 inches deep. Into these place a good layer of well decayed farm manure, and cover the dung with soil up to general level of the land, then, when the whole has settled, a shallow trench will be formed that will greatly facilitate watering the roots later.

The Rock Garden.—If the rock garden has not yet received attention, it should be overhauled now, restricting the very robust-growing species to reasonable limits, replenishing those subjects that have suffered during the winter, and putting out fresh plants that until now have been growing in the frames. Plants with a tender constitution will be best planted at a later period. Let the soil requirements of the various plants be seen to. Pockets should be excavated for the purpose of accommodating new plants, and compost suitable to the subject used for refilling. Lime lovers require plenty of old mortar rubble incorporated with the compost; others grow best in peat, others in loam.

East Lothian Stocks.—Seedlings of these Stocks that were pricked off into boxes in good time may be potted singly in 48-sized pots filled with a rich, loamy compost. Grow them on sturdily in gentle warmth, and be careful to guard against them damping off. The plants should make good progress, and later, when of a sufficient size, gradually and thoroughly hardened off with a view to planting them out-of-doors.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

Melons.—If all has gone well, every lateral on the earliest plants will now be showing fruit; of these latter not more than two, or at the most three, should be allowed to swell to maturity, but it is important that all should be fertilised in order to secure a crop of fruits of an even size. If plants in 12 inch pots are plunged closely together, space for laterals will be extremely limited, consequently very close pinching will be necessary. The laterals should be pinched at the first joint when they are very small, and all succeeding spray growth removed; in this way the true cordon form will be retained. Where space is abundant and each plant has plenty of room the laterals may be allowed to continue to grow until the fruit is set, and then shortened to one joint in advance of the latter. These remarks apply to plants intended to furnish ripe fruits early, and not to Melons grown on the extension system. When Melons commence opening their flowers the warmth should be increased slightly to 70° by night and 80° by day. No water should be allowed to touch the plants, but atmospheric moisture should be regularly supplied when

bright sun permits of ventilating the house. When the fruit is swelling freely, each specimen should be supported by a net fastened to the trellis. A brisk bottom-heat is most important, and heat and moisture may be freely employed after the fruits are set and swelling. A top-dressing of stiff loam and bone-meal may be applied in solid layers, and warm diluted liquid manure, soot and guano water, may be given the roots freely, but care must be taken not to wet the stems.

Successional Plants.—Melons raised from later sowings may be put out in pots or ridges for maintaining a succession of fruits as often as suitable houses become vacant. Tropical warmth, both in the house and bed, plenty of moisture, and an abundance of light, are required, but these will not suffice unless the house is kept free from insects, and proper attention paid to ventilation. Manipulation under the different methods of culture is always the same, but the soil, as the season advances, may be heavier in texture than that recommended for the January plants. A stiff, calcareous loam, enriched with bone-meal, old mortar rubble, and burnt garden refuse will be suitable for the plants whether grown in pots or on mounds.

Frame Melons.—Where Melons are grown in frames the present is a suitable time to make a start by building up a substantial bed for the frames. As frame Melons do not require one-fourth of the soil frequently used for them, it is a good plan to restrict the root run by fixing two rough boards a foot or more in width on their edges, and about 18 inches apart, before the roots require top-dressing. Some turf or a little soil should be placed all over the bed to prevent an excess of moisture arising from the dung. When the soil is thoroughly warmed through, and the bottom heat falls to 80°, the plants may be set in position. Covering the frames every night with mats is necessary, with a little air admitted at the back of the frame to allow any excess of atmospheric moisture to escape. If the temperature does not reach 70° in the morning, a good external lining of fermenting material will be necessary.

HARDY FRUIT GARDEN.

By H. MARKHAM, Gardener to the EARL OF STRAFFORD, Wrotham Park, Barnet.

Autumn Fruiting Raspberries.—If not done already, the canes of autumn-fruiting Raspberries should be cut down almost to the ground level and the roots heavily mulched with well decayed manure. There are several good varieties that produce large, useful berries late in the autumn, and the plants are deserving of extra care in their culture. If new beds are to be made, prepare the ground at once, and plant young rooted portions taken from the sides of the old stools. Plant them either in clumps or rows at a reasonable distance apart, and mulch the roots with suitable manure. Queen Alexandra and Lloyd George are two dependable varieties.

Quinces.—Thin out the branches of Quince trees that are crowded with growths to allow the air and light to reach the interior parts. The Quince will grow and fruit well in somewhat damp soils and situations if there is a free drainage for surplus moisture.

Nuts.—The various kinds of Nuts may be pruned. Cut out all strong, last year's growths that are not required for the extension of the heads or for filling bare spaces. Aim at keeping the main stems well clothed with twiggy, fruitful shoots, which are now in flower. Do not remove the shoots that are clothed with catkins until the tiny pink flowers have been fertilised. Grub out all suckers and apply a good top-dressing of suitable material to older bushes that are growing on poor, thin land, and in need of assistance at the roots.

Young Nut Trees.—To obtain well-shaped, fruitful heads, select suitable shoots to form a vase-shaped bush, keeping the centres of the trees open. Prune to an outside bud, and shorten the selected growths more or less according to their length and strength.

FRUIT REGISTER.

APPLES COURT-PENDU-PLAT AND ST. EDMUND'S PIPPIN.

SURELY Dr. Durham (p. 94) is mistaken about Court-pendu-plat, as grown in this country, being a cider fruit. The Capendu, or Kilpandy, as it is known here, is a greyish fruit of no great value, but the other, of which a finely-coloured specimen is given in McIntosh's *Orchard*, is certainly a valuable late dessert variety.

St. Edmund's Pippin has been compared with Cox's Orange Pippin, to the disadvantage of the latter. It certainly is a more certain doer in the north and of fine quality, but even were it superior in flavour, it must be remembered that Cox's Orange Pippin fills a period when there is no St. Edmund's Pippin to fall back upon. It is, therefore, essential to grow both sorts. R. P. B.

PLANT BREEDING IN CALIFORNIA.

BELOW high-water mark and separated only by an earth wall from the salt marshes of San Pablo Bay, California, lies the plant-breeding farm of Mr. Richard Diener, well known in the United States as a breeder of Petunias and Gladioli. The task which he undertook of reclaiming the land from the sea, securing it from inundation by the highest tides, constructing a drainage system and water supply essential for summer irrigation, must have been a formidable one.

In less than a decade Diener has attained remarkable success. His work among Gladioli involves the raising of many hundreds of seedlings annually. The seedlings vary not only in rate of development—some flowering in the first year, others not until the third—but also in floral colour, resistance to disease and production of cornets. The many beautiful novelties raised



FIG. 55.—POTINARA JULIETTAE, R.H.S. FIRST-CLASS CERTIFICATE, FEBRUARY 28. SHOWN AND RAISED BY MESSRS. CHARLESWORTH AND CO., HAYWARDS HEATH (SEE P. 107).

DUAL-PURPOSE APPLES.

Market Grower touches on this topic in his notes on p. 23. For many years I have advocated the use of such varieties. I have been a very heavy consumer of Apples for quite ten years of my life; from the age of 25 to 35 I lived almost entirely on Apple pies made of sweet Apples and wholemeal flour. I have never been able to enjoy the sour varieties, and besides, owing to the enormous amount of sugar which they require, they are not economical. Nearly every variety of dessert Apple cooks perfectly and is delicious without added sugar. The variety Blenheim Pippin is splendid as a cooker.

Orlean's Reinette has been recently discovered. I find it a most admirable Apple in every respect as regards quality, and it certainly is best when allowed to hang on the tree for as long as possible. Rosemary Russet is another Apple of very fine quality and a late keeper; it is also a very good cropper. Speaking generally, the Apple is probably our best fruit, and the most useful, but it is my decided opinion that, from a health point of view, the sweet varieties are incomparably the best, and, in my own case, the only ones that I can regularly tolerate. W. J. Farmer, Redruth.

at Kentfield are testimony to this breeder's perseverance and discrimination.

Petunia breeding is also an important part of the work. The plants are grown in pots in large wooden lath or lattice-work houses.

On the occasion of a recent visit the writer saw a large glasshouse full of new Amaryllis seedlings, some of which were just coming into flower, with handsome heads of as many as five florets. Cuttings of a blight and drought resistant Tomato filled a long series of frames. A supply of pure seed of the Diener variety is maintained by propagating the plants vegetatively.

During the past five years Mr. Diener has given much attention to Wheat breeding, and has produced a strain of Polish Wheat with remarkably large grains, and another with large, flinty grains and stiff straw, which has given very high yields. I understand that Diener has bred a blue Rose and an improved sweet Loganberry. As a result of his experience with Petunia Mr. Diener has been much impressed by the predominant influence of the male parent in hybridisation. He claims that both in size and colour the pollen parent has an effect far outweighing that of the seed parent. J. W. Lesley, Mills College, California U.S.A.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 5, Tavistock Street, Covent Garden, W.C.2.

CHINESE SHRUBS AT ALDENHAM.

THE third expedition to China undertaken by Mr. E. H. Wilson, V.M.H., for the Arnold Arboretum during the years 1907-1909 was remarkable for the discovery of a large number of plants suitable for cultivation in American and English gardens. Through the kindness of Professor Charles S. Sargent and others, a representative collection of the seeds was received by the Hon. Vicary Gibbs, and sufficient time has now elapsed to test those species which it had been expected would prove hardy and distinct.

The soil at Aldenham is a particularly cold clay, and late spring frosts are very prevalent, but one cannot help being impressed by the

Henryi) has made a large bush, 12 feet high and 10 feet through; it has showy black fruits. *A. lasiogyne* is meritorious, either grown as a standard or as a bushy shrub. In both cases judicious pruning is required to maintain a good form in the plants. *A. leucorrhizus* is a free-growing bush, 10 feet high, and very attractive when in fruit.

BERBERIS.—This genus has contributed many desirable new species, and the following is a selection of the most distinct:—*B. candidula*: This is a low-growing evergreen of much value for the rock garden and similar planting. The silvery under sides of the leaves are very charming, but, owing to the plant's close, compact habit, this feature is not seen so conspicuously as could be wished. When first sent out by the nurserymen, the plant was wrongly supposed to be a variety of *B. Wallichiana*, and received the varietal name of *hypoleuca*. Wilson sent home seeds of it but the species was first collected by Farges, and the plant was first raised by M. Maurice de

members of the family. *B. verruculosa* is a plant of dwarf, compact habit, and one of the most pleasing of these new Barberries. The foliage is dark green on the upper surface and very glaucous beneath. *B. Wilsonae* is now fairly well known in this country. It forms a shapely, spreading bush about 4 or 5 feet in height. It is beautiful in flower, fruit, and autumnal colouring. Mr. Gibbs informs me that he has found it to vary so much, even when raised from Chinese seeds, that he suspects it is a natural hybrid. It is now generally recognised that it is almost hopeless to attempt to raise *Berberis* true to name from seed gathered in English gardens.

Of the numerous deciduous species of *Berberis* introduced by Wilson, *B. aggregata* has the berries set so closely together as almost to crush one another. A fine bush of *B. aggregata* Prattii at Aldenham is 6 ft. high; this and *B. Caroli* var. *hoanghensis* are amongst the best. They are most beautiful in the late summer, when carrying great quantities of bright red, or salmon-red, fruits, which last in good condition well into the winter. *B. aggregata* Prattii is, by many, considered to be the finest of all Barberries for the charm of its rose-pink berries, but against this is the fact that, so far as habit is concerned, it ranks very near the bottom, as its growth is unduly tall for the width, being stiff in outline and yet weak in the stem.

CLERODENDRON TRICHOTOMUM.—What is known as the mountain form of *C. trichotomum* has proved a valuable late summer flowering shrub for the colder parts of the country. Unlike the older form, the young wood suffers no injury from being imperfectly ripened.

CORNUS PAUCINERVIS. which flowered first in this country at Aldenham in 1911, is a useful addition to the shrubbery, as it produces many corymbs of white flowers during August. It is a plant of neat habit, and has interesting black fruits.

COTONEASTER.—The numerous species and varieties of *Cotoneasters* are among the most important of Mr. Wilson's introductions, and include some of our best ornamental shrubs. Though generally grown as bushes, some may be successfully trained as half-standards by taking up a central growth and pruning off the lower branches, thus displaying the graceful pendulous growths to advantage. As will be seen by the dimensions given, some species grow to a large size, and I know of few shrubs more beautiful either in flower or fruit. Though not strictly relevant to the subject of this paper, as the plant was originally found in the Khaisa Mountains on a date long before Mr. Wilson's birth, I may mention that far the largest member of this genus which I have seen is an example of the well-known *C. Simonsii* at Aldenham, and aged about 25 years. *C. acutifolia villosula* is a strong-growing variety, the Aldenham specimen being 6 feet tall and 15 feet in diameter. It has large leaves, 4 inches long by two inches in width; white flowers and conspicuous black fruits. *C. Dielsiana* is one of the handsomest of all *Cotoneasters*, and particularly good when grown on a single stem, as the slender, pendulous branches are then seen to the best advantage. A specimen at Aldenham, grown in this way, is 15 feet tall, and, when laden with its scarlet fruits, is a very beautiful object. *C. divaricata* I consider one of the most desirable members of the family, and a first-class shrub for any garden. It is deciduous, with small, dark green leaves and somewhat slender pendulous branches, a mature specimen being about 6 feet in height. The red fruits are abundantly produced all along the stems, and are very attractive in the autumn. *C. Henryana* forms a singularly handsome evergreen of graceful habit, with large, dark green foliage and white flowers that are succeeded by dull crimson fruits. A finely grown specimen at Aldenham is 12 feet high. *C. humifusa* (syn. *C. Dammeri*) is also evergreen, but of flat growth. This plant is admirably suited for clothing



FIG. 56. —COTONEASTER SALICIFOLIA VAR. FLOCOOSA. (SEE P. 115.)

well-trained and healthy appearance of all the specimens.

Though the collection of hardy Chinese woody plants at Aldenham is very extensive, yet, owing to unsuitability both of soil and climate, no attempt has been made to acquire any of the new Chinese *Abies* or *Piceas*, and but a few very hardy *Pines* have been planted; neither are the numerous, newly discovered *Rhododendrons* such a feature there as they are in some Cornish gardens. The following plants are some which give great promise as useful garden subjects, and there may be other deciduous species which I have overlooked, but which may be very beautiful in summer:—

ACANTHOPANAX.—The new species of this genus are valuable additions on account of their very distinct foliage. The fruits of the plants resemble those of the Common Ivy; indeed, the two genera are closely related. *Acanthopanax Henryi* (syn. *Eleutherococcus*

Vilmorin (who named it *B. Wallichiana pallida*), and from him directly or *via* *Chenaults' Orleans Nursery* this Barberry reached Mr. Gibbs. It is a dense and very slow-growing plant; there are few, if any, large specimens in the British Islands, the one at Aldenham, 3½ feet, with a diameter of 7 feet, is believed to be the biggest in this country. *B. Gagnepainii* is another very pleasing evergreen Barberry, and develops large quantities of bright yellow flowers in early summer. The undulating, dull green foliage is attractive at all seasons; a specimen at Aldenham is 7 feet high. *B. Sargentiana*, named in honour of the Director of the Arnold Arboretum, is one of the handsomest of all evergreen shrubs. The strong, upright-growing stems are clothed with large, dark green foliage and conspicuous spines which in winter assume the colour of old ivory, and meritoriously distinguish this Barberry from all other

banks or positions where a good ground cover is desired. *C. moupinensis* is most conspicuous when in fruit, the berries being black and produced in great numbers. A tree of *C. salicifolia floccosa* (see Fig. 56) is 8 feet high and 15 feet in diameter. It is a pretty, graceful evergreen, with somewhat narrow leaves of medium length, glossy on the surface, and, when furnished with numerous clusters of bright red berries, is one of the showiest members of the genus. *C. salicifolia rugosa* is also a strong-growing evergreen, with larger foliage and fruits than the preceding. *A. E. Thatcher*.

(To be continued.)

MR. KINGDON WARD'S SIXTH EXPEDITION IN ASIA.*

No. 10.—AN ALPINE LAKE.

The ascent to the pass took us along a narrow path under a bare limestone cliff over 11,000 feet above the sea. Here there ought to have been plenty of flowers, but there empha-

surface. Another somewhat similar species was more bashful and showed no signs of waking up just yet. A *Cucurbita*, with large, bright gamboge-coloured flowers, looked out of place on the barren cliffs. Two species of *Primula* I noted in fruit, but both were out of reach on these horrid precipices; and there were several shrubs, including a *Lonicera*. Conspicuous here and there were the large leaves and opulent inflorescences of a *Rheum*. However, all these were but oases in a desert of naked rock; on the southern slopes the limestone mountains always seem to break off in horrible scarps of this nature.

From the pass we had a fine view to the north, but no snow was visible. Instead, a bleak, rocky range with peaks like the Monument or Cleopatra's Needle, some 15,000 feet high, filled the horizon. The nearest snow peaks were away to the north-west, towards Ching-tien, and were hidden by lower ranges.

The north side of the range was very different. Here the scarps were mercifully hidden by forest, beneath which grew a wilderness of tall herbs—*Ferns*, *Thalictrum*, *Aquilegia*, *Rodgersia*, and others. This very soon gave way to dry

other flowers, but what took me altogether by surprise was to find here, of all unlikely places, a *Nomacharis*! Now, if anything is a plant of the moist meadows, *Nomacharis* is. I recall *N. tricolor* of the Mekong-Salween divide, and *N. pardanthina* of the Htawgaw Hills; and anything more completely contrasted than the meadows of the North-East frontier and the scrub flooring the dry Pine woods above the Yung-ning Lake it would be hard to imagine. However, there the plant was in all its quaint glory. It had white flowers, the inner perianth segments generously spotted with purple, the outer more scantily. Each whorl formed an equilateral triangle, the edges of the outer whorl being smooth, those of the inner crimped and fringed. The haughty, nodding flowers, so symmetrically arranged, so equally spotted, were a revelation; and I thought to myself that if *Nomacharis* was found here, anything might be possible in this country. And so down to the lake side, the water so transparent that from the path along the cliff we could look down into the clear depths, and count the fish. We crossed meadows frilled with lemon-yellow *Iris* and purple with *Primula*. The orange *Can-*



FIG. 57.—CYMBIDIUM CURLEW VAR. ROSY GEM. R.H.S. AWARD OF MERIT, FEBRUARY 28. SHOWN AND RAISED BY SIR GEORGE HOLFORD, WESTONBIRT. (SEE P. 107.)

tically was not. In the first place the steep slope under the scarp was clothed chiefly with Bamboo, the whipping boy of all mountain floras. It thrives where nothing else deigns to show itself. In the second place, a great deal of the available room was occupied by bare rock. In the third place, such plants as did occur made themselves very much at home, occurring in great masses; the lemon yellow *Roscoea*, for example, which coloured the slope between the patches of Bamboo. So that, on the whole, this high ridge proved very disappointing. However, we found a few flowers hiding themselves meekly in the cracks and crevices. An early *Meconopsis* had opened one purple blossom, and a *Didissandra*-like *Gesnerad*, with sulphur-yellow flowers, lurked in the cran- nies, its flat rosettes of leaves glued to the rock

Pine woods, and immediately there burst into view, far below, shimmering in the sunlight, the sapphire lake of Yung-ning. A more glorious sight can hardly be imagined, the turquoise sky curdled with cloud, the dark, forested mountains towering up into the white, crested waves, and the jewel of sapphire water, with its little island crowned by a lovely monastery. So enchanting was it that for a long time I had no eyes for the vegetation. When at last I did turn to it, a great surprise awaited me. The dry, rocky slopes between the slender, dark trunks of the Pines were covered with masses of milk-white and rose-pink *Rhododendron*, a perfect little gem smothered in flowers. But this was not all. Amongst this Heath-like carpet grew many flowers we had not yet come across—an *Androsace*, with deep crimson flower; a *Cypripedium*, rather like *C. luteum*, but with the pouch a paler yellow, and the remaining perianth segments purplish-brown, more as in *C. tibeticum*. There were several

delabra *Primula* also grew here. We had lunch by the lake in the warm sunshine, and in the afternoon went on to Yung-ning. Mile on mile we travelled by the lake side till, as the sun began to disappear behind the lofty ranges, we crossed a low col and the lake was lost to view. Now we entered a narrow valley which presently began to widen out; cultivation appeared, and as dusk came on, riding through lanes of scented *Hazel*, past bogs purple and gold with flowers, under spreading Walnut trees, we reached the outskirts of Yung-ning. It was dark before we reached the monastery, whither the courier, who had come over from the island monastery at the bidding of the Lama to escort us, now led us.

In the rambling old monastery we were well received and given comfortable quarters. A couple of days later the big Lama came over from the island to see me, and after some discussion I decided to go north to Mu-li and work round there, since the immediate neighbour-

* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 23, August 20, September 3, October 8, October 29, 1921, January 7 and January 31, 1922.

hood of Yung-ning was very dry, despite its 9,500 feet elevation, and the mountains round about scarcely exceeded 12,000 feet. Between Yung-ning and Mu-li, however, was a high, rocky, limestone range; and beyond Mu-li itself were other lofty ranges, so that though Mu-li itself was as dry—or drier, since it is right down in the gorge of the Litang River—yet there was more scope there. Results quite justified this argument. As regards snow peaks, they are scattered over this huge region at some distance from each other; but of these I hope to have more to say later.

We remained four days in Yung-ning, and I ascended one peak about 11,000 feet, but got nothing for my pains. However, that did not worry me, as every morning, when I looked northwards, I saw those immense limestone pinnacles towering up to the clouds which frothed about them; and though I entertained no illusions as to the possibility of climbing those formidable peaks, yet it was clear we should find some interesting plants there. I found a pretty little pink Briar in Yung-ning, but nothing else of note except those referred to found by the lake.

On June 2 we set out once more. Our long journey to the scene of action was now rapidly drawing to a close—already we had been fifty-two days on the road, including necessary halts, but from Yung-ning onwards I considered that our quest had seriously begun. I had not intended to collect many plants during the journey, meaning to confine my attention almost exclusively to alpine and sub-alpines; yet somehow the herbarium already numbered over two hundred species, and by the time we reached Mu-li it was approaching four hundred, and we were only five days on the road, spending two days in camp on the divide. But I anticipate. The journey from Yung-ning to Mu-li certainly deserves a chapter to itself; and there are so many flowers to talk about that it will doubtless require two chapters. Let us, therefore, hurry over the first stage out of Yung-ning, which takes us to the foot of the range, and there begin. *L. Kingston Ward.*

THE MARKET FRUIT GARDEN.

WEATHER prophets have been saying that we are to have another drought this year. Up to the present there is no sign of it. The first two months of the year gave us more than double the rainfall of the same period of 1921, namely, 6.76 in. against 3.14 in. February is a very variable month. In the last ten years its rainfall has ranged from 0.75 in 1921 to 4.64 in 1916. In the month just closed we had 2.46 in., which is above the average, rain being recorded at my place on 14 days. There was a cold period from the 4th to the 12th, starting with a fall of snow; and frosts of 7° or 8° occurred on several nights. Afterwards conditions became milder, with much wind and drizzle, which hindered outdoor work a good deal, including winter spraying.

FRUIT BUDS.

Fruit buds of Plums, Pears, and Apples kept nicely backward during the greater part of the month, but made a decided move in the last few days. Present appearances point to the probability that the blooming of fruit trees in general will be later than it was in the last two years. Pears are now full of buds, and so are Plums; and as both of these gave light crops last season, we can hardly be deprived of satisfactory crops this year unless it be by unfavourable weather at blooming time. Apples are more doubtful. They are generally reported to be showing plenty of buds, but we seldom have two good crops in succession, and, the trees having been half-starved during last season's drought, makes it unlikely that we shall see an exception to the rule. You can never be quite certain about Apple buds. In some seasons many that have every appearance of being fruit buds produce mere whorls of leaves, the bloom which should appear in the centre being

absent. This frequently happens with Allington Pippin, which always seems to be full of fruit buds, but is decidedly given to biennial bearing. However, young trees, which were not quite old enough to crop last year, stand a good chance of giving a good account of themselves. The drought was evidently just the thing to check their growth and throw them into bearing, for they have formed fruit buds freely. Some gardeners predict a good crop on the score of the wood having been so thoroughly ripened last autumn. I can never see the justification for this ripe wood theory when applied to such crops as Apples, which do not bear on the previous year's wood to any extent. The ripening of last year's shoots can hardly influence this year's crop, though it may favour the formation of buds for the next.

Cob-nuts were in bloom throughout February. Both catkins and female blossoms were very plentiful, the latter much more so than they have been for several years. If they were able to put up with frost and a good deal of rough weather, there should be a full crop of nuts.

IMPROVED MARKETING METHODS.

The scheme for improved and standardised grading and packing, introduced by the Federation of British Growers, was brought into operation to some extent last year with regard to Apples. In the coming season it will embrace all the other fruits commonly grown commercially. The trademark label has now been registered, and schedules have been drawn up to govern the packing of the various fruits. The main feature of the regulations is that the grower is required to declare on the Federation label attached to each package the net weight of the contents when packed. That is naturally a matter of vital importance to the retail purchaser, who has long complained of the lack of system, or even honesty, of many growers in this respect. Buyers certainly will not fail to appreciate the value of the guarantee afforded by the Federation label, and growers who are wise enough to use it will benefit accordingly. For Plums and the various soft fruits, non-returnable chip-handled baskets and chip "bonnets" are recommended whenever suitable, in addition to the usual wicker pecks and half-sieves.

ENGLISH *versus* IMPORTED APPLES.

Can we grow Apples equal to the boxed fruit which comes to us from America and Australia? Mr. C. R. Wimshurst, who gives in the *Journal* of the Ministry of Agriculture an interesting comparison of the conditions obtaining in those countries and in England, is rather sceptical on this point. He says that all boxed Apples exported to England come from localities that can mature a "cob" of Maize in the open during the summer; whereas the climate of S.E. and E. England, which is the driest we can manage, is not warm enough to do this, and is far moister than is good for box Apple country. S.E. England approximates in climate to what is called "berry country" in America, more suitable for bush fruits than for Apples. He considers that our moist climate encourages scab, brown rot, canker, and other fungous diseases, to an extent not met with in countries with a dry climate.

Is a dry climate really so desirable? Most of us had a dose of it last year, which we hope never to experience again. Yet personally I had a good deal of scab, and so did growers in some other districts, whilst brown rot was exceptionally prevalent amongst Apples. Keeping qualities have seldom been worse, probably because most of our varieties are not suited for such dry conditions. But supposing that we do have to put up a bigger fight against diseases—Mr. Wimshurst admits that they can doubtless be kept under in England, but at an outlay considerably greater than in dry regions—I submit that we ought to be able to afford that outlay, considering that we have the compensation of a market at our doors.

WHY NOT SCAB-RESISTING VARIETIES.

Of the fungous diseases mentioned above, scab is really the only one which presents a serious obstacle to the marketing of a clean sample. It must be admitted that, so far, we have no completely successful means of preventing it; but we have a fair number of varieties which are not affected by scab, and there is no reason why we should not have more. If plant-breeders set themselves the task of producing scab-resisting varieties, there is no doubt that it could be done. Even if it had to be at some sacrifice of flavour, the Apples might still easily be fully equal to most of the imported varieties in this respect. At present raisers of new varieties almost invariably aim at high quality, especially flavour. Cox's Orange Pippin is generally one of the parents. If they aimed at producing good market varieties, and bred for colour and constitution, using as parents some of our scab-free varieties, we should certainly get some valuable additions to our list of commercial Apples. Plant-breeders have given us Wheats resistant to rust, and Potatoes resistant to wart disease. They can surely give us also Apples that will prove immune to scab.

PIGS IN ORCHARDS.

Some growers have found a cheap solution of the orchard cultivation difficulty by running pigs amongst the trees. Messrs. W. Seabrook and Sons, of Chelmsford, are amongst those who have tried the plan, and they are so well satisfied with the result that they intend to extend the practice largely. The experiment was made in a plantation of bush Apples, interplanted with Black Currants and Gooseberries, which had become foul with weeds as a result of neglect during the war. The pigs cleaned the ground entirely, and kept it cultivated, so that all that was needed was to harrow it level after they had done their work. Little pigs were turned in straight off the sow, and were not rung. They did no damage to the trees or bushes beyond eating windfall Apples. It was found best to confine them to long, narrow strips of half an acre, twenty pigs cleaning this space in a fortnight. Wire fencing with light Ash stakes was used, this being moved from plot to plot as required; and portable shelters of thatched hurdles were provided for sleeping. As the pigs were fed with dry food, the land was well manured. A constant supply of water is considered to be essential, as it is thought that, without this, the pigs would be more likely to bite the trees.

For the same reason, and because they become less active as soil tillers, the pigs are not kept in the orchards after they reach the age of six months. They have to be removed, of course, whilst there is a crop on the Currant and Gooseberry bushes, and for a short period during the time of spraying operations. *Market Grower.*

ORCHID NOTES AND GLEANINGS.

CYPRIPEDIUM CHARLES PUDDLE.

From the gardens of Lady Aberconway, Bodnant, Tal-y-Cafn, North Wales, Mr. F. C. Puddle, the gardener, sends a fine flower of a clear white and yellow *Cypripedium* named after his youngest son, and which has been raised by G. F. Moore, Esq., Chardwar, Bourton-on-the-Water.

It was raised between *C. aureum virginalis* (nitenus × *Spicerianum*) and *C. chrysotoxum* (*Lathamianum* × *villosum*), and seeing that *C. Lathamianum* is from *Spicerianum* × *villosum*, those two species take the lead in the hybrid in form and colour, resulting in one of the whitest of *Cypripediums* without *C. niveum* in the parentage. The dorsal sepal and margins and outer halves of the petals are pure white, the rest of the flower being pale yellow, with a slight rose flush and thin median line on the petals.

NURSERY NOTES.

CONCERNING BEARDED IRISES.

IRISES are a great feature in Messrs. R. Wallace and Co.'s new nursery at "The Old Gardens," Tunbridge Wells, and last summer they appeared vigorous and strong in their new surroundings. In June, seen from the south-east corner (the highest point) the sloping hillside was covered with spikes presenting endless colour combinations, the beauty of many varieties being enhanced by the evening light. Beyond and below the Irises were masses of large specimen



FIG. 58.—IRIS ASIA.

shading from pale yellow to deepest gold. Dream is a tall, pale pink, very refined Iris. Amongst many others was the famous Lent A. Williamson, named after the raiser's father. I understand this Iris is highly thought of in the United States, and has been much sought after. It is on Alcazar lines, but richer in colour and not so sombre.

Varieties of another noted raiser, Mr. George Yeld, include the incomparable quartette, Lord of June, Neptune, Prospero, and Asia (Fig. 58). Limits of space will not permit a discussion of the qualities of each, but they are all good.

Have those who grow Lord of June noticed the strong fragrance of this variety? I do not know any Iris more heavily scented. Mr. R. W. Wallace did not know, nor could I obtain from Mr. Yeld, the parentage of these fine plants. Perhaps he does not know himself! It is a curious fact that these hybrids all do well in America. Maybe there is no Cypriana or Riccardi blood in them, which accounts for their being able to stand the rigours of the American winter. Mr. Yeld was impressed with the French Souvenir de Mme. de Gaudichau, which is a superb hybrid, early, and of deep violet colour and magnificent form.

Among the many fine introductions from Mr. Bliss, the two pallida forms, Rodney (dark blue) and Drake (light blue) were very striking. Dusky Maid, with its broad, spreading, margined falls, and Marsh Marigold, an improved Maori King, were in good form. The latter also appealed to Mr. Yeld. Knysna is good though somewhat small. Still, the pure yellow colour and good shape of the standards, coupled with its tall branching habit, give it almost pride of place amongst all clear yellows in cultivation to-day. A few superb blooms of Iris King made me pause and consider whether the raisers had advanced so far as they are apt to think on the road of progress. It is a grand plant, and there was evidence that others thought so too, as every flower had been cross fertilised.

Toutit is good for the front row of a border, and the freshly opened flowers of Blue Bird are of the brightest blue.

Dominion was not in flower, it having only been moved from Colchester the previous autumn, and was not yet established, but I hear that it was the centre of attraction at the show of the American Iris Society last season. A new seedling named Susan Bliss, a daughter of Phyllis Bliss (see Fig. 59) showed great promise, being tall and shapely and a deep shade of pink, the best of this class I have so far seen. A seedling of Dominion, called, if I remember rightly, Bruno, a harmony in bronze and red purple, held our attention, and Mr. Yeld saw in it a great development and a vision of a wonderful race of fine garden plants. Vilmorin's Ambassadeur was growing near by and, though very fine, Bruno surpassed it. It possesses what perhaps is best described as an improved Dominion fall, which is so outstanding in that remarkable variety.

Time and space do not permit me to dwell on all I saw, but some of Mons. Denis' new seedlings testify to his skill in no small measure, and a group from Newlands, raised by Sir Arthur Hort, contained the finest so-called purple bi-colours I have seen, such as Ann Page (Fig. 60), Hermione, Angelo, and Leonato. The collection at Tunbridge Wells includes the finest types of every raiser, and also a very fine set of Mr. Wallace's own raising, and is clear proof that here will be found for many years to come a unique assemblage of magnificent Irises well worth a visit in its time by all interested in these flowers.

To wander up and down amongst nursery beds of Irises is very delightful to the enthusiast, but for sheer enjoyment, an Iris garden well arranged and planted with the newer forms finds no rival in June. Such gardens have been made in recent years by many garden lovers, and I would mention a few, such as that owned by the late Mrs. Agnew at Hallingbury Place; Herodine, belonging to Mr. Harold Terry; "The Mountains" garden of Miss Du Cane's, and one more recently laid out by Lady Elphinstone at Marylands.

Gardens like these afford endless opportunity and scope to the owner, and there remains the fact that the Iris increases rapidly and can always be moved and replanted.

As I want these notes to be of some practical use, I give the following short lists of varieties. List A contains what I consider the most essential ten varieties for any beginner to plant who is desirous of forming a collection. (A) florentina, Kochii, Kharput, Gracchus, Queen of May, Amas, flavescens, Madame Chereau, Mrs. Darwin, and Jacquiana. (B) This second list is for those who possess most of the former and want to advance—Alcazar, Eldorado, Ossian, Nibelungen, Prosper Langier, Rhein-Nixe, Stamboul, Caprice, pallida dalmatica, Iris King, Lord of June and Monsignor.

The prices are reasonable for these varieties, and any garden that possesses a good clump of each will have laid the foundation of a good collection. They will also have



FIG. 59. IRIS PHYLLIS BLISS.

avoided buying many old varieties of little worth to-day.

The Iris has been aptly named the Poor Man's Orchid, and I doubt if any Orchid has more beautiful colours or a stately appearance. In the wonderful improvements that have been made in recent years, and especially with the tall, bearded type of Iris, the gardener has at his disposal a race of plants that is amongst the easiest to cultivate and one of the most beautiful in the floral world. The plants are adaptable for a variety of purposes and, being perfectly hardy, are suited for gardens in any part of the country. Traveller.

Rhododendrons, whilst in the far distance the famous Tunbridge Wells Common, with the picturesque surroundings of Rusthall and its church tower amidst tall trees, combined to produce one of the fairest views of the district.

I can only mention briefly a few Irises that appeared to be of outstanding merit. Foster's Crusader is a notable plant, with grand spikes of the deepest blue, in fine form. It is certainly one of his best. Near by was Kashmir White, very stately and pure in colour; Shalimar, with many branching stems, was typical of the Shelford seedlings. A small selection from Miss Sturtevant's seedlings, a noted American raiser, next claimed attention. Saraband, with biscuit coloured standards and purple falls, with a wide margin, and B. Y. Morrison, of purple colouring with similar falls, struck me as distinct and novel, especially the former, though possibly this Iris would not appeal to all. This wide margin to the fall, corresponding to the colour of the standard, with a deep central streak of darker hue, is quite a novel break. Afterglow, 4 feet high, was a study in subdued tones, with its falls

VEGETABLES.

ONIONS.

MANY gardeners make the mistake of sowing their Onion seed too late in the spring, and those who have not already prepared their Onion beds should do so at the earliest opportunity. Some of the most successful growers of Onions prepare their beds as soon in the New Year as the condition of the soil permits, and I have seen excellent bulbs raised from seeds sown in January. On no account, however, should the seed be sown before the ground is in a suitable condition for working. A liberal dressing of lime, soot, and plenty of wood ash will not only serve to supply food to the plants, but help to render the land friable and bring it into a good condition for a seed bed. After these materials have been applied, the surface should be forked lightly, or disturbed with a Planet Junior scuffle, and then made level with a wooden rake, placing all the stones, clods, and rubbish on one side. Scan the bed carefully, and, if any part appears to be lower than the other, make it level by means of the spade. When these details have been completed, tread the soil to ensure a firm rooting medium for the seedlings, rake it level again, and, when the surface is perfectly even, draw a light roller over it. It will then be in a condition for making the drills, which should be one foot apart and very shallow. Sow the seed evenly, using sufficient to ensure a good crop of seedlings. The seeds may be covered by pressing the soil in the drills on either side by means of the foot, and after this is done a final raking will be necessary to ensure a neat and tidy bed.

Autumn-sown Onions constitute a very useful crop, as they are available at a time when the summer crop is over. Now is a suitable time to transfer the seedlings to their final quarters. Select ground that has been well trenched and prepared as for the summer crop. The seedlings should be planted in rows made one foot apart, allowing a distance of nine inches between the plants in the rows. In setting the plants by means of a dibber, take care to damage the roots as little as possible, and any that are broken in lifting, or that are decayed, should be cut off. Make the plants very firm in the soil. The work of either sowing or transplanting Onions should, if possible, be done on a day when rain threatens to fall later, as this will save much labour in watering. J. H.

SPRING CABBAGE.

It is early yet to estimate how the autumn-sown Cabbages will turn in in most districts. The growth made last autumn does not, however, impress one as being altogether of the right kind for the season. Spring Cabbages seldom suffer while they are protected with snow, but alternate freezing and thawing, with perhaps strong winds to follow, are very trying to the plants, even though such weather may be of only short duration. Where there is any doubt at all concerning them, the wisest plan is to sow a quick-heating variety on a gentle hotbed as soon as possible. If care is exercised, sturdy plants will be available, which, after being pricked out into nursery beds, will be ready for putting out in their final quarters in April, and ready for cutting very little later than the earliest plants which have survived the winter. This is due to the fact that growth is very rapid at this season, provided the soil is favourable, and the stimulating effect of nitrate of soda is not overlooked. First of All and Earliest are excellent varieties for spring sowing. As for winter-maturing Cabbage, there is a risk attending their culture in late districts, but it is well worth taking, for, although present prospects are only moderate, excellent heads were available until the turn of the year. Last spring we had June-sown plants in excellent condition in April, and a little later they compared most favourably with those sown in August. Winter Cabbages, of which Christmas Drumhead is a fair example, are remarkable for their short stems, self-protecting habit, and hardness. Y. G.

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Lilium testaceum.—The above name was given by Lindley, and published in the *Botanical Register* (1842), Misc. 51, and Japan was given as the country of its origin. The name *L. Isabellinum* was given by Kunze in *Bot. Zeit.*, I. (1843), 609, and is therefore a year younger than Lindley's name (see p. 3). I have also been interested in the discussion concerning the meaning of the word *Isabelle* in connection with this Lily. One of my French dictionaries states that it means dove-coloured, or cream-coloured; another gives light bay or dun. As many translations have been given for testa-



FIG. 60.—IRIS ANN PAGE (SEE P. 117).

ceum, Nicholson, in his *Dictionary of Gardening*, gives light brown; Johnson, in his *Gardeners' Dictionary*, has this same translation; but in the edition for 1917 it is given as yellow-red. Lloyd's *Encyclopaedic Dictionary* translates the word as brownish-yellow for botanical or entomological purposes. *Testaceus* was an adjective used by Pliny, and it comes from the noun *testa*, a piece of burned clay, brick or tile, a piece of baked earthenware, the shell of a shell-fish, etc. As clay exists in a variety of colours, so would the baked article vary, and no doubt some samples might readily be described as brownish-yellow or yellow-red. The colour of the flower in England has been described as orange-red, dull yellow, and yellow tinged with dull red, by different authors. Bixa Orellana (see p. 56) produces the *Arnotta* of commerce. It is obtained from a red pulp that covers the seeds, but can be used to produce orange and yellow dyes for silks; also to stain cheese, and to give a yellow colour to butter and milk. The plant forms a small tree about twenty or thirty feet high and produces rose coloured flowers. J. F.

Canker in Melons.—A frequent cause of this disease is the practice of mixing manure in the soil previous to planting. The late Mr. R. Gilbert, of Burghley, was the best Melon grower of his time and the raiser of many new varieties; he used nothing but good turfy loam for his plants and had no trouble with canker. If growth was not sufficiently vigorous weak liquid manure was given as required. I had frequent opportunities of seeing his Melons during the last seventeen years of his life, and they were always in the best condition. A bottom heat of 70° to 75° was secured for starting the plants, and a minimum temperature of 65° provided whenever possible. He had the advantage of special houses and plenty of good soil from the new red sandstone formation. "Anxious" and many others are not so fortunate in this respect. "Wilt" disease was unknown in those days, and is no doubt far more difficult to control than canker, especially where other plants are grown in the same structure. Probably sterilising the soil and houses is the only way to prevent wilt. W. H. Divers.

Do Plants Know Time?—Regarding Mr. R. Irwin Lynch's notes on page 31, it may be interesting and knowledge to some that at Coombe House, among exotic plants cultivated in a stove, in a temperature of not less than 65°, were half a dozen specimens of *Dracaena Goldieana* in 9-inch pots. One of these plants produced a terminal inflorescence, a conical growth, formed of clasping bracts; from beneath these large bracts about one dozen flowers would protrude about an inch, in bud form only, about twenty-four hours before they opened. Then for about one week, punctually at 3.55 p.m., this number of flowers would open and fully expand, and exactly at 4 p.m. the flowers closed, never to open again. Some years later, another specimen flowered, and this plant I observed, watch in my hand. I then concluded that the pollen was released but fertilisation took place while the flower was closed; it is evident that *Dracaena Goldieana* knew the time. Mark Mills, Coombe House Gardens, Croydon.

Voies.—Mr. Hollingworth's inquiry on page 95 as to the best methods of stopping the depredations of these insignificant quadrupeds is not easy to answer. There seems to be a general invasion of them all over our island, and, as in that of some 40 years ago, the only means of extermination must be by natural enemies, owls and hawks. Neither dogs nor cats have a dislike to them, and they thrive where rats and mice would be destroyed by our domestic friends. Nor do they seem to care for the usual baits fatal to the last mentioned, but traps baited with Grapes, Figs, Pears and probably Apples are irresistible. Many dozens were destroyed here last autumn with Grapes and pieces of Figs as bait. I have caught them with a piece of Carnation leaf, and of no plant do they seem so fond as Carnations. Of course, in a large orchard, these means would be of little service, and probably the best way of getting rid of them would be to burn the grass, if that could be done by spraying with petrol. The voles have not touched Apple trees here, but Pears have not escaped injury by them. R. P. Brotherston.

Garden Irises.—So great is the interest in Irises in France that a special Iris conference is being held in Paris this year. In this respect our Continental friends have seemingly stolen a march on us. However, the *Journal of the R.H.S.*, Vol. XLVII., Part 1, January, 1922, just issued, leads one to hope for a whole-hearted recognition of the Iris in this country. The *Journal* in question contains a classification of Irises. This is a sign of the times, and a step in the right direction, and it leads one to hope that the Iris will come into its own in England as it has done in France and America. This classification of Irises is an attempt (and a very commendable one) to arrange varieties in colour groups. The adoption of colour as a basis of arrangement leads, of course, to the vexed question of names of colours, which is dealt with in a very able way. The groups are conveniently arranged and carefully thought out. Traveller.

SOCIETIES.

ROYAL HORTICULTURAL.

The following awards have been made to vegetables after trial at Wisley:—

Cauliflowers

AWARDS OF MERIT.

No. 1, *Feltham Forcing*, from Messrs. WATKINS AND SIMPSON; No. 16, *Improved Large Erfurt*, from Messrs. SUTTON AND SONS; No. 18, *Early Dwarf Erfurt*, from Messrs. NUTTING AND SONS; No. 20, *Early Emperor re-selected*, from Messrs. J. CARTER AND CO.; No. 23, *Early Favourite*, from Messrs. BARR AND SONS; No. 33, *Early Dwarf Midsummer*, from Messrs. BARR AND SONS; No. 40, *St. Omer*, from Mr. DAVIDSON; No. 43, *Magnum Bonum*, from Messrs. SUTTON AND SONS; No. 44, *Purity*, from Messrs. SUTTON AND SONS; Nos. 61, 63, *All the Year Round*, from Messrs. SIMPSON AND Messrs. SUTTON AND SONS; No. 69, *Empress*, from Mr. DICKS; No. 135, *Uncomparable*, from Messrs. BARR AND SONS; No. 150, *Autumn Giant*, from Messrs. DOBBIE AND CO.

HIGHLY COMMENDED.

No. 8, *Forerunner*, from Messrs. CARTER AND CO.; No. 12, *Early Dwarf Best of All*, from Messrs. BARR AND SONS; No. 38, *Snowwhite*, from Mr. CLUCAS; No. 38, *Enkhuizen Market*, from Messrs. BARR AND SONS; Nos. 57, 58, *Snowdon*, from Mr. DAWKINS and Mr. CLUCAS; No. 90, *Autumn Queen*, from Messrs. BARR AND SONS; No. 91, *Summer Favourite*, from Mr. SPEED; No. 99, *Snowman*, from Messrs. TOOGOOD AND SONS; Nos. 107, 147, *Walcheren*, from Messrs. COOPER, TABER AND CO. and Messrs. DOBBIE AND CO.; No. 136, *Late Giant*, from Mr. DAWKINS; No. 137, *Metropole*, from Messrs. J. KELWAY AND SON.

COMMENDED.

Nos. 115, 116, 117, *Eclipse*, from Messrs. BARR AND SONS, Messrs. NUTTING AND SONS and Messrs. J. KELWAY AND SON; No. 118, *Johnson's Market*, from Messrs. BARR AND SONS.

Celery.

AWARD OF MERIT.

No. 1, *Golden Self Blanching*, from Mr. J. B. RICE; No. 5, *White Plume*, from Messrs. BARR AND SONS; No. 15, *Early Rose*, from Messrs. R. VEITCH AND SON.

HIGHLY COMMENDED.

No. 3, *Paris Golden Yellow*, from Messrs. BARR AND SONS; No. 6, *Dwarf White*, from Mr. CLUCAS; No. 7, *Dawn*, from Messrs. J. CARTER AND CO.; No. 8, *Paris Rose*, from Messrs. BARR AND SONS; No. 17, *Easy Blanching*, from Mr. J. B. RICE; Nos. 20, 21, *Defiance* (Bibby's), from Messrs. R. VEITCH AND SON and Messrs. WATKINS AND SIMPSON; No. 31, *Hawmark White*, from Messrs. A. DICKSON AND SONS; No. 38, *Favourite Pink*, from Messrs. DOBBIE AND CO.; No. 40, *Perfection*, from Mr. H. MILLER; No. 41, *Matchless Pink*, from Messrs. A. DICKSON AND SONS; No. 42, *Giant Pink*, from Messrs. J. CARTER AND CO.; No. 44, *Champion Pink*, from Mr. F. DICKS; Nos. 49, 50, *Standard Bearer*, from Messrs. J. CARTER AND CO. and Messrs. WATKINS AND SIMPSON; Nos. 51, 52, *Covent Garden Red*, from Messrs. R. VEITCH AND SON and Messrs. WATKINS AND SIMPSON; No. 60, *Exhibition Pink*, from Messrs. RYDERS.

COMMENDED.

No. 23, *Champion Solid White*, from Messrs. BARR AND SONS.

Celeriac.

HIGHLY COMMENDED.

No. 2, *No Plus Ultra*, from Messrs. R. WIBOLFF; No. 3, *Giant Prague*, from Messrs. WATKINS AND SIMPSON; No. 5, *Giant Smooth Prague*, from Messrs. BARR AND SONS; No. 11, *Large Erfurt*, from Messrs. R. VEITCH AND SON; No. 12, *Celeriac*, from Messrs. SIMPSON.

Tomatos.

AWARD OF MERIT.

No. 1, *Aviator*, from Messrs. DICKSON AND

ROBINSON; Nos. 16, 17, 18, *Kondine Red*, from Messrs. WATKINS AND SIMPSON, Messrs. SYDENHAM and Messrs. R. VEITCH AND SON; No. 23, *New Sceptre*, from Mr. DAWKINS, and No. 24, *Beatali*, from Messrs. LAXTON BROS., were considered to be too much alike; No. 61, *Hillside Comet*, from Messrs. R. VEITCH AND SON; No. 121, *Golden Nugget*, from Messrs. BARR AND SONS.

HIGHLY COMMENDED.

No. 7, *Victoria*, Whole Salad, from Messrs. ATLEE, BURPEE AND CO.; Nos. 32, 33, *Ailsa Craig*, from Messrs. LOWE AND SHAWYER and Messrs. ROCHFORD; No. 115, *Orange Sunrise*, from Messrs. WATKINS AND SIMPSON, and No. 120, *Golden Sunrise*, from Messrs. BARR AND SONS, were considered identical.

COMMENDED.

No. 58, *Water Baby*, from Mr. A. BALCH.

Obituary.

The Viscount Harcourt.—The death of the Rt. Hon. the Viscount Harcourt has removed from the world a man who can ill be spared. Although ill-health had led to his partial retirement from public affairs, his sound and ripe judgment, his gracious urbanity and kindly spirit made and kept him a real force among men. At no time in his career did the rare qualities with which he was endowed enable him to do finer work than during the war. In unobtrusive manner, yet with untiring energy, he devoted himself to the service of his country. Among his many activities of this time, his chairmanship of the Army Agricultural Committee deserves to be specially remembered. By his tactfulness and his accessibility to ideas, he was able to achieve through that Committee remarkable results in food production by our armies in all parts of the world. Always a keen gardener, Lord Harcourt, in his later years, enjoyed more and more acutely working in and improving and planning his garden at Nuneham. At home there in his garden he was that rarest of men, the perfect host. Every plant that grew there he knew, and although the formal gardener found in the *déshabillé* of the Nuneham Gardens a subject of lament, no one who made its tour with Lord Harcourt could fail to fall presently under the enchantment of the place. Beautifully situated in pastoral country with the river winding about beyond the meadows which lie below the garden and encircled by woods stretching away for miles, Nuneham is a gardener's paradise. The house looks over a broad expanse of country, away to the heights of Poars Hill and Cumnor. The terraced gardens offer ample opportunity for the growing of wall plants of some tenderness. Among the many plants which Lord Harcourt was wont to point to with pride as doing admirably, clothing terrace walks and some reaching almost to the housetop, were Banksian Roses, *Vitis purpurea*, which last autumn presented a marvellous mass of colour; *Bridgesia spicata*, *Ceanothus papillosus*—more tender than *C. dentatus*—*Stauntonia latifolia*, *Sollya heterophylla*, *Buddleia Colvillei*, *Mandevilla suaveolens*, *Cestrum aurantiacum* and *C. Newelli*, *Fabiana imbricata*, *Actinidia scandens* and *A. Kolomikta*, *Smilax* sp., *Ampelopsis sempervirens*, *Tropaeolum speciosum*, *Crinodendron Hookeri* doing well on a north wall—*Berberidopsis* sp., *Celastrus scandens* rooting in a north aspect, *Akebia lobata* and *A. quinata*, the last with smaller fruit, but better flowers than the other species. One of the most pleasing features of the garden is the pillars of Rose many growing against the terrace piers. Something of a wilderness it is true, but, nevertheless, Nuneham is a garden in which anyone who loves plants and beauty of scene would fondly linger, and from which reluctantly depart. And now the owner who made it and who loved it yet more than might any visitor is gone, leaving behind a memory of distinction and courtesy and a blending of wit and kindness as delightful as it is rare.

John Page. We learn with very deep regret that Mr. J. Page, of Hampton, and of 35, Wellington Street, Covent Garden, passed away early on Tuesday, the 7th inst., after a very severe illness. Mr. Page was one of the most remarkable men in the Flower Trade, with which he had been connected for upwards of forty years, and for twenty-one years he had been associated with his brother Edward (Messrs. J. and E. Page) as salesmen in Covent Garden. Endowed with a strong personality and wonderful business ability, he was nevertheless one of the largest-hearted and most generous of men, and in any special case of need brought to his notice he was as generous with his time as with his money. He was a type of man who can ill be spared from any branch of industry and he will be very greatly missed by all who are connected with the Covent Garden flower industry. Mr. J. Page was 63 years of age, and the second son of Mr. Matthew Henry Page, who practically founded the flower-growing industry in the Hampton district. The funeral takes place to-day (Friday); the service will be held at 2.45 at All Saints Church, Hampton, and the interment takes place at Teddington Cemetery at 3.30 p.m.

E. H. Battram.—By the death of Mr. E. H. Battram, of Parknewydd Farm, Abercynon, on March 3, a remarkable personality has been lost to the world of horticulture. About 54 years ago, Mr. Battram went to Merthyr as head gardener to Mr. R. T. Crawshaw, who had a very fine establishment at Cyfartha Castle. Mr. Crawshaw, known as the Iron King, encouraged his gardener to exhibit, consequently fruits and plants from Cyfartha won prizes at numerous exhibitions throughout the country during the 'seventies. Eventually, Mr. Battram became manager to the Merthyr and Aberdare Joint Sewerage Farms' Committee, and removed to Abercynon, where he resided for the last 37 years, making a vast number of friends and endearing himself to the people of the district. He was probably the best known and most popular person in the locality, as he was brought into contact with many people through his work in connection with the Congregational Church, the Merthyr Ragged School, the Abercynon Horticultural Society—which he founded—and local allotment associations. He was unsparing in his efforts to raise the fallen and to improve the homes and gardens of those around him. He was a capital speaker, and, as a chairman of meetings, had scarcely a rival in South Wales.

Dr. W. Van Fleet.—The American horticultural papers record the death of this distinguished plant breeder of the United States Department of Agriculture, on February 26, following an operation. Dr. Van Fleet in early life studied medicine, graduating in that profession in 1880, but he soon abandoned his profession as a doctor to take up farming, and later became editor of the *Rural New Yorker*. In 1910, he entered the service of the U.S.A. Department of Agriculture, and achieved notable success as a plant hybridiser: he was especially successful in the raising of Roses, of which he made several hundred crosses. He was the raiser of American Pillar, which may be described as the finest of all the rambling varieties, and other famous Roses which he gave us are Dr. Van Fleet, Silver Moon, Miss Mary Wallace and Beauty of Rosemawr. He also developed a blight resistant Pear, and raised several new varieties of Strawberries. Dr. Van Fleet also turned his attention to the improvement of the Gladiolus, two of his best known varieties being Princeps and Mastodon; he was the author of a useful book on the Gladiolus.

Francis Peckham Russell.—We learn with regret of the death of Mr. Francis Peckham Russell, who was formerly gardener at Farringford to the late Lord Tennyson, the Poet-Laureate. Mr. Russell, who was eighty years of age, had been for 48 years in the service of the Tennyson family. The funeral took place at Freshwater, Isle of Wight, on Tuesday last, and many manifestations of the high esteem in which Mr. Russell was held.

TRADE NOTES.

For the past 18 months, the Transport Sub-Committee of the Chamber of Horticulture, comprising one delegate each, and the Secretaries, of the Horticultural Trades' Association, the Federation of British Growers and the Chamber, have been engaged in fighting the railway companies' proposed reclassification of goods by merchandise trains. This Committee is now in the happy position to announce success of its case for the nursery side of horticulture.

In Court A, Judges' Quadrangle, Royal Courts of Justice, on Thursday, February 23, the Rates Advisory Committee, who have plenary powers in fixing future classification, gave judgment on the outstanding differences between the Chamber and the companies, and in every instance a reduction was the result, in addition to which reductions had already been made by direct conference with the railways.

This is very tangible evidence of what organisation can do for industry. Thirty years ago, when the existing classification was compiled, horticulture was not strongly organised, and consequently many injustices crept in unchallenged. The position is entirely different to-day, and a brief review of the Sub-Committee's activities may not be out of place.

Early in 1920, the Rates Advisory Committee was appointed by the Ministry of Transport for the purpose (*inter alia*) of revising classification of merchandise traffic, and later in the year the railway companies issued a huge volume listing their traffic, and proposed new classification. Objections to those proposals could be lodged, otherwise they would stand. The Sub-Committee made a minute examination of those proposals, and unfairly-classified goods were objected to. In this preliminary work complete harmony existed between the Sub-Committee and the National Federation of Fruit and Potato Trades Association, who were energetically taking up the matter from the fruit and vegetables standpoint, and latterly it was agreed that this Federation should conduct the case for fruit and vegetables and leave the nursery side to the Sub-Committee. Then followed the conference with the companies who allowed some objections, the remainder being dealt with by the Rates Advisory Committee, whose decisions are given below, together with the original proposals for purposes of showing the gains:—

	New Classification Classes.	Companies' original proposals Classes.
Trees. Min. 30 cwt. p. truck	15	16
Trees. e.o.h.p.	17	18
Plants and shrubs. Pots, baskets, tubs.	20	20
Plants and Shrubs. Bundles.	18	20
Plants and Shrubs. e.o.h.p.	17	18
Bulbs	16	18
Quicks.	15 & 17	18 & 20
Evergreens.	18	19 & 20
The accepted concessions by direct negotiations with the railway managers are:—		
Asparagus, Rhubarb and Seakale Roots.		
2 ton lots. Class 10		
Min. 20 cwt. p. truck	12	18
Less than 20 cwt. p. truck.	14	
Seeds—Vegetable	16	
It will be observed that the new classes are differently numbered to those now in use—comparative tables are as under:—		

Present Class.	Revised Class.
C. equals	7, 8, 9, 10.
1. "	11, 12, 13
2. "	14, 15, 16.
3. "	17, 18.
4. "	19.
5. "	20.

As an illustration of the real value of the above reductions, Mr. G. Hewlings Barr has kindly supplied the following figures, comparing Classes 3 and 2 (equivalent to new classes 18 and 16, which will apply to Bulbs).

London to Holbeach—58s per ton, against 49s., saving 17 per cent.

London to Glasgow—132s and 94s., saving 28 per cent.

These figures are based on existing rates, but whatever the actual rates may be when the revised classification operates, probably within the next two years, pro rata saving will be effected.

THE inaugural meeting of the British Glasshouse Produce Marketing Association, Ltd., was held on Thursday, the 2nd inst., in the Central Hall, Westminster, for the purpose of considering an advertising and publicity campaign in connection with the sale of Tomatos. The meeting was held under the auspices of the Lea Valley and District Nurserymen's and Growers' Association, Ltd., and there were present about 150 representatives of various bodies concerned with the growing and marketing of Tomatos. The chair was occupied by Mr. H. O. Larsen, chairman of the Lea Valley Association. A representative of the London Press Exchange, Ltd., outlined a scheme of advertising, and gave examples of industries that had adopted publicity campaigns, pointing especially to the great advance made in the Californian Orange industry by this means. In 1906, before the Californian growers adopted their publicity campaign, they produced 8,973,342 boxes of Oranges, and had great difficulty in disposing of this large number in the United States, but by advertising the fact of the value to the public of such delicious and healthy fruit the sales rose in 1919 to nearly 19,000,000 boxes, and the home market absorbed the whole of the output, so that there was very little available for export. Although in 1921 the Californian growers spent £200,000 in advertising, it was done at a cost of 1½d. per box. It was suggested that what was done in California with regard to Oranges could be done here in the case of Tomatos. When prices are low at the period of the highest production, the public should be stimulated to purchase by means of advertisements, posters, and show-cards displayed in the greengrocers' and fruiterers' shops. Another means of increasing the sales would be to pack the fruits in non-returnable containers of a cheap, yet attractive type. It was also suggested that small recipe-books, showing the various methods in which Tomatos may be employed, should also be distributed free to housewives. The estimated cost of the scheme was £12,000, and it was calculated that would involve a contribution by the growers of 1/12th of a penny per pound of their crop, but, if the scheme was widened to embrace the whole of the growers in the country, 1/27th of a penny per pound would suffice. It was suggested by some of the speakers that the various growers' associations should be brought together under one central body, which should be responsible for the advertising. It was pointed out, however, that the funds of such an association would hardly be likely to be available for the special purpose of advertising one particular crop, such as Tomatos. The chairman said that it would be a good thing to have a national advertising committee to advertise all produce, and that the Lea Valley growers would be willing to work with any other associations to make such a national scheme a success. It was stated that the average yields of Tomatos in this country were:—In the Lea Valley district 20,000 tons, Guernsey 20,000 tons, Jersey 10,000 tons, and the rest of the country 20,000 tons, making a grand total of 70,000 tons or 12,000,000 strikes. It was recognised that it would be impossible to utilise new, non-returnable containers for the marketing of the whole of this very large annual yield, but it would be desirable to bring them into use gradually, as this would be one of the best means of tapping new sources of sales, such as the large multiple shops, which would not be bothered with returnable baskets. The following resolution was proposed by Mr. C. H. Shoults and carried unanimously: "That the advertising and publicity scheme, as outlined, be carried

through, and that a National Association be formed and registered under the name of the 'British Glasshouse Produce Marketing Association, Ltd.'" It was also resolved that the growers should have the option of contributing on the basis of output of crop or area of glass under cultivation. The members present pledged themselves to support the scheme financially, and an Executive Committee, consisting of eight members of the Lea district, three from the Worthing district, three from Guernsey, two from East Sussex, two from North-West Hants, and two from any other district, with power to add to their number, was formed to carry out the scheme.

ANSWERS TO CORRESPONDENTS.

EARLY-FLOWERING THORN: R. V. There is little doubt that the specimen sent is the Glastonbury Thorn, *Crataegus monogyna* var. *præcox*. The most likely solution is that this particular bush was grafted in a nursery as a Glastonbury Thorn, but is only now revealing its true character. An alternative suggestion is that the bush has sported, repeating the precocious flowering of the Glastonbury Thorn. Whatever legend there may be attached to it, there is little doubt that the famous tree at Glastonbury Abbey originated as a sport from *Crataegus monogyna*.

FLOWERS FOR MARKET: A. G. H. (1) The best kind of perennial Statice is *S. latifolia*. This may be raised from seeds sown now in heat and planted out in May or June, but would not flower profusely till next year. It may also be raised from root cuttings about an inch long, and covered with about an inch of sandy soil, in October. Young plants will appear about March and April, and may be transplanted 2 in. apart each way the following September to their permanent positions. There are several annual Statices, among the best being *Bonduelli*, yellow; *S. sinuata*, with blue, white and rose-coloured varieties—perhaps the most suitable for market work. *Suworowi* is also handsome, with bright rose flowers. These annuals may be raised from seeds grown in a temperature of 60° to 65° in February and March, afterwards pricking the seedlings out and hardening them off before transferring them to the open ground in May or June, to flower the same year. (2) *Physalis Francheti* is easily raised from seeds sown in spring, or better still, by dividing and replanting every portion of the rootstock to obtain quicker results. The finest coloured "lanterns" are produced in open, sunny situations. (3) *Gypsophila paniculata* (or rather its double variety) is an excellent market flower and will flourish in your limestone soil, being a lime lover, as the generic name indicates. The single variety is easily raised from seeds sown to produce flowering plants the next and following years. It may also be increased by division of the thick roots in autumn or spring. Your calcareous loam and southern aspect should suit all these plants well, and if a little organic manure is hoed in about once a month, the soil should keep in good condition and retain its moisture during the growing season.

NAMES OF FRUIT: T. T. T. 1, Fearn's Pippin; 2, Grey Leadington. -N. H. 1, Down-town Pippin; 2 Minchul Crab.

NAMES OF PLANTS: F. R. Probably *Asparagus asiaticus*, so far as can be determined in the absence of flowers. T. M. W. *Lonicera fragrantissima*. A hardy shrub, native of China. It does not require any particular care as regards cultivation, beyond cutting out dead or old wood to prevent crowding of the growths. This species is often confused with *L. Standishii*, a very similar looking plant, but with longer, narrow, pointed leaves. Both species were introduced from China in 1845 by Robert Fortune.

Communications Received.—Mrs. M. H. (Thanks for 8s. for R.G.O.F.)—R. W. N.—W. W. F.—J. R. J. E.—Old Subscriber—F. G.—H. M.—J. R. G. G. B. M. N. H. R. D.—T. G. J.—B. P. G.

THE

Gardeners' Chronicle

No. 1838—SATURDAY, MARCH 18, 1922.

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 41.6.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, March 15, 10 a.m. Bar, 30.3; temp. 45°—Weather—Dull.

large-scale planting is undertaken the less precious subjects may have to be left to fend for themselves. Yet it is a good thing to impress on the young gardener the maxim—spare the rod and spoil the plant. It is also a good thing to urge on him the importance of adequate staking. The rod—that is the stake—must be strong and long enough to admit of its being thrust so deep in the earth that the detailed movements of the soil which take place during winter may be prevented from reacting detrimentally to the plant's stability. The duty of a stake is to support and not to sway in unison with a wind-tossed plant. Of the perfect stake it may be said—it looks on tempests and is never shaken. The sharp eye of the observant gardener will detect the least tendency "to ride," that is, for a plant to sway backward and forward—as in a socket in the loosened soil about its collar, and he will know that spring is the season when great and often irreparable harm is done. Again, everyone who knows the explosive power of frost—to lift plants out of the ground—knows also that staking, if not firm, is useless. Even in the absence of frost many plants have the tendency to lift themselves out of the soil—a tendency which in others is more than counterbalanced by their system of contractile roots that serve to draw the plant down in the soil and to hold it firmly there. Roots of well established plants are generally efficient hold-fasts, but even with such plants a stake is often necessary for many years. Cupressus macrocarpa, for example, in light soils, growing vigorously, and of ten or twelve feet in height, may begin to lean and almost topple over if its roots are not helped to regain their firm hold in the soil. The roots of a newly-planted shrub or tree are at first held passively. When root growth begins—and it apparently goes on whenever soil temperature and other conditions allow of it—the plant hangs on to the soil by the tips of its roots only. The growing region of each root is but an inch or so in length and is situated just behind the tip. By the elongation of that region the tip is driven wedge-wise into the soil. Behind that growing region is the absorbing region, where the root-hairs grow. If these latter delicate tubular outgrowths are torn away from the soil particles to which they attach themselves they can do no work or absorption, and the plant—if it be an evergreen—will assuredly wither. The young fibrous roots also, which grow out from the larger, thong-like roots, if they lose their attachment to the soil, cease to grow—each tap they receive as they knock against the hollow, tunnel in which they lie, as is the case with a "riding," i.e., a swaying plant, serves to start them curving away from the direction in which the blow fell and there is no stability from them. Wherefore it is that when the Daffodils "take the winds of March in beauty" is the latest time for the gardener to look over all newly-planted things and re-stake those which need it. It ought to be done earlier, but although it is not true to say in this case "it is never too late to mend," there is always a good prospect of a plant which has begun to "ride" being restored to health by being brought back to a stable state.

Mr. Kingdon Ward's Seventh Expedition in Asia.—Readers of *The Gardeners' Chronicle* will be glad to learn that Mr. Kingdon Ward has completed his Sixth Expedition in Asia and has already started his seventh. On this occasion he will follow an entirely different

route to that of last year, consequently the accounts of his journey, which he has promised to send us, should prove unusually interesting. We have also received from him a package containing further accounts of his recent journeys. Apparently Mr. Kingdon Ward is in good health and, judging from his letter, he starts his Seventh Expedition with great hopefulness and in excellent spirits.

Gardeners' Royal Benevolent Institution Festival Dinner.—Lord Lambourne, President of the Royal Horticultural Society, will preside at the 77th Anniversary Festival Dinner in aid of the funds of the Gardeners' Royal Benevolent Institution at the Grocers' Hall, London, on June 27 next. The names of ladies and gentlemen willing to act as stewards in connection with the festival, are earnestly solicited, and will be gratefully received by the Secretary, Mr. George J. Ingram, at 92, Victoria Street, Westminster, S.W.

Hedge Trimming Competition.—A series of competitions in hedge trimming was held recently under the auspices of the Quorn Hunt, in the parish of Old Dalby. Prizes to the value of £40 were offered in five classes, and they attracted 120 entries. In each case the competitors were required to cut, lay and bind eleven yards of hedge as a bullock fence, not less than 4 ft. 6 inches high, and four and a half hours was allowed for the work. The first was the Championship class, and the other classes were restricted to men of different ages, from 45 and upwards in class II., down to those under 25 years, in class V. The first prize in the Championship class was won by Mr. Job Dilks, Queniborough. In presenting the prizes, Mr. G. W. Brewitt remarked that such competitions encouraged skilled labour, and the man who was a skilled hedge cutter need not be unemployed, for there was always work for a good hedge cutter. The object of the competition was to educate men how to stop a gap in a hedge without resorting to the use of barbed wire.

Fruit and Potato Traders.—*The Handbook and List of Members* of the National Federation of Fruit and Potato Trades Associations (Incorporated) Ltd., is an interesting, useful, attractively got up, and well bound book of large octavo size, extending to 430 pages. The Annual Report of the Federation occupies a prominent position, and we gather from the financial statement that in connection with the Propaganda Fund over £2,200 has been spent; £582 in connection with the Inspector of Empties Fund, and £2,368 by the Railway Defence Fund. The General Fund shows a substantial balance of £1,863. Rules of the Federation and various reports are included, but the bulk of the book is devoted to the names and addresses of the members. These are given under the various towns, commencing with Aberdeen and concluding with York, and where there are several members resident in one town, their names are given in alphabetical order. It is the most complete list we know of those engaged in the fruit and Potato trades.

Potato Trials by the National Institute of Agricultural Botany.—The National Institute of Agricultural Botany will this season begin a series of yield and quality trials of Potato seedlings. The series will last for five years: for the first two or three years the trials will be carried out in Scotland, and for the last two in Scotland and different Potato districts in England. Tests will be applied to determine the time of maturity, resistance to disease, cropping and keeping capacity, and culinary properties of the seedlings entered. The following conditions, fuller details of which are given in a form of agreement now being drawn up, will apply to the acceptance of such seedlings as the Institute may decide to admit to the trials: (1) The owner must deliver the whole stock of the seedling, which he must guarantee to be the only existing stock thereof, to the Institute free of charge. (2) The Institute retains the right to reject any stock at any stage

* Handbook, 1922 of the National Federation of Fruit and Potato Associations (Incorporated), Ltd. 31 and 35, Southampton Street, Strand, W.C.2.

The boisterous winds of March serve as a warning—much needed by all save experienced gardeners—that the staking of plants is the most necessary of all the lesser operations of the garden. Firm planting at the proper time and in the proper place will ensure trees and shrubs of a good chance of success which, even so, may be marred by such a season as that of last year. But if there be neglect of staking at planting time, even a propitious growing season may be powerless to establish or even save the plants. Such great importance—and rightly—do good gardeners attach to staking that they stake as they plant, knowing full well that in the multitudinous operations which unceasingly require attention day by day, that which is omitted to-day may be forgotten to-morrow. Needless to say, if staking be done at planting time it must be done again presently, otherwise the plant tends to be held up in the soil, instead of settling as the soil settles. When planting is done during the still days of late autumn, with soil in kindly state, the firmness with which the newly-planted shrubs and trees stand up is apt to make the inexperienced think that staking is unnecessary and that before the winds of March come the plant's own root hold will suffice. Anyone, however, who either knows the method of holdfast action practised by roots, or who has traced failures of planting to their source, will appreciate the fact that it is dangerous to leave any woody plant unstaked. It is, indeed, a counsel of perfection to urge that all should be staked. In this life some risks must be taken and when

of the trials; if rejection takes place after the first year, the owner may recover the stock on payment of costs of removal; if in subsequent years by payment of a fee prearranged to cover the Institute's expenditure on testing the stock up to the date of rejection. (3) The Institute will make all arrangements for trial and marketing of the stock; the owner may, however, veto the marketing of the stock at any stage on payment of the Institute's expenditure on the stock up to the date of veto. In the event of the veto being exercised the stock will be destroyed. (4) If and when the stock has been sold to the trade, half the net profit on the whole transaction will be paid to the owner. Individuals, institutions, or other bodies wishing to enter stocks for these trials must apply before March 31, 1922, to the Superintendent, Potato Testing Station, Ormskirk, Lancs., from whom forms of application are obtainable.

Proposed National Daffodil Society.—The meeting of Daffodil enthusiasts, arranged to be held at the Royal Horticultural Hall, at 2.30 p.m., on Tuesday last, to consider a proposal to form a National Daffodil Society, was postponed to four o'clock the same day, consequently several interested persons were unable to be present. Mr. G. W. Leak presided over a moderate attendance, which included Messrs. George Monro, F. H. Chapman, P. R. Barr, W. R. Dykes, H. G. Hawker, G. Churcher, W. B. Cranfield, Herbert Smith, W. F. M. Copeland, J. Duncan Pearson, R. W. Wallace, J. W. Jones, Guy L. Wilson, W. A. Milner, and the Rev. G. H. Engleheart. The proposal was discussed at some length, and views were freely expressed both for and against it. The absence of the Rev. Joseph Jacob was deeply regretted, and those present felt that no further action should be taken until Mr. Jacob could attend, consequently the meeting was adjourned until a date in April convenient to him.

Kew Guild Journal.—Amongst all the numerous publications dealing with special horticultural societies and associations of gardeners, none is of more general interest to horticulturists than the *Journal of the Kew Guild*. This annual journal is not only a record of domestic matters connected with the Guild, but shows better than any other publication the importance that horticulture plays in the development of the resources of our vast Empire. The members are spread over every part of the globe, and each issue of the journal contains long letters from those abroad describing their experiences in gardens and botanical stations. The frontispiece is a portrait of Mr. Charles Cundy, the president for the year, and accompanying it is a short biographical notice showing that he entered Kew in 1878, and afterwards became a nurseryman at Sudbury, in Suffolk. The changes in the staff at Kew, owing to retirements, include the Directorship, Keeper of the Herbarium and Library, Medical officer and the official artist, Miss M. Smith, who has been responsible for most of the plates in the *Botanical Magazine* since 1878. The principal events under the term of office of all these officials are referred to in special articles. Reference has already been made in these pages to the appointment of Dr. A. W. Hill, as Director, in succession to Sir David Prain, and Mr. A. D. Cotton, as Keeper of the Herbarium in succession to Dr. Stapf. That Kew is as popular with the public as ever is shown in the number of visitors to the gardens, 3,236,308 during 1921, an increase of more than 100,000 as compared with 1920. On Whit Monday last year, nearly 60,000 people were present in the gardens. We learn that M. L. Gentil has resigned the position of Curator of the Brussels Botanic Gardens, and is settling at Niengale, near Lusambo, on the Sankura River of the Belgian Congo, to help his brother in the exploitation of forest products. We regret to learn that damage done to plants in the gardens and greenhouses by the use of salt water pumped from the lake, is still continuing, owing to the deposits of salt in the soil. The lake itself is being cleared, and the work has

occupied a gang of sixteen men for twelve weeks.

W. A. Bilney, V.M.H.—Mr. W. A. Bilney, of St. George's Avenue, Weybridge, and of the firm of Messrs. Morgan Veitch and Bilney, solicitors, is one of several Devonshire men who have rendered invaluable services to the Royal Horticultural Society. For many years he has been a member of the Council of the R.H.S., and it is somewhat difficult to particularise the services he has rendered that body. He is regarded as a general utility man by his colleagues, and whether it is a matter of legal advice, business methods, arrangements for a great exhibition, drainage for the Chelsea show, or the merits of a new plant, Mr. Bilney's advice and opinion are always sought. A great lover of Orchids, Mr. Bilney had a large collection of these plants at Weybridge a few years ago, and was especially successful in the cultivation of Dendrobiums, but for the present his tastes run more in the direction of alpine and herbaceous plants. Some evidence of Mr. Bilney's services to horticulture may be gathered from the statement that he is Chairman of the R.H.S. Exhibition Committee, a member of the Wisley Gardens Committee, and also of the Finance and



MR. W. A. BILNEY, V.M.H.

General Purposes Committee of the Society, consequently it is not difficult to understand the reasons that led the Council of the R.H.S. to award Mr. Bilney the Victoria Medal of Honour in Horticulture at its recent annual meeting. It is Mr. Bilney's good humour and infectious enthusiasm that, coupled with great business ability, have made him such an important member of the R.H.S. Council and earned for him the respect and regard of all horticulturists. We may also add that Mr. Bilney represents the R.H.S. on the Council of the Chamber of Horticulture.

Horticultural Invalids.—The treacherous weather experienced of late has not been without its effect upon horticulturists, and we regret that several well-known personalities in the horticultural world are indisposed. Sir Harry J. Veitch has not attended any meetings recently, but our readers will be glad to learn that, although confined to his home, he is not seriously indisposed. Mr. S. T. Wright, the popular Superintendent of the R.H.S. Gardens, Wisley, is recovering from an illness that threatened serious consequences. Mr. John Heal, the eminent raiser of new plants, has been dangerously ill, but is recovering, and in a cheerful letter we have received he expresses the hope that he will be among his friends, as usual, on the occasion of the next R.H.S. meeting, at Westminster. Mr. Brian Wynne, Secretary of the Royal Gardeners' Orphan Fund, is

laid aside with influenza at a time when he is desirous of perfecting arrangements for the Festival Dinner; various members of the committee are, however, assisting him in the more pressing duties of his office, thus relieving him of anxiety and aiding his recovery. The Rev. Joseph Jacob was too ill to attend the meeting of the R.H.S. Daffodil Committee on Tuesday last, and his many friends regret that news concerning his progress towards recovery is not so favourable as they could wish. Mr. T. W. Taylor, of Kew, who underwent a serious operation at Charing Cross Hospital some time ago, has recovered from a long and severe illness, and we are glad to hear he has resumed charge of the Tropical Department at the Royal Gardens. Another invalid is Mr. David Ingamells, Chairman of Committee of the Royal Gardeners' Orphan Fund and of the British Florists' Federation; he is suffering from a slight attack of influenza, but hopes to return to business at Covent Garden during the latter half of the present week.

British Mycological Society. A meeting of the British Mycological Society will be held in the Botany School, Cambridge, on the 18th inst. The programme includes the following papers: "Diseases of Apples in storage," by Mrs. M. N. Kidd; "The parasitism of *Nectria cinnabarina*," by Mr. J. Line; "Observations on the occurrence of Wheat rusts near Cambridge," by Mr. K. C. Mehta; and "Mould growths on cold-store meat," by Messrs. F. T. Brooks and C. G. Hansford. Opportunity will be given during the afternoon to visit some of the laboratories and other buildings in Cambridge. The party will travel from Liverpool Street at 8.30 a.m., and depart from Cambridge at 7.7 p.m., arriving at Liverpool Street at 8.33 p.m.

Appointments for the Ensuing Week.—Monday, March 20.—Reading and District Gardeners' Association's meeting; lecture by Mr. H. Wynn on "Sweet Peas for Exhibition and Decoration." Tuesday, March 21.—British Carnation Society's show at Royal Horticultural Hall. Wednesday, March 22.—Wimbledon and District Gardeners' Society's meeting. Thursday, March 23.—Royal Botanic Society's meeting. Friday, March 24.—Paisley Florists' Society's meeting.

"The Gardeners' Chronicle" Seventy-five Years Ago.—*Cottage Garden Cropping.*—You will be glad to know that the good advice given in the *Chronicle* (February 27) has been acted upon by a young gentleman in this neighbourhood. He has "exerted himself to the utmost in his small sphere"; first, by distributing about 200 hand-bills, with extracts from the *Chronicle*; and, secondly, by enabling the cottagers to purchase seeds at wholesale prices. A respectable and benevolent seedsman in the county town (to his praise be it spoken) not only supplied the seeds at wholesale prices, but took the trouble of making them up into small packets of different prices, from 1d. to 6d. each, to suit the wishes and pockets of the people, which, of course, greatly facilitated the work of the gentleman, who has already disposed of a variety of seeds to upwards of ninety cottagers, and is still going on. He has had no difficulties to contend with from "obstinacy or prejudice," they have all come willingly to his shop, and have eagerly purchased what he offered; though, of course, they were allowed their own choice. Almost every one took Beans, Peas, Carrots, Turnips and Onions. Many have also added Cabbage, Beet, Parsnip, and Kidney Beans; and some indulged themselves in Spinach, Radishes, Mustard and Cress. Many of them do not know the Parsnip or Beet, but some roots of each were produced in the raw state, and some were boiled for them to taste, and which induced many to become purchasers of the seed. There cannot be a greater charity than that of helping the poor to help themselves; and when they find their superiors taking a real interest in their welfare they are seldom found ungrateful. The Oswestry Society for Bettering the Condition of the Poor has offered prizes to cottagers who have in their gardens the best crops of any useful vegetables, excepting Potatoes. *Oswestry, March 15. Gard. Chron., March 20, 1847.*

CHINESE SHRUBS AT ALDENHAM.

(Continued from page 115.)

DEUTZIA.—Of the numerous *Deutzias* introduced from China, some of the handsomest are *D. glomeruliflora*, which for brilliancy of bloom stands probably highest among the white-flowered species; *D. longifolia*, with rose-coloured blooms; *D. longifolia Veitchii*, the finest of the pink-flowered forms; and *D. Wilsonii*, another large white-flowering species. All make fine bushes, which bloom with great freedom, and are benefited by the entire removal of the old stems from time to time.

DIPELTA.—It is very gratifying to record the success of *Dipelta floribunda* and *D. ventricosa*, two delightful members of the *Caprifoliaceae*, and one may venture to predict that they will become two of our most popular flowering shrubs. *D. floribunda*, with pink and yellow blossoms, is the freer flowerer of the two, and the blossoms are very fragrant.

EUONYMUS.—*Euonymus lancifolius* and *E. Wilsonii* are two very distinct species, and, though not notable for their flowers, the latter is said to have remarkable fruits. *E. Wilsonii*, an evergreen, has pretty pale green foliage, and a fine specimen at Aldenham in tree form is now 10 feet high. So distinct is it that I do not think anyone who was not a great expert, and who saw the plant for the first time, would recognise the family to which it belongs.

HYDRANGEA.—There are apparently two forms of *Hydrangea anomala*—one of dwarf, spreading habit, and the other of upright or tree growth. The latter, with its flaky, light brown bark and red buds, is much the finer garden plant. *Hydrangea Sargentiana* is a singularly handsome member of this beautiful genus, and is worthy of inclusion in all gardens for the beauty of its velvety leaves. On the flowerless shoots these are of great size, nearly 1 foot long and 7 inches wide, dark green on the upper surface, and densely clothed with hairs. The under side is paler. The sterile flowers, produced in mid-summer, around the edges of the flat corymbs, are very pale pink, or white, whilst the fertile ones are deep red to lavender, and oftentimes shades of purple or violet. In winter the thick, light-coloured stems and dark brown buds show conspicuously. A fine specimen at Aldenham, 6 feet high, is perfectly happy in a partially shaded place, and it seems to be necessary to select such a position so that the hottest rays of the sun do not reach the leaves. Mr. Gibbs informs me that, although he was assured by Wilson that the plant flourishes in full sun in its native habitat, yet, when grown in England, it cannot endure the direct rays of the sun without burning badly.

HYPERICUM PATULUM HENRYI.—This St. John's Wort, originally introduced by Dr. Henry and afterwards sent home by Mr. Wilson, is one of the most satisfactory members of the genus, and from June until October the large, bright yellow flowers are very conspicuous objects. It is also a much stronger grower than the type, and is extremely hardy.

ILEX.—It would be sufficient recommendation to say that *Ilex Pernyi* is one of the most attractive of evergreen Hollies, and one of the best of Mr. Wilson's introductions with persistent leaves. It was originally found by him during his expedition in 1900. The Aldenham specimen is 6 feet tall, densely clothed with small, dark green leaves, and has a very pleasing, pyramidal habit. Though the bush has thriven well, it is far from being a rapid grower—at any rate, in Europe—for 6 feet is not much growth to make in nearly twenty years. The species was originally discovered by the Abbé Perny so far back as 1858. The variety named *Veitchii* has larger foliage; a specimen at Aldenham is 6 feet in height.

KOLKOWITZIA AMABILIS.—I know of few more charming shrubs than *Kolkowizia amabilis*, and if its pink and yellow, *Abelia*-like flowers

are produced as freely in this country as in America it will, indeed, be a delightful addition to our gardens. In general appearance it suggests a *Deutzia*, and is perfectly hardy. Specimens at Aldenham are 4½ feet high, and as much through. A. E. Thatcher.

(To be continued.)

TREES AND SHRUBS.

ACACIA DEALBATA.

I ENCLOSE a photograph (see Fig. 61) of a tree of *Acacia dealbata* flowering in the open in these gardens. This tree was planted in 1915 from a 6-in. pot, and is now 34 ft.



FIG. 61.—*ACACIA DEALBATA* FLOWERING IN THE OPEN AT WALHAMPTON GARDENS, LYMINGTON.

high, with a diameter of 21 ft. It was placed as the central plant of a group of five, but its rate of growth was so far in excess of the others that it was considered expedient to isolate it by removing the other four to allow it to develop into an evenly balanced tree. Although during the past three or four years it has promised very favourably for a good show of bloom, it has never, until this season, fulfilled that promise, which, I take it, is another instance of the benefits certain plants are reaping as a result of the hot, bright summer of 1921. Some hardy *Camellias* growing in close proximity to the *Acacia* are also giving a good crop of flowers, the combined display being very fine, especially in this, the dull time of the year in the garden generally. These plants, in association with *Trachelocarpus exelsa*, *Cordylines* and *Eucalyptus*, give a fine sub-tropical effect. *Physianthus albens*, growing unprotected on

a south wall of the mansion, flowers very freely each year, and sets as many as 60 fruits in a season, some of which I enclose. W. H. Hones, Walhampton Gardens, Lyminster, Hants.

[Magnificently flowered shoots of the *Acacia* and fruits of *Physianthus albens* were sent by our correspondent.—Eds.]

LEPTOSPERMUM SCOPARIUM.

WHEN our distinguished countryman and navigator, Captain Cook, arrived in the distant southern regions now known as Australasia, after long and harassing voyages, his first act was to search for some wholesome herbs on shore as a corrective to the effects of scurvy. This

Leptospermum, which is known throughout Australasia as Captain Cook's Tea Tree, was found by him to contain a curative principle against scurvy, and in addition a decoction of its leaves tasted like tea. The leaves of the *Leptospermum* are much smaller than those of the true Tea Plant, but the seed vessels are very similar. The plant bears rosy white blossoms eight months in the year and grows most luxuriantly on marshy ground attaining a height of from six to twenty feet. What are termed Tea Tree scrubs among the settlers are dense thickets of this plant along the swampy margins of streams, where the stems grow as straight and supple as Willow wands, and are useful in wadding the sides of huts, i.e., forming a kind of basket-work on upright posts, to be covered with mortar. In Van Diemen's Land and New Zealand, the plant grows abundantly. Geo. Bartlett, Workshop.

The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the DUC DE MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Calanthe.—Plants of the deciduous section need repotting when the new growths are a few inches high and are about to push forth new roots. Previous to repotting it is advisable to examine the pseudo-bulbs closely for scale, and any other insect pests which may infest them. Care must be taken in cleansing the pseudo-bulbs not to injure the eyes or young growths at the base. The old, dead roots may be cut off to within an inch of the base, to leave a support that will keep the plants steady in the pan until the young roots have a firm hold of the new compost. The pseudo-bulbs may be repotted singly, or three or four large ones, or even more, may be placed together in a large pot, but it must be remembered that overpotting is detrimental to the success of the plants. Perfect drainage is essential. The compost should consist of half turfy loam from which the earthy particles have been shaken out; one-fourth chopped A1 fibre, and one-fourth dry cow-dung, with a moderate quantity of live Sphagnum-moss, small crocks, and coarse silver sand. The materials should be well mixed together, and allowed to become warm before being used. In repotting make the compost moderately firm, allowing sufficient space for a top-dressing at a later period, when the plants have become thoroughly established and are growing rapidly. Care should be taken that the compost is neither too wet nor too dry. For several weeks after repotting these Orchids require little or no water until the new roots have entered the fresh material freely. Their surroundings should be kept moderately moist by damping between the pots occasionally. When the roots have grown freely in the new material, and the growths made considerable progress, an abundance of water is required, and an occasional watering with liquid manure is beneficial. Care must be taken that this stimulant is suitably diluted, as many cases of spot in the leaves are attributable to strong doses of liquid manure.

Phaius.—Most members of this genus of terrestrial Orchid succeed in similar compost, and under similar conditions as regards watering and temperatures as *Thunias*. Many of them are a success in an ordinary plant stove, and make fine specimens, bearing handsome foliage and strong flower-spikes. After the plants have ceased to flower, and the new growths are sufficiently advanced and about to produce new roots, any necessary repotting may be done. The plants should be grown in fairly large, well-drained pots, and space for watering should be left below the rim of the pots, as in the case of ordinary plants. During the time these Orchids are in full growth they delight in an abundant supply of water at the roots, and must be shaded from strong sunshine.

Arundina.—The pretty *Arundina bambusifolia* and *A. Philippii* are terrestrial Orchids, and require similar treatment to that afforded *Thunias*.

HARDY FRUIT GARDEN.

By H. MARKHAM, Gardener to the EARL OF STRAFFORD, Wrotham Park, Barnet.

Regrafting Old Apple Trees.—Regrafting is only to be recommended on healthy stocks, and not on old, worn-out trees. Cut the shoots back almost to the main stem, and see that the scions are heeled in on a north border until the sap is rising freely in the stocks, when the grafts may be inserted. In heading back very large trees, cut the branches back according to their thickness; in some cases quite 2 feet or more of the branch may be retained.

Figs.—The present is a suitable time for preparing the borders and planting young Fig trees. The amount of rooting material for

these trees should be somewhat restricted and the soil should be rammed firmly. Fig trees with an unlimited root run usually grow too strong and coarse, and rarely fruit satisfactorily, excepting when the roots are frequently lifted and pruned. When preparing the border, see that the drainage is perfect, and use fertile soil containing a goodly amount of lime rubble, chalk, burnt earth, and a little decayed manure. Figs require a good deal of wall space for extension, otherwise the knife must be brought into excessive use to keep the growth within bounds, and much pruning usually militates against sturdy, fruitful growth.

Pruning Established Figs.—Old Fig trees may have their branches regulated, and all pruning should be finished at the earliest opportunity. Guard against crowding of the shoots, and endeavour, so far as is possible, to keep the wall space covered with rather short, firm growths. All shoots of a soft texture should, if not required, be removed, and others may be pruned back more or less, but leave all the fruit-bearing growths their full length. Remove some of the old soil over and about the roots, and top-dress the latter with good soil; also apply a mulching of manure if necessary.

Fruit Trees.—As soon as the soil is sufficiently dry, make the roots of late-planted trees quite firm in the ground, previous to finally securing the stems to their supports. After treading the soil firmly over the roots, prick up the surface to the depth of one inch to prevent the upper layer from caking, and, should the weather set in dry, apply a light mulch of rather strawy manure.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir C. NALL-CAIN, Bart., The Node, Codicote, Welwyn, Hertfordshire.

Begonia Gloire de Lorraine.—Plants that were cut back as previously advised have developed good strong shoots from their bases. These should be severed and inserted, several together, in a small pot containing a mixture of loam, leaf-mould, and a little peat, with sufficient sand added to insure a free drainage. The cuttings should be rooted in a propagating frame, for preference on a mild hotbed, where an atmospheric temperature of 65° to 70° may be maintained. The light should be removed each morning, and the condensed vapour removed. Such varieties as *The King*, *Turnford Hall* and *Mrs. Peterson* require similar treatment.

Chrysanthemums.—Some of the earliest of the *Chrysanthemum* plants are ready for transferring to 6-in. pots. The soil for this potting may be of a heavier nature to that previously advised for those growing in smaller receptacles. Use two-thirds good loam and the remainder leaf-mould and manure from a spent Mushroom-bed, after it has been passed through a half-inch sieve. To each barrowload of soil add a 6-in. potful of bone-meal, a little wood ash and soot, also some old mortar rubble and sand in sufficient quantity to keep the compost porous. After they are potted the plants may be kept in fairly close conditions for a few days, but when the roots are well established in the new soil remove the lights entirely on all possible occasions. Watch carefully for the presence of green-fly, and take measures for the destruction of the pest directly it is detected, either by fumigating or by spraying with an insecticide. If the plants are sprayed see that the tips of the plants are well wetted by the specific, for the fly generally protects itself in the unfolding leaves.

Statice Suworowi.—This annual *Statice* is greatly appreciated when grown as a pot plant for the decoration of greenhouses, and the blooms remain in perfection for a considerable length of time. If a few seeds are sown now in small 60-sized pots and the resultant seedlings potted on in 4½-inch receptacles without in any way disturbing the roots, fine, decorative plants will be available for the summer. A rich, open compost is necessary for this plant, and careful attention in watering at all times.

THE FLOWER GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

Vines.—The hardy members of *Vitis*, and especially the newer Chinese species, form charming garden subjects. Under *Vitis* are included such familiar plants as the well-known Virginia Creeper, the useful and decidedly ornamental *Ampelopsis*, as well as other groups, including the true Grape Vines. Many are the uses to which these plants may be put; for instance, the self-clinging varieties, that have *haustoria* at the ends of the slender tendrils, are admirably adapted for growing on walls, others form splendid subjects for furnishing pergolas, whilst many readily adapt themselves for training up poles in the shrubberies, where they form prominent features. One other method that we adopt at Aldenham is to train the plants up a series of poles arranged in a straight row, each pair of poles being connected by two stout chains swung loosely, and the growths of the Vines are trained along the chains; the whole presents a very picturesque feature during the leafing season, and even in the drear period of the fall of the leaf makes an ornamental detail of the garden. These vines should be attended to carefully at the present season, and such as require it pruned back sufficiently to ensure a tidy appearance, especially the non-clinging varieties, and they may also be planted now. Vines are not very particular as to soil, though they probably do best in a warm situation in loamy ground of a sufficient depth to provide a deep rooting medium. The true vines are easily increased from small "eye" cuttings inserted in pots filled with good sandy soil, during the spring and struck over gentle bottom heat. The "eye" or bud should be one from the previous summer's growth, and the wood should be trimmed so that on the bud side about half an inch protrudes on either side of the bud, but on the under side the cut surfaces of the wood should almost meet. The cutting should be inserted in the soil horizontally, so that only the bud protrudes through the soil. Cuttings may also be inserted in the ordinary way during autumn, just after the fall of the leaves, and should comprise a length of the growth with a couple of buds thereon; these may be struck in a cold frame. Those of the self-clinging groups are easily increased by inserting cuttings at the end of the summer, selecting firm, leafy shoots for the purpose, inserting them in the usual way, and placing them in a cold frame to take root. There are many fine subjects in this group that are especially valuable for the autumn colouring of their foliage, including *Vitis flexuosa* Wilsonii, *V. Henryana*, *V. himalayana*, *V. himalayana rubrifolia*, *V. Pagnucci*, *V. P. var. Piasezkii*, *V. inconstans* (the *Ampelopsis* Veitchii of gardens), *V. Thunbergii* and *V. Thompsonii*. *Vitis aconitifolia*, *V. brevipedunculata* *V. Coignetiae*, *V. pulchra*, *V. Labrusca*, *V. leucoides* and *V. sinensis* have all handsome leaves. One of the prettiest of the fruiting Vines is *V. heterophylla*, which has turquoise-blue coloured berries, and does better when the roots are restricted to a limited area. Somewhat similar to this species, and probably only a variety of it, is *V. humulifolia cyanoclada*.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER CLAY M.P., Ford Manor, Lingfield, Surrey.

Figs.—If a steady bottom-heat of 75° has been maintained about the roots of Fig trees growing in pots or tubs of compost, and the temperatures recommended on p. 16 maintained, the foliage will be fully developed, and the young fruits swelling freely. As the days increase in length, and the sun gains power the syringe may be used twice daily when the weather is bright and fine, the first time when the temperature begins to rise, and the second about 2 p.m. or immediately after closing the house. On dark, cold days unfavourable to ventilation, it may not be wise to wet the foliage, but a moist atmosphere should be

maintained by syringing the stems, walls and especially dry corners, and turning the fermenting materials. The pots being plunged, and the heaps of compost surrounded by moist fermenting materials, the roots will not readily become dry. Still, these conditions will not justify trusting to appearances, as deficiency in the supply of warm, diluted liquid manure will soon result in serious consequences. Another important matter is the removal of superfluous fruits. It is common practice to allow the most fertile trees to carry all the fruits they develop, whereas the best method of preventing dropping of the fruits is to thin them judiciously before they come into flower. Brown Turkey, one of the most prolific and best varieties for forcing, may, by feeding, be made to ripen two distinct crops of unthinned fruits, but when timely thinned this sort may almost be made a perpetual bearer. The pinching and tying of the more forward shoots will require attention, especially in the case of trees which have attained their full size, and cannot be extended without becoming crowded. Pot trees, other than those trained on trellises, which are branch thinned in winter to make room for continuous growth in summer, may be pinched at the fifth or sixth leaf. The night temperature may still range about 65°; through the day it may reach 75°, and 80° to 85° after closing the house with sun heat and moisture.

Strawberries.—The present is a suitable time to introduce a batch of Strawberries to a warm house, as the rapidly lengthening days and increasing sun heat will cause the plants to grow freely, and produce more and better fruits than if they had been started into growth several weeks ago under the same conditions.

THE KITCHEN GARDEN.

By JAMES E. HATHAWAY, Gardener to JOHN BRENNAND, Esq., Baldersby Park, Thirsk, Yorkshire.

Potatoes.—An early batch of Potatoes should be planted in a well-sheltered, sunny situation. Set the seed tubers in rows made from 18 in. to 2 ft. apart, allowing a space of 15 in. between the sets, which may be dibbled in on ground that has been previously prepared, as this is a much quicker method than making trenches. Potatoes growing in pots should have plenty of liquid manure supplied to the roots as soon as the tubers become ready for use, as it improves the latter to withhold water from the roots for a few days before they are required for table. Potatoes growing in frames should be earthed up and fed with stimulants; admit plenty of air to the frame on bright days.

Climbing French Beans.—Where room can be spared in the houses, nothing repays the grower better than a batch of climbing French Beans. Sow the seed in rows made 2 ft. 6 in. apart in well-cultivated soil. These Beans do best if they are not forced too hard, and the house should be closed early in the afternoon and the interior well syringed. Princess of Wales and Veitch's Climbing are two of the best varieties.

Carrots.—Select a warm position for sowing Champion Scarlet Horn and Scarlet Model Carrots as soon as the ground is in a suitable condition.

Seed-sowing.—Brussel Sprouts, Cabbage, Lettuce, and Turnips should all be sown now. Where birds are troublesome, first put the seeds in a tin containing red lead, with sufficient oil to make the red lead adhere to the seeds. By doing this and placing a few branches over the beds, birds will not do much damage.

General Remarks.—The weather has been unsuited for work in the kitchen garden. At Baldersby Park (March 1) we have not been able to get on the land since Christmas. Every endeavour should be made to catch up arrears. Broccoli and green crops have suffered severely through the wet and frost, so that crops in frames should be given every attention. Cauliflowers sown last month should be pricked off into boxes.

FRUIT REGISTER.

APPLE ST. EDMUND'S PIPPIN.

THE remarks by your correspondents (see pp. 46, 94) on Apple St. Edmund's Pippin are of great interest to me. Owing to this particular variety having so great a resemblance to Golden Russet, I have often wondered why it was named "Pippin."

The russet family of Apples one generally associates with winter or later keeping sorts.

The fruits of St. Edmund's Pippin (syn. St. Edmund's Russet) are somewhat on the small size, and mature early, but as many other second-season sorts are grown in counties favourable to fruit culture the variety under notice has been somewhat neglected. It seldom keeps in good condition beyond October, and fruits grown in the western counties have a tendency to shrivel, even before that month.

It appears to have longer-keeping qualities in the north, especially in certain districts of Scotland.

Anyone in doubt as to the variety may recog-

broken streaks of pale crimson on one side, and here and there a few russet patches. The flesh is yellowish-white, tender, crisp, and juicy. Fruits from trees grown as half-standards on grass gave better-flavoured specimens than those under cultivation in the garden. This variety has long-keeping qualities, and I have handled sound fruits in April.

I have found that a winter dressing of basic slag gives intense colouration to the fruits.

REINETTE DU CANADA.

This is, to my mind, one of the best late Apples in cultivation, the quality being first-class, and furnishes a succession to Ribston Pippin after the month of March.

A few trees in an orchard, within walking distance of where I am writing, have always produced satisfactory crops, and the shape of the trees is a picture to behold. The fruit is of medium to large size; the skin greenish-yellow, with a tinge of brown on the side next to the sun, and in orchards many fruits have a crimson patch, coloured with brown,



FIG. 62.—PLUM RIVERS' LATE ORANGE.

nise it readily by its skin, which is entirely covered with pale, greenish-brown russet, with irregular and small patches of greenish yellow, and a pale, thin, brownish-red tinge, a few streaks of crimson being present on the side next to the sun.

The flesh is yellowish, tender and juicy, with a scented flavour.

It was raised by a Mr. R. Harvey, of Bury St. Edmunds, and received the R.H.S. First-Class Certificate on October 6, 1875.

The tree flourishes in a loamy soil, and may be trained as a bush, espalier, or half-standard.

ROUNDWAY'S MAGNUM BONUM.

This Apple is of first-rate quality and useful for dessert or culinary purposes, although the fruits are on the large size for a dessert Apple.

This sort succeeds most satisfactory grown as a bush, espalier, cordon, or half-standard, and does well in Herefordshire and Somersetshire. The fruit is large, ovate, angular on the sides, with ridges around the crown.

The skin is pale yellow, with a few broad,

russety dots. This colouration always denotes quality, the flesh being yellowish-white, firm, very juicy, brisk, and highly flavoured Pomona.

PLUM RIVERS' LATE ORANGE.

This excellent late dessert Plum (see Fig. 62) was raised by Messrs. T. S. Rivers and Son, and it received the R.H.S. First-Class Certificate on November 1, 1892. The fruits are roundish in shape, something like that of the Greengage, but larger, and the skin is of a beautiful bright orange colour, covered with a heavy bloom. It will be seen by the date on which the variety received the R.H.S. award that its season is exceptionally late, and, where the plants can be grown in orchard houses in pots, the trees will, if introduced into the house late in the season, mature the superb fruits to perfection, as they will, indeed, on a warm wall out-of-doors. We saw in Messrs. Rivers and Son's nursery, last October, some pot trees of this variety furnished with bountiful crops of fruit, and we can testify to their excellent flavour in comparison with such fine sorts as Coe's Golden Drop, McLaughlin Gage, and Jefferson.

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CROCUS SPECIES.

THE Crocus species have done so well this year and so few people seem to know them, that it may be worth while to call attention to a few of the many that may be grown. It should be realised that Crocuses are easily cultivated. Once the corms are planted in well-drained, fertile soil, they may be left alone for three years until, in fact, they become so crowded together that they must be lifted, separated and replanted. To obtain the best effect they should either be planted in clumps along the sunny edge of groups of shrubs, or given a border to themselves in a position where they will receive the benefit of all the midday sun in the early months of the year.

I do not propose to deal here with the autumn-flowering species, which, with the exception of the earliest of all, the golden *C. Scharojani*, produce flowers that are either white or of some shade of purple. By December the last of these autumn species is over, but it is soon succeeded by the deep golden-yellow *C. vitellinus*, a common species in Northern Syria, but one which is comparatively rare in cultivation.

After Christmas, a few warm days soon bring up the earliest buds of *C. Imperati*, whose home is near the shores of the Bay of Naples. It is a large Crocus which has the advantage of producing its rather prostrate, straggling foliage at the same time as, or even before, the flowers. It is also peculiar in that, though each strong corm sends up four or five flowers, these do not develop simultaneously, but in succession, so that the display lasts more than two months. Typical flowers of *C. Imperati* are buff coloured on the backs of the outer petals, which are conspicuously veined with dark purple, while their inner surfaces, as well as both surfaces of the three inner petals, are of a bright mauve purple. There are creamy white forms with similar purple veining on the outer petals, as well as a very sturdy, pure creamy-white variety, on which there are no veins and which comes perfectly true when raised from seeds.

As soon as February is reached, and unless the weather is too wintry, numbers of Crocus species burst into flower, and on a fine sunny morning the Crocus border is likely to be the great attraction of the garden. Quite early in the month we get the bright blue purple of the Greek *C. Sieberi*, which shows its golden throat when the flowers open widely in the sun. At the same time we have the rather dull yellow of *C. Korolkowi*, from the neighbourhood of Samarkand in Turkestan. This is the most castely of all Crocuses and the individual flowers vary considerably in the amount of brown purple colour that tinges the backs of the outer petals. Similar variation in an even more striking degree is seen in *C. Balansae* from the neighbourhood of Smyrna, of which the outer petals of the golden yellow flowers may be either only slightly veined with brown purple or wholly covered with an outer coat of deep mahogany. In this

form the buds look almost black at a little distance and it is interesting to watch them open in the sun and display the deep gold of the inner segments.

Another very beautiful early Crocus is the Cilician *C. Tauri*, with flowers of a delightful shade of clear blue purple. Unfortunately, it is still comparatively rare in cultivation, as is also the equally desirable *C. aërius* with beautiful globular flowers of some shade of pale or deep blue purple and a yellow throat. This species comes from the mountains of northern Asia Minor in the neighbourhood of Trebizond.

But these rare species are not yet sufficiently plentiful in cultivation to give us the masses of colour that can be obtained by planting the various forms of *C. chrysanthus* and *C. biflorus*. Of these, the former comes from Greece, Turkey and Western Asia Minor, and is extraordinarily variable in its colour forms. Its flowers may be either wholly of a deep golden yellow or have their outer petals more or less heavily veined with purple. Other forms are white with a golden throat, and of these, the outer petals may also be more or less tinged with purple. Others again may be of a bluish purple, but in every case the throat is golden and the style of a bright orange scarlet. A peculiarity of the species is that the anthers are often marked with black at the base. One of the best garden forms of this species has been named after Mr. E. A. Bowles, and produces in great numbers large globular flowers of a deep butter-yellow, which contrasts admirably with the orange-scarlet style. This form grows so strongly and increases so rapidly that it ought soon to challenge the position of the common yellow Crocus. It is certainly far more beautiful and seems to be an equally good doer.

Equally numerous are the various forms of the Italian and Dalmatian *C. biflorus*, of which one has long been known in cultivation as the "Cloth of Silver" or Scotch Crocus. This is white with the backs of the outer segments heavily veined with dark purple. Other forms have the outer segments more or less heavily mottled with finely dotted blue-purple, or the colour may run together and cover the whole surface with a deep plum-purple, as in the variety *Alexandri*. To this species also belongs the variety *Weldeni*, of which the flowers are either pure white or are faintly freckled on the outside with pale blue or lavender.

The mountains behind the French Riviera yield the conspicuously veined *C. versicolor*, which has the peculiarity that its inner segments are almost as distinctly veined as the outer. The petals are also curiously broad and rounded in the upper part. The ground colour may be either white or of almost any shade of light or dark purple. Further east from the neighbourhood of Trieste, through Macedonia and Southern Russia to Odessa, the Crimea and the Caucasus, grow *C. reticulatus* with heavily-veined outer petals and inner petals of a clear lavender blue. It derives its name from the coarse network of fibres, which forms the outer covering of the corm, and those who are interested in the classification of these species, will find that *C. reticulatus* is a good example of that section of the genus which has no basal spathe or membranous wrapping round the short stem that raises the ovary above the corm, while in *C. versicolor* this basal spathe becomes at once apparent as soon as the stem of the flower is exposed by splitting the outer wrappings and sheathing leaves.

A very richly-coloured little species is *C. minimus*, from Corsica, somewhat inappropriately named, for it is not the smallest of all. The flowers are of a deep lilac colour, heavily veined on the outer petals with dark purple. With it, late in February or early in March, flowers the Dalmatian *C. Malyi*, with large white flowers, which I once found growing on the hills by the coast above Carlopago. The colour of the base of the petals varies a little, and may be either yellow or brown purple.

The common Dutch yellow Crocus is a puzzle, for it is sterile and never apparently produces seed, though it is obviously either a form or a hybrid of *C. aureus*, a species whose home is in the Dobrudscha, Turkey and Western Asia Minor. The various purple Crocuses, which are commonly grown with this yellow Crocus, are

all derived from *C. vernus*, which extends in the wild state from the Pyrenees, over the Alps to the Carpathians and down to the mountains of Dalmatia, where I have collected the small pure white variety *albiflorus*, with rounded petals notched at the apex. This breeds quite true from seeds and is one of the smallest of all the forms of *C. vernus*. Further south in Dalmatia grows the nearly allied *C. Tommasinianus*, which seeds itself freely in this country and which has now spread widely over the rock garden and other parts of Kew Gardens. Some forms of this Crocus are very pale and slender, though others occur of a rich, red-purple, with the peculiarity that the colour becomes most intense at the upper extremities of the petals. *W. R. Dykes.*

MR. REGINALD FARRER'S SECOND EXPLORATION IN ASIA.*

No. 39. THE TOPS OF THE MOKU-JI.

I AM afraid that the bushy (or flat) little *Cistus*-like *Rhododendron* must be the same as last year's; so precisely does it imitate *F.1045* in all its habits. So copiously does it abound, too, down in the marshy flats of the valley-heads that from far aloft one sees its rosy smears down on the green. Those little oases of lawn, however, among the Bamboos, are disappointing. I always think their open expanses ought to yield marvels, and toil down towards them assiduously, tearing my way with hopeful heart through the Bamboos. But when I get there, never does any novelty meet my eye; only fine turf, and acres of golden *Potentilla*, and the little crimson *Primula* in sheets, and abundance of a horrid *Pedicularis*, which does its best to be taken for a *Primula*. They are curious places, though, these "plans," either in process of becoming lakes or in process of not becoming them, I cannot quite tell which. I think the latter is more likely—that they are old lakes gradually breaking up into ponds, on their way to becoming land as dry as this climate will permit. At present they present a most oddly artificial appearance, like an irregular expanse of Rice-pools, each banked up from the other by a thin rampart, along which one tight-rope among the Bamboos to the next comparatively open space, where one always hopes one may not meet Mrs. Bear in an unpropitious moment of bringing up her family.

Let us, therefore, re-ascend to the heights. This means fighting up through the cane-brake for a few hours, until we come into the first open slope that slides away from the cliffs overhead. Here *Rodgersia* at once abounds, and the *Cathartica*, *Meconopsis* and blue *Anchusa*, also sprouting *Aconite* and *Cimicifuga*, a green *Thalictrum*, and a huge and hideous *Smilacina* which is a very popular article of diet. Higher up one comes into the zone of *Anemone narcissiflora*, in stretches like snowdrifts, but the great white *Primula* is very rarely and very poorly to be seen until over on the Chinese side. I now learn that I knew nothing of it when last I wrote. It has revealed itself by this time as something so superlative that, superlative as I had already thought the *Shinghong* plant, I really doubted for a time whether the *Moku-ji* one must not be a new species, especially as it had a white powdered reverse to its leaves, and a most odd disposition of powder on its scape, just reaching an inch or so below the inflorescence, and there ceasing sharply, making the stem look as if it were clad in one short and tight white "short." This snowy pantalette, however, elongates with the scape, so that, in full flower—

* The previous articles by Mr. Farrer were published in our issues for June 21, June 28, July 12, August 9, August 23, September 6, September 27, October 18, November 1, November 22, and December 6, 1919; January 3, January 17, February 7, February 28, March 20, April 24, May 29, July 10, July 31, September 4, October 2, December 4, 1920; January 1, January 29, February 19, April 2, April 30, June 4, July 9, August 6, September 24, October 22, November 12, December 3, December 17, 1921; February 11 and February 25, 1922.

time the powdered portion is longer and vaguer, even if the flowers then allowed one to think about it at all, for I now find that so far is the plant from being 2-3-blossomed, as I had at first seen it, not only does it usually bear from four to eight, but even sends up a secondary shower above the first. So superb, then, is the plant's effect when happy, that it must be seen to be believed. At the same time these newly discovered habits gave me several sleepless nights, for—powdered leaf-reverse, double tier of blossom, what about the *Nivalis* Group? And, if so, what about *P. chionantha*? I could hardly bear life till I got down here again and could look up *P. chionantha*. Dentate leaves, long, pendent, graceful pedicels, great cup-shaped Sikkimensis flowers, these never belonged to any *P. chionantha*, no matter how snowy. My plant, indeed, still puzzles me about its placing, for it seems as yet, just nicely, to combine the qualities of three sufficiently distinct groups—*sonchifolia*, *petiolaris*, *nivalis*, and *sikkimensis*. It comes up as a pure *sonchifolia*, with hugely fat bulb, sitting on the ground, not in it, and sheathed in stout, crimson scales. Its leaves, scape and inflorescence promise *nivalis* unambiguously. Until at length its long, fine pedicels and its noble hanging bells of virgin white transfer it obviously into *sikkimensis*. For many reasons, therefore, I await its fruit with eagerness. If we can fill our Rose-beds with this *Primula*, we shall not have much to complain of.

The very moment the col is reached, there the plant is; and down on the Chinese side it abounds in drifts and masses among the snow-white *Anemones*, which often even get taken for it from afar. But even yet the snowfields hold possession and the full riches of these valley heads remain still to be unfolded. I do not believe they will have much more to unfold. And, after all, with the great white *Primula* alone, they would already have yielded fairly well. Certainly the rocks and cliffs above show but little. They are moist, they are mossy, they seem to offer every facility. But, apart from a graceful if not particularly interesting yellow *Corydalis*, they rewarded me with nothing except fine masses of *Scrophularia Delavayi*. This certainly is a lovely thing. One is not accustomed to think of *Scrophularias* as even tolerable, but I shall be thoroughly pleased if I can get *S. Delavayi* home to England and see it made happy there. It is low and lax, not a foot high, and its large flowers are of a most unusual pure and blazing pale yellow; it loves cold, dank places among stones in the high-alpine region, and there shines like an electric flame. The only other rival for our attention at present is a Thistle which starts life in quite a proper, ordinary way, but ere long develops a fancy for becoming a *Cobweb* or a *Saussurea*, and sends up its buds in a dense great ball of glistening silver gossamer.

Where the high tops are all rock or *Rhododendron*, there is no point in yet ascending them, but we may now as well worry our way up to a towering headland that appears bald of scrub. The toil is rather like that of climbing a long slope of Heather, three times as deep as normal Heather, and full of snags and rocks and pitfalls. The pleasure, however, of attaining the smooth skull-cap of the hill is ample reward, so gay a galaxy of flowers is immediately unrolled at one's feet. One treads a velvety lawn entirely hidden in a carpet of *Rhododendron*, *Potentilla* and *Aster*. The *Potentillas* alone, after a long course of sameness and cloud, which dazzle one; and the delight, after weeks of Bamboo-brake and scrub, of feeling light and free on velvety, springy, open ground, is something memorable in itself. Unfortunately, however, snow is the

limit of the scene; it does not fulfil its glittering promise with any novelty. No cushion-*Primula* (which is very odd); not even any version of *P. corymbosa* or *P. bella* (which seems even odder); only the fruiting-heads of *P. nuda* standing up all about. Nor is the *Aster* as yet a sensational species, though quite a pretty little bright purple Daisy in the fine turf. So now, as the clouds are still deep around us, and it would not be advisable to lose what way there is among these precipices, we had best return down to the col, and thence, again down and down, to the camp. One more period of exploration up on the highest tops of the Chawchi, and discovery will, I suppose, be ended for the year, and nothing will be left to do but rest and gather strength again.

ORCHID NOTES AND GLEANINGS.

ODONTOGLOSSUM BELENUS.

THIS remarkable new *Odontoglossum* flowering with Messrs. McBean, Cooksbridge, and raised between *O. amabile* and *O. Olympia* well demonstrates the advantage of careful selection in hybridising, the *O. amabile* parent being a plant specially reserved for the purpose.

The hybrid is of fine habit, and the flowers are large and of firm substance. The sepals and petals are of rich dark olive-red colour with a slight yellowish margin, and the abnormally broad lip, is rose-purple around the yellow crest, the middle area being white with rose-purple spotting.



FIG. 63. *CYPRIPEDIUM IDINA*, BECKTON'S VAR. FIRST-CLASS CERTIFICATE, MANCHESTER AND NORTH OF ENGLAND ORCHID SOCIETY, MARCH 2, 1922.

against the final whirlwind of the harvest. *Reginald Farrer.*

[This chapter closes the absorbingly interesting narrative, which the late Mr. Reginald Farrer specially contributed to *The Gardeners' Chronicle*, of his second plant collecting expedition in Asia. His account of the flora of the remote regions he visited reveals the deep love he possessed for plants of all kinds, and it is pathetic to realise that most of the novelties which he describes, with his usual lavish praise, in his later chapters, still await introduction by some future explorer in the same district. His closing words, written, as we now know, only a short time before his death, seem to us to be sadly prophetic. —Eps.]

CYPRIPEDIUM IDINA, BECKTON'S VARIETY.

THE handsome *Cypripedium Idina*, Beckton's var., illustrated life-size in Fig. 63, obtained a First-Class Certificate from the Manchester and North of England Orchid Society on March 2, when it was exhibited by Mr. Bertram J. Beckton, of Daisy Bank, Irlams-o'-th'-Height, Manchester. This fine Orchid is the result of crossing *C. insignis* Harefield Hall variety with *C. Countess of Carnarvon*. In colour this new hybrid is very similar to its well-known parent, *C. insignis* Harefield Hall, but the ground colour and the marginal area in the dorsal sepal is of a soft cream shade.

THE FLORISTS' TULIP.*

In order to make clear the points in the story of the Tulip that I want to explain, I must begin by a little consideration of what a Tulip bulb is and how it grows. If a Tulip bulb is taken before planting and cut in half vertically, in the centre of the bulb the future stem, carrying an incipient flower, will be seen. Surrounding this are four, or more often five, fleshy coats, like those of an Onion, making up the mass of the bulb, and outside these a loose brown skin. These coats spring from the base of the bulb round the rim of which, on the outside, the future roots are probably beginning to push. At the base again, one or two buds may be observed in the form of incomplete bulbs.

When the bulb is planted the stem and the roots push upwards and downwards respectively, their growth being at first entirely maintained by transfer of the materials stored in the fleshy coats of the bulb, until the leaves are above ground and can begin to feed upon the air and the roots are sufficiently developed to draw nutriment from the soil. The material in the bulb is thus steadily depleted until at flowering time the original thick fleshy coats have been reduced to dead skins. Meantime also one or more of the buds at the base have been accumulating material made by the leaves for the formation of a new bulb at the side of the old stalk. When the bulbs are dug up one cleans away the old dead skins which represent all that is left of last year's bulb, and there remains a new bulb with one or two bulbils or offsets, which have grown from other weaker buds on its base. Thus in a material sense the Tulip gives rise to a new bulb every year; in a botanical sense there is no new bulb, only one or more pieces of the old one.

The original starting point was a single bulb arising from a seed, and however many may be the actual bulbs arising thus by division from the original (and the numbers may run into millions every year in the case of a popular variety like Clara Butt, while the first bulb may have originated more than a century ago), to the botanist as to the florist they are still parts of one individual or variety. With certain exceptions, to be dealt with later, all the bulbs thus arising by division or asexual propagation yield plants exactly similar in all respects both in flower and foliage to the original and to one another.

How then does the new individual arise in the seed? In the formation of seed the germ cells of two individuals unite when the pollen grains of one reach the ovules of another. There is a reshuffling of the characters, latent or apparent, carried by the two germ cells, and a new germ cell is started containing characters taken at random from either parent. This new germ cell develops into the seed.

As the selection from the manifold parental characters is at random, every seedling is apt to differ from every other seedling and from the parents, and in the case of the Tulip the greatest diversity is exhibited by the batch of seedlings issuing from a single cross-fertilised pod. From the point of view of the florist the majority of seedlings are worthless, being inferior in some respect to the parents or other individuals; out of the batch he may find one or two which represent an improvement on existing varieties and are worth multiplication. But it is in this way that the new individuals we know as "varieties" have arisen.

The material out of which the plant breeder has built up these varieties by crossing and selection is nothing more or less than the wild species, the origin of which I cannot now discuss. England possesses, and that perhaps doubtfully, but one wild Tulip, the little yellow sweet-scented species with a nodding head, known as *Tulipa sylvestris*. But other members of the genus are to be found along the line of the Mediterranean region of the old world so far east as Turkestan, Persia, and even China. Despite the very considerable knowledge we now possess of these Tulip species, we are still

unable to say which of them went to the making of garden Tulips. They came to us ready-made, and the first record we have of them is that in 1554 Busbequius, then Ambassador to the Emperor, noticed them growing in a garden near Constantinople, and that within a few years they were brought from that region to Western Europe. We have Turkish manuscripts which go to show that at least a century earlier named varieties existed in the gardens of Baghdad which possess all the special characters distinguishing the garden Tulips of to-day.

(To be continued.)

ANNUALS FOR GARDEN DECORATION.

THE persistent call for economy in the garden at the present time will have the effect of increasing the popularity of annual flowers for garden decoration. Annuals are not only much cheaper to grow, but many of them are quite as effective as the more permanent subjects which have been used for bedding purposes for many years past. There is now a very wide range from which to choose—so much so, indeed, that it is very difficult for many people to make a selection of the right subjects for their particular requirements.

It is often argued that the flowering season of annuals is too limited to permit of their use to any great extent for bedding purposes. In some measure this is true, but, if a selection of the right kinds is carefully made, and the plants are given the same liberal treatment as is usually afforded *Pelargoniums*, *Begonias*, *Heliotropes*, *Lantanas*, and the like, there would be little to complain of in this respect. With few exceptions, annuals require a deep, well-manured soil in which to grow; they must also have plenty of room in which to develop their natural habit. Overcrowding often curtails their flowering season.

Antirrhinums, which may be treated as annuals, are more useful as ordinary bedding plants when raised early in the year under glass. I know of nothing to equal them in the glorious range of colours they produce. Given liberal treatment, they will flower from July until late autumn. The early-flowering varieties of *Cosmos* are invaluable for planting in the mixed border. *Gaillardias*, when treated as half-hardy annuals, are most useful either in the border or for cutting. *Echscholtzias* make a fine display in the mixed border, but they must be sown where they are to flower. *Larkspurs*, or annual *Delphiniums*, are invaluable for garden decoration or for cutting. *Lavateras*, or *Mallows*, are extremely beautiful, and must be sown out-of-doors and given plenty of room to develop.

Other annuals which may be sown out-of-doors during the next two or three weeks are *Nigella*, especially the variety *Miss Jekyll*; *Phacelia campanularia*, and *Sweet Sultan*, the last-named a splendid plant for the mixed border, bearing flowers that are valuable for cutting. The *Swan River Daisy* must not be omitted, as it is most useful in the front of beds or borders, and blooms continuously throughout the summer. Annual *Poppies* make a glorious display in the mixed border, but their season of flowering is not so long as could be desired. For brilliant colouring, the dwarf *Nasturtiums* have few equals, but they should be grown in poor soil, in a position which is fully exposed to the sun, to secure the best effect. *Godetias* are distinctly useful for bedding purposes or for cutting. *Cornflowers* may now be obtained in several beautiful colours, and are indispensable for the mixed border. *Coreopsis* in various shades are equally useful for the garden or room decoration.

Clarkias are desirable in every way, as also are annual *Chrysanthemums*. *Linum grandiflorum rubrum* makes a gorgeous display when massed in the front of mixed borders or beds. *Salvia Blue Beard*, with its bright purple bracts, is conspicuous the whole season through, and makes a striking setting for

standard plants of *Calceolaria amplexicaulis*. *Leptosyne Stillmannii* is a charming plant with golden yellow flowers. Annual *Lupins* are splendid when grown in bold masses in the mixed border, and they are also invaluable for the supply of cut flowers. There are now many beautiful varieties of this useful plant. *Cacalia coccinea*, with its orange-scarlet flowers, is a particularly pretty subject, and very useful for table decoration. *Gypsophila elegans* is a very attractive plant, and very useful for all kinds of decoration indoors. *Linaria* sown in large clumps makes a striking display in the mixed border, and there are now several beautiful varieties of *Toadflax*. The Night-scented Stock should be grown, if only for its exquisite perfume; so, also, should *Mignonette*, which requires a firm, rich, rooting medium to grow it to perfection.

There are many half-hardy annuals, more or less well known, and which need only the protection of a cold frame in the early stages of growth. One which needs special mention is *Phlox Drummondii*, which almost equals the *Antirrhinum* as a bedding plant. *H. Harris, Lockinge.*

CURL IN POTATOS.

THE reference to Curl in Potatoes in 1798 cited by "D. H., Penrith," in *The Gardeners' Chronicle* for December 31, 1921, is one of the best of the old references to this disease. The suggestion that the disease is contagious had to wait more than a century for verification.

Curl attracted a great deal of attention in England at about the end of the eighteenth century, and there are some references earlier than the above. The earliest record I have seen is by Arthur Young, under date of July 26, 1782, published in 1784 in Young's *Annals of Agriculture*, Vol. I., p. 133. He merely reports that certain varieties were curled, and others not curled, and evidently considered that his readers knew the disease, and did not consider it new. Young reported other observations in 1784 (Young's *Ann. Agr.*, Vol. II., pp. 98-115). In Young's *Annals* (Vol. XLIII., p. 595), "Howdeniensis" wrote under date of October 16, 1804, that "the curl has only been known about forty years," and reported that sets from the north of Scotland produced few curled plants. Cathcart (*Journ. Roy. Agr. Soc. Eng.*, Ser. II., Vol. XX., p. 266, 1884) agrees in assigning the date 1764 as the year the curl was first noted, under the authority of Rahn. In view of the fact, as noted by Miller in his *Gardeners' and Botanists' Dictionary* of 1771, that it was not "till some time after the middle of the eighteenth century that the Potato came to be generally used as an esculent root through the greater part of England," it is probable that curl occurred in some of the earliest Potato fields in the British Isles. Miller did not, however, mention curl in this edition of his dictionary.

William Marshall in 1788 (*The Rural Economy of Yorkshire*, Vol. II., pp. 51-67) wrote that "there is some reason to believe that the disease, which has of late years been fatal to the Potato crop in this and other districts, under the name of 'Curled Tops,' has arisen from too long a continuance of declining varieties." He reported that "fresh varieties raised from seed are not liable to that disease." He noted that "the district under survey furnishes a remarkable instance respecting this disease. The Morelands are at present in a manner free from it, while the Vale is still in some degree infected with it. Plants procured from the Morelands remain free from it in the Vale the first year; but being continued, become liable to the disease." Marshall described the symptoms, and, as a control measure, gave the suggestion, "Where the attack has been partial, weeding out the diseased plants, as they failed, is said to have had a good effect."

Mordaunt (Young's *Ann. Agr.*, Vol. XIV., pp. 444-450, 1790) discussed the disease, and

* A lecture delivered by Sir Daniel Hall at a recent meeting of the London School Gardening Association.

attributed it to millipedes. Hollins (*Trans. Soc. Encour. Arts, Manuf. and Comm.*, Vol. IX., 1791) believed that earthing up the plants caused the disease.

At the beginning of the nineteenth century Thomas Andrew Knight (*Trans. Hort. Soc. London*, Vol. I., pp. 57, 187, 1815; Vol. II., p. 64, 1819) gave good descriptions and interesting suggestions concerning the disease. After the blight reached the British Isles between 1830 and 1840, curl was overshadowed by the destructiveness of the new disease, and only during the past decade has our attention again been focussed upon "curl." G. R. Bisby, Imperial Bureau of Mycology, Kew, Surrey.

MESEMBRYANTHEMUM AND SOME NEW GENERA SEPARATED FROM IT.

(Continued from page 105.)

Gibbaeum, Haw.

VERY dwarf, tufted succulent plants, sometimes with short prostrate stems. Each growth consisting of two very unequal leaves united into an obliquely ovoid, oblong-ovoid, or sub-cylindric body, with an oblique fissure on one side of it, at or below the middle, resembling a closed or slightly open mouth, formed by the free part of the smaller leaf being closely pressed against or slightly separated from the larger one, with the body often more or less swollen or gibbous below the top of the fissure. Flower solitary, pedicellate, without bracts. Calyx 6-lobed; two of the lobes longer than the others, acutely keeled, and the keel continued down the pedicel. Corolla rather small, petals numerous. Stamens numerous, erect or spreading. Stigmas 6, more or less plumose. Capsule small, 6-valved and 6-celled; valves winged; cells roofed with thin membranous cell-wings and with the outer end of the cell open.

This is another genus proposed by Haworth in 1821 that has remained unnoticed by all subsequent authors. Under his definition of the characters of the section, Gibbosa of Mesembryanthemum (*Rev. Plant, Succ.* p. 104) he remarks: "A good genus, I propose the name Gibbaeum for it." Although in that work he enumerates the species under the genus Mesembryanthemum, Haworth was undoubtedly right in considering that the plants forming his section Gibbosa should be generically separated from that genus, for they are distinguishable from all others included in it at a glance. I have, therefore, compiled the above characters for it, partly from the account given by Haworth, partly from living plants. Unfortunately, I have not yet seen flowers of any species of this genus, as the conditions under which I am obliged to cultivate these plants are not conducive to their flowering, for I am surrounded by houses, and during three winter months, at the very period when, under natural conditions, they get the brightest sunshine, no direct sunlight falls upon them, and the glass gets begrimed with falling soot, tending further to decrease the light.

I.

Growths somewhat velvety to the touch from being covered with some kind of pubescence, visible under a lens, quite smooth, silvery-white, greyish-white or greyish, but under cultivation becoming greenish or whitish green.

1. *G. PUBESCENS*, N.E. Br. (Fig. 64, A, B and C.) Plant under natural conditions, nearly stemless, with the growths crowded into a tuft upon a woody, shortly-branched rootstock, but under cultivation developing short branches up to 2.3 inches long with age. Growth 1-1½ (or under cultivation up to 1½) inch long, and 5.7 lines thick, or stouter under cultivation, obliquely ovoid or cylindric-ovoid, or, under cultivation, oblong-ovoid, obtusely rounded and often slightly compressed and more or less keeled at the apex, with the fissure usually at or just below the middle of perfectly developed growths, which much resemble a shark's head in appearance, silvery-white or greyish-white, from a dense pubescence of minute simple hairs pointing

downwards and closely pressed to the surface, as represented by Fig. 64, C., greatly magnified. Flower not seen, but, according to description and figure, the calyx-lobes are about 2 lines long, deltoid-ovate, acute, and the petals about 5 lines long, narrowly linear, pale purple. Fruiting pedicels 6-9 lines long, pubescent, with deflexed hairs like the growths; capsule about 3 lines in diameter, 6-valved, whitish.—*G. argenteum*, N.E. Br. in *Gard. Chron.*, 1921, v. 70, p. 273, f. 121. *M. pubescens*, Haw. *Obs.* p. 138 (1794) and *Rev.* p. 104; Hegi in *Gartenflora*, 1910, p. 13-14, t. 1579bis; Berger, *Mesemb.* p. 230 and 229, f. 48; Marloth in *Trans. S. Afr. Phil. Soc.* v. 18, p. 44.

Ladysmith Div., near Ladysmith, Pillans, Marloth 3500, Pole Evans 6952.

The plant figured and described as *G. argenteum* is so different in appearance from the figure of *G. pubescens* in the *Gartenflora*, as may be seen by comparing the growths repre-

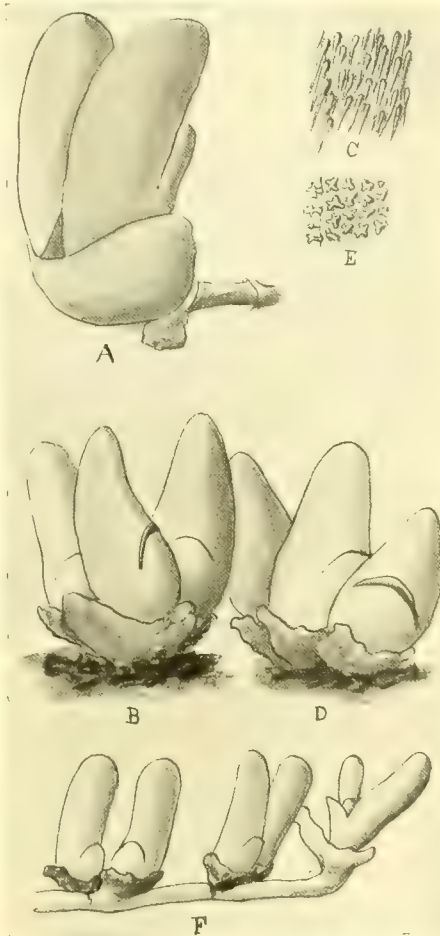


FIG. 64.—SPECIES OF GIBBAEUM.

A, C., *Gibbaeum pubescens*: A., a growth from a cultivated plant, copied from the *Gartenflora*; B., growth from a wild plant, natural size; C., hairs, greatly magnified. D., *Gibbaeum Shandii*, from an imported plant, natural size; E., hairs of *G. Shandii*, greatly magnified. F., *Gibbaeum geminum*, natural size.

sented by A and B in Fig. 64, that I had no suspicion that they could be the same species until I found upon looking up the literature of this species that both came from the same general locality, and then suspected that I had made a mistake. Upon inquiry of Mr. N. S. Pillans, he has given me particulars which confirm my suspicion that both belong to the same species, different as they appear. For plants of *G. pubescens* that he cultivated near Cape Town (owing to the greater moisture of that region) lost their silvery-white colour and became greenish-white, and produced growths somewhat like those represented by Fig. 64. A, copied from

the *Gartenflora*. My own plant has now changed from silvery-white to greenish-white, and is making short branches, so that there can be no doubt of their identity.

2. *G. SHANDII* N.E. Br. (Fig. 64, D and E).—Habit and general appearance of the plant almost the same as that of *G. pubescens*, but in the only specimens seen the growths were rather shorter and stouter, being 10-18 lines long and 6-8 lines thick at the basal part, at the apical part they are slightly compressed and faintly keeled down the front. The smooth surface is velvety to the touch from being covered with a very minute pubescence of very short irregularly stellately branched hairs that are totally different from those of *G. pubescens*, as represented, highly magnified, in Fig. 64, E, and are only distinguishable under a strong lens, greyish-green or hoary-green, not so silvery as in *G. pubescens*. Flower not seen. Fruiting pedicels 3-4 lines long, compressed, puberulous like the growths at the upper part only.—M. Shandii, N.E. Br. in *Gard. Chron.* 1921, v. 70, p. 151, fig. 62, capsule only.

Swellendam Div. Near Sevenfontein, Pole Evans 6921.

I have much pleasure in naming this species after Mr. John Shand, Magistrate of Ladysmith, who is interested in the flora of South Africa, and assisted in the collecting of some of the species of this genus.

Although so similar to *G. pubescens* in general appearance, the character of the minute pubescence is so very different that it is at once distinguished from that species by it, when examined under a lens. I have raised seedlings of both species, and the pubescence on the seedlings of each kind remains distinct and constant, exactly like that of their parents. The peculiar stellately branched hairs of *G. Shandii* are not deflexed and not half so long as those of *G. pubescens*.

3. *G. GEMINUM*, N.E. Br. (Fig. 64, F.)—Plant developing prostrate branches 2-3 inches long in the specimen seen, and 1-1½ line thick, with internodes 2½-7½ lines long, bearing a pair or sometimes only one growth at each node. Growth 9-12 lines long and about 3 lines thick, or larger under cultivation, erect, cylindric or slightly compressed at the upper part and more or less keeled on the front and back, obtusely rounded at the apex, which is often slightly incurved, with the mouth-like fissure much below the middle, and the body slightly bulging on that side below it, smooth, velvety to the touch, glabrous to the eye, but under a strong lens seen to be covered with a pubescence of very minute branched hairs like those shown in Fig. 64, E. Whitish-green. Flowers unknown. Fruiting pedicels up to 6 lines long. Capsule 2-3 lines in diameter, 6-valved, white; valves winged; cells roofed over by membranous wings, and the outer end of each cell open.

Ladysmith Div. Karoo south-west of Towsberg, Pole Evans 6925.

This singular species is readily distinguished from its allies by the more slender and less conical form of its growths. The pubescence on this species is just the same in character as that upon *G. Shandii*, represented by Fig. 64, E. N. E. Brown.

(To be continued.)

THE ALPINE GARDEN.

CAMPANULA BARBATA.

THE Bearded Harebell is practically a biennial and requires to be sown annually to maintain successive generations of plants. Sometimes a specimen survives its first year's flowering, but almost invariably the plants are lost after they have bloomed. Fortunately, they are easily raised from seeds. There are some differences of opinion regarding the best position for the Bearded Harebell, but, in my estimation, the ideal spot is a partially-shaded ledge of the rock garden. With this shade the flowers last longer than in full sun. Frequently, if rain should fall when the flowers are open, and this is followed by strong sun, the blooms are soon over. The albino form finds many admirers. N. Arnott.

GARDENS AT THE IDEAL HOME EXHIBITION.

For all horticulturists the Ideal Home Exhibition at Olympia, London, W., provides a special attraction. This is found in the extensive annexe, which is wholly given over to gardens. The walls have been brought into the general picture in the wonderful and interesting fashion adopted at continental shows, and on these the scenic artist has wrought with such taste and skill that at a little distance it is difficult to know just where the gardens end and the scenery begins—the gardener and the artist have each done their work well. The genius who thought of having a series of gardens designed by royal ladies deserves to be congratulated upon the success he obtained, and especially upon the success with which the various firms have carried the designs into effect. The majority of the gardens are formal in outline, and, though no two are alike, there is some sameness about their general construction. Nevertheless, the effect is good, and, remembering the season of the year and the difficulties that have had to be surmounted, a capital exhibition has been arranged. Further, the atmosphere of the place is spring-like, while the blue screen high overhead and the careful lighting add to the vernal effect.

Messrs. J. Carter and Co. have a semi-circular garden (see Fig. 65), designed by Queen Alexandra, and reproduced from Her Majesty's "Pansy Garden" at Sandringham, which was illustrated in *The Gardeners' Chronicle* of June 21, 1902. There is a central and beautiful well head and a surrounding border of Daffodils and Tulips, backed by some trees and shrubs, and a light colonnade of elegant character. The beds, of various size and shape, are all edged with Box and set in gravel walks. These are filled with Tulips, Daffodils and Hyacinths, and the whole effect is bright and cheery without being gaudy. An artistic touch is seen in the two big vases filled with the lovely *Prunus triloba*. In striking contrast to this garden is a bold rock and water garden arranged by Messrs. Pullham and Son after the design of Princess Mary. The idea is an alpine lawn at the foot of bold rocks, between which a cascade of water rushes down in a manner which must excite the envy of exhibitors at Chelsea show. A little mountain track passes along one side amid spring flowers, and extends "over the hills and far away." In the foreground beds of *Rhododendron praecox*, *Azaleas* and *Heaths* form an attractive feature, while hardy *Ferns* luxuriate in the spray from the very realistic waterfall. Messrs. Van Ness and Co. have provided one of the most brilliant displays, filling in a formal design by the Queen of Holland. This is a gorgeous arrangement of Daffodils, Wistarias, choice *Rhododendrons*, and a wonderful selection of *Mollis Azaleas*, including new varieties.

Princess Alice's garden, planted by Messrs. Gaze, is a sheltered plot surrounded by a Yew hedge. There are two levels, the higher portion containing a grass plot, a pleasant seat, and a surrounding of Lilac, with an entrance gateway of live Yew. The lower portion is gay with Tulips, Hyacinths, blue *Hydrangeas*, *Wistaria* and *Prunus triloba*. Mr. E. Dixon has filled in the bold, simple and formal design sent by the Queen of Roumania. In the sunken centre a "swastika" shaped bed of Tulips is very effective. Daffodils, Crocuses and Wallflowers are used effectively, and combine admirably with the scenic background. Lady May Cambridge designed four children's gardens, which have been effectively planted by Messrs. R. Wallace and Co. One of these is a formal arrangement with a Lily pool, sundial and tiny beds of Daffodils and Tulips. Another is a pleasant little rock garden containing a wonderful variety of interesting plants; another is a woodland garden charmingly planted with Birches, Lyrus and *Magnolia stellata*, and with Crocuses, Daffodils, Squills and blue Primroses rising from the grassy and mossy floor. The bulb garden is of formal outline, with a charming blending of

colours provided by Tulips. The Queen of the Belgians' garden, planted entirely with blue flowers by Messrs. A. Luff and Son, is excellent in effect, but not convincing, seeing that a considerable portion of the effect is obtained by *Cinerarias*, which are greenhouse plants. The *Cinerarias* are very fine and combine well with the masses of Hyacinths in every shade of blue. Messrs. Luff have also a pleasing "approach" garden with handsome gates beyond, leading to a distant and scenic horticultural paradise. Good use has been made of *Magnolias*, *Prunus*, *Azaleas* and *Saxifragas* on either side of the gateway, and these are set in raised banks.

Messrs. Whitelegg and Page have had a difficult task in filling the design from the Queen of Spain. The design is somewhat florid, but planted with *Roses*, with climbers around the graceful pillars, and some *Palms* to mark the special points, it would have been a great success—and also a great expense. However, the Chislehurst firm has contrived to provide an attractive garden with beds of *Azaleas* and *Heaths*, a central fountain and basin, and *Carnations* growing in bowls set along the walls. Near by, this firm has a small rock garden, raised so that the plants may be inspected without stooping. Messrs. Neal, of Wands-

young wood that ripens well. Last spring all the six canes broke into growth splendidly from the base to the top of the rods, and showed two and three bunches on each lateral. The bunches burst into flower beautifully in fine sunshine, and were most carefully pollinated, but to no avail; simply bare stems of bunches resulted and there was a woeful disappointment. Now comes the interesting part of the story. The same vines broke out again after being stopped, two or three leaves above the bunch. Flower bunches showed in profusion, and some of these we retained to see what would happen. Without any artificial aid whatever, these set well, and the berries swelled up like Greengage Plums. Two of these bunches were 2 lb. in weight, and bore amber coloured fruits. Muscat of Alexandria, in the same house, set splendidly, and finished in fine condition, fit for exhibition, as did Madresfield Court, Mrs. Pince and Black Hamburg. Why did not Canon Hall do so also? We are experimenting with a different mode of pruning to see what results, and should be pleased to know if any good specimens of this Grape were seen on the show benches last season. I am told Canon Hall Grape does well in the Worthing district. We shall report again in autumn if our different



FIG. 65.—GARDEN DESIGNED BY QUEEN ALEXANDRA AND ARRANGED BY MESSRS. J. CARTER AND CO. AT THE IDEAL HOME EXHIBITION AT OLYMPIA.

worth have planted the Queen of Norway's design, which is after the Dutch style, with a low wall surrounding the whole. There are wide paths, a sunken central fountain, and an attractive planting of pink Hyacinths, Emperor Daffodils, and beds of pink *Azaleas*. Messrs. Waterer, Sons and Crisp have carried out Lady Ramsay's design, which has a central formal Lily pool and an attractive surrounding of *Cupressus obtusa* var. *filifera aurea* and masses of Daffodils. At each corner of the design is a standard of the golden *Cupressus*, each with a clear stem about a yard high, set in grass. Other attractions include a well-lit conservatory constructed by Messrs. Duncan Tucker and Co.; a bed of *Carnations* by Messrs. Allwood Bros.; and a little bungalow front garden by Messrs. Bryseon.

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Failure of Canon Hall Grape.—Not many gardeners like to confess to a failure, but here is one. At Bradley, where my son is gardener, there is a new model span-roofed viney, 100 ft. long, built by Foster and Pearson. The borders are made of the best yellow loam, and the drainage is perfect with a concrete bottom. Forty vines are planted 5 ft. apart; seven varieties have done remarkably well, and Canon Hall is the most robust of them all, making fine

method of pruning has good effects. *J. Irvine, Bradley New Gardens, Grimsby.*

Tomato Victory.—This variety, which is being distributed by Messrs. Clibrans, is a cross between Bide's Recruit and Sensation. It carries an enormous crop, the fruits being of good form and excellent flavour. Seed was sown here on March 16, 1921, and the resulting seedlings potted on into 6-inch pots. The plants were then placed in pits and grown under cool conditions, abundance of air being admitted on all favourable occasions. As a consequence, the first truss of fruit was set before the plants were put into their permanent quarters out of doors. A site was chosen close to a galvanised iron fence. Weather conditions were favourable, and rapid growth was made. Each plant developed five to six trusses of fruits, which eventually ripened where they hung. The height of the plants was approximately 4 feet 9 inches, and the photograph was taken on August 24. I do not wish to convey the impression that "Victory" is specially recommended for outdoor cultivation, as such is not the case. Under glass I had excellent results from the same variety. Grown side by side with Bide's Recruit it ripened a fortnight earlier than the latter.—*J. Ritchie, Newtown Hall Gardens, Newtown, N. Wales.*

[The photograph which accompanied Mr. Ritchie's note was not suitable for reproduction, but it showed about 20 plants carrying either five or six large clusters of fruit, and confirming Mr. Ritchie's statements.—Eds.]

SOCIETIES.

ROYAL HORTICULTURAL.

MARCH 14 AND 15.—The first of the two-day shows for 1922 was held on the above dates, and the exhibitors combined to make it a great horticultural success. Spring bulbs, notably Hyacinths, Tulips and Daffodils, were prominent features, and there were several very artistic displays of these flowers. Orchids, Primulas, Cinerarias, Camellias, Alpines and forced flowering shrubs were other subjects largely shown. Novelties were few in number, but they included the fine new *Pieris taiwanensis*. The medal awards for groups were unusually numerous, the Floral Committee recommending no fewer than twenty-eight medals.

Orchid Committee.

Present: Frederick J. Hanbury, Esq. (in the chair), Prince Shimadzu, Messrs. Jas. O'Brien (hon. secretary), Arthur Dye, C. J. Lucas, S. W. Flory, H. G. Alexander, Chas. H. Curtis, J. E. Shill, H. T. Pitt, T. Armstrong, W. J. Kaye, A. McBean, J. Wilson Potter, Stuart Low, Gurney Wilson and R. Brooman White.

AWARDS.

FIRST-CLASS CERTIFICATE.

Sophro-Laelio-Cattleya Falcon, *Westonbirt variety* (L.-C. *Aureole* × *S. grandiflora*), from Lt.-Col. Sir GEO. L. HOLFORD, K.C.V.O., Westonbirt, Tetbury (gr. Mr. H. G. Alexander). The finest and most brilliant *Sophronitis* cross yet raised, and well sustaining the advantages of using favourable hybrids for crossing with the colour parent desired. The original form received a First-Class Certificate and was illustrated in *The Gardeners' Chronicle*, February 19, 1921, p. 91, but the present variety is larger and deeper in colour, the flowers being uniformly deep scarlet red, with slightly darker lip. The plant bore a spike of five expanded flowers and another of two in bud.

Cymbidium Alexanderi Westonbirt variety (*eburneo-Lowianum* × *insigne*), from Lt.-Col. Sir GEO. L. HOLFORD. *Cymbidium Alexanderi* is probably the finest and most beautiful of the class and is a variety of handsome form and colouring. The superb specimen shown bore two spikes of seven and five flowers respectively, large, wax-like in texture, clear white, with dotted lines of rosy mauve on the front of the lip.

Odontioda Opal (*Odm. eximillus Rex* × *Oda. Cooksoniae Fowler's variety*), from Messrs. ARMSTRONG AND BROWN, Orchidhurst, Tunbridge Wells. Much is now expected of an *Odontioda* worthy of a First-Class Certificate, and *Odontioda Opal* realises expectations perfectly. The spike of finely formed flowers had the individual blooms broad in all the segments, the sepals and petals nearly covered with confluent blotches of ruby red colour, the margins and tips being bluish white. The broad lip, forming a great contrast, is bluish white with a few ruby blotches in front of the yellow crest.

AWARD OF MERIT.

Cymbidium Alexanderi Rosalind (*eburneo-Lowianum* × *insigne*), from Lt.-Col. Sir GEO. L. HOLFORD. A bluish white form of perfect shape, coloured rose pink on the margin of the lip, which has spottings of rose in front.

Sophro-Cattleya Prince Shimadzu (S.-C. *Doris Cobb's variety* × *C. King George*), from Messrs. FLORY AND BLACK, Slough. Flower of good shape, golden yellow, with ruby-red front to the lip.

GROUPS.

Sir JEREMIAH COLMAN, Bart., Gatton Park (gr. Mr. J. Collier), was awarded a Silver Flora Medal for a very fine group of splendidly flowered varieties of *Lycaste Skinneri*, the flowers varying from the white alba and Purity to the dark forms of the splendens type. Two very delicately tinted varieties were Pink Pearl and Robin. The rare *L. Skinneri armenica* with ivory white flowers was also shown, with some hybrids.

H. T. PITT, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), was granted a Silver Flora Medal

for a good group of *Odontoglossums*, *Odontiodas* and other showy hybrids. Among the *Cypripediums*, C. *Memoria F. M. Ogilvie* well maintained its high reputation, and the species included an elegant little *Spiranthes*, *Odontoglossum pulchellum* and other species of *Odontoglossum*.

Messrs. CHARLESWORTH, Haywards Heath, received a Silver Flora Medal for an excellent group of bright scarlet *Odontiodas*, showy *Odontoglossums*, and white *Cattleyas*; *Brasso-Laelio-Cattleya Joan*, with clear yellow flowers; the best form of *Brasso-Cattleya Cliftonii magnifica*, some good hybrid *Phaius*, *Charlesworthia Alpha* and the clear yellow *Habenaria rhodocheila* were also conspicuous.

Messrs. STUART LOW AND CO., Jarvisbrook, Sussex, were awarded a Silver Flora Medal for an extensive group in which *Dendrobiums*, *Brassavola* hybrids, *Cattleyas* and *Laelio-Cattleyas* were specially well represented. The novelties included *Laelio-Cattleya Triton* (L.-C. *Tunis* × *C. Trianae*), chrome yellow with ruby lip; *Sophro-Laelio-Cattleya Gilda* (S.-L.-C. *Helen* × L.-C. *Colmaniana*), nearest to the L.-C. parent; *Cattleya Omar* (*Enid* × *Leda*); *Brasso-Laelio-Cattleya Melba* (B.-C. *Digbyano-Mossiae* × L.-C. *Rubens*), rose with yellow disc to the lip; and other pretty, new forms.

Messrs. SANDERS, St. Albans, were awarded a Silver Flora Medal for a pretty and interesting group of *Cymbidiums*, *Dendrobiums*, *Cattleyas*, *Laelio-Cattleyas*, and *Odontoglossums*, all of which were well represented. Among the species it was interesting to see several *Restrepias*, *Masdevallias*, *Dendrobiums*, and the rare natural hybrid, *Cattleya guatemalensis*. Messrs. J. and A. McBEAN, Cooksbridge, were awarded a Silver Banksian Medal for a group in which four forms of *Laelio-Cattleya Eunice*, white, with variously coloured lips; the fine white *Cattleya Cowanii*; *Laelio-Cattleya Monique* (*Mendelii* × *Schrödera*), a perfect flower nearest to the *Mendelii* parent; the richly coloured *Odontoglossum Rosina*, and the dark *Odontioda Joan* were specially good. Messrs. FLORY AND BLACK, Slough, were awarded a Silver Banksian Medal for a group of rare hybrids, in which the yellow *Sophro-Laelio-Cattleya Prince of Orange* (S.-L.-C. *Eros* × L.-C. *Thyone*); and *Potinara Gratrixiae* (S.-C. *Gratrixiae* × B.-C. *Mrs. J. Leemann*), were good novelties.

OTHER EXHIBITS.

D. BARNARD, Esq., Leighton Dene, Watford, showed *Brasso-Cattleya mirabilis*, *Leighton Dene variety* (C. *Mendelii* × B.-C. *Mrs. J. Leemann*), a very fine white with large yellow disc to the fringed lip. Messrs. STUART LOW AND CO. showed the clear white *Brasso-Cattleya Albion*. RICHARD G. THWAITES, Esq., Christchurch Road, Streatham Hill, showed *Odontioda Atalanta* var. *Pamela* (*Odm. Atalanta* × *Oda. Latona*).

Floral Committee.

Present: Messrs. H. B. May (in the chair), W. B. Cranfield, G. Reuthe, G. Harrow, W. Cuthbertson, H. J. Jones, D. B. Crane, J. F. McLeod, W. Howe, A. G. Jackson, W. B. Gingell, Hugh Dickson, C. R. Fielder, E. A. Bowles, W. J. Bean, R. C. Notcutt, M. C. Allwood, John Dickson, John Jennings, Jas. Hudson, Reginald Cory, W. P. Thomson, Chas. E. Pearson, and C. Wilson.

Pieris taiwanensis.—A beautiful and quite new species collected by Mr. E. H. Wilson in Formosa. It has larger leaves, a more erect inflorescence and rounder, whiter flowers than *P. japonica*. A very fine evergreen shrub and apparently quite hardy. Shown by the MARQUIS OF HEADFORT, Kells, Co. Meath.

Freesia Wistaria.—A very pretty addition to the now numerous coloured *Freesias*. It is well named, as the lavender mauve colouring is very suggestive of *Wistaria* blooms. The flowers are well expanded, and the three inner segments are much deeper bluish-mauve than the outer one, and lines of this deeper shade extend down the tube towards the yellow base. We failed to detect any fragrance in this otherwise charming variety. Shown by Mr. G. H. DALRYMPLE, Bartley, Southampton.

GROUPS.

Hyacinths were a noteworthy feature of an attractive meeting. A large, low table space was splendidly filled by Messrs. SUTTON AND SONS with a great number of excellent plants. Not only were these of exceptional quality, but the arrangement was in excellent taste and the group was very much admired. Large baskets along the centre of the group were amply filled with such sorts as *Queen of the Pinks*, *Purity*, *Schotel* and *City of Haarlem*, while in porcelain blue vases there were handsome, bold inflorescences of *Perle Brillante*, *King of the Reds*, *King of the Blues*, and *Grand Maitre*. For the most part the groundwork of this memorable exhibit was composed of similar sorts, but all the many plants indicated the excellence of the bulbs no less than the skill and care exercised in their cultivation (*Silver-Gilt Flora Medal*).

A great variety of Hyacinths was shown by Messrs. R. AND G. CUTHBERT. For the most part these were in five-inch flower pots, and of the useful decorative type that is valued for market. Amongst the thirty or more sorts the very best were *City of Haarlem*, *Hein Roogen*, *Enchantress*, *Hoffgartner*, *Dr. Lieber*, *Lady Derby*, and that darkest of all dark blues, *King Menelik* (*Silver-Gilt Banksian Medal*).

Exceedingly effective use was made of several varieties of *Primula malacoides*, associated with splendid *Narcissus King Alfred* and various Hyacinths, by Messrs. J. CARTER AND CO., The Primulas included *Princess Mary*, *Princess Patricia*, *King Albert* and *Single White*, and these were shown in generous quantities of most elegant plants grouped in shallow, round baskets raised fairly high along the centre of the tabling (*Silver-Gilt Banksian Medal*).

Flowering shrubs were again prominent and of considerable attraction. On the floor under the clock Mr. WM. PAUL set up an admirable group of Camellias, which was probably the best collection of pot plants at present available in this country. Of the many sorts the singles were perhaps the most numerous, and these included *Lady McKinnon*, *Vesta*, *Adelina Patti*, *The Swan*, *Mrs. J. Buchanan* and *Jupiter* (*Silver Flora Medal*).

Near by in a corner space Messrs. WM. CUTBUSH AND SON had an attractive collection of such hardy shrubs as *Wistarias*, *Pyruses* in variety, with some very good plants of *Hippocrepis* and very floriferous little bushes of *Genista fragrans*. On a table space near by Messrs. Cutbush and Son had a well-designed little rock garden, appropriately planted (*Silver Flora Medal*).

Pyruses, in several varieties, with double-flowered *Peaches*, *Camellias*, *Clematises* and *Azaleas*, were shown by Messrs. L. R. RUSSELL, LTD., and these made a very effective group (*Silver Banksian Medal*). Amongst a somewhat similar exhibit by Messrs. R. W. WALLACE AND CO. were a couple of vases of *Corylopsis pauciflora*, well-flowered bushes of the double *Cherry Hisakura*. Some good *Freesias*, particularly the rich golden *Buttercup*, were also shown (*Silver Flora Medal*). Early *Rhododendrons* with catkin-bearing sprays of *Populus alba* and *Pieris japonica* were shown by Mr. G. REUTHE, who also exhibited a quantity of *Anemone fulgens* and various alpine (*Silver Banksian Medal*).

Prunus pissardii, in unusually well-flowered sprays, was shown by Messrs. J. CHEAL AND SONS, who also had a few alpine and Primulas (*Bronze Flora Medal*). The soft salmon pink coloured *Cydonia Aurora* and *C. Apple Blossom* were prominent in the stand of Messrs. BAIR AND SON, who also had several interesting *Hellebores* and many *Crocuses* (*Silver Banksian Medal*).

The collections of alpine were particularly rich in Saxifrages, and of these varieties of *S. Burseriana* were frequently to be seen. Mr. C. ELLIOTT had many good white sorts, such as *S. B. speciosa*, *S. apiculata alba*, and also the interesting *S. Greisbachii* (*Bronze Flora Medal*).

A rock garden by Messrs. WATERER, SONS AND CRISP contained goodly breadths of *Chionodoxa Lucillae* and *Anchusa myosotidiflora* (*Silver Banksian Medal*). Mr. G. W. MILLER showed a good range of his excellent *Polyanthuses*, *Pul-*

monaria angustifolia and the very bright crimson Daisy Rob Roy (Silver Banksian Medal). Oxalis splendens, O. cernua, Delphinium nudicaule and Saxifraga Irvingii were prominent items in an exhibit by Mr. M. PRICHARD (Silver Banksian Medal). The silvery grey Veronica Hulseana associated with Daphne Cneorum and Rhododendron racemosus, was effective in a group by Messrs. PIPER AND SON, who also had several well-flowered pans of Lithospermum prostratum Heavenly Blue (Silver Banksian Medal).

Many pots and pans of alpinas shown by Messrs. MAXWELL AND BEALE included Myosotis Ruth Fischer and a variety of Saxifrages (Bronze Flora Medal). The soft rosy salmon pink flowers on many plants of Azalea Hido-mango were exceedingly attractive in an exhibit by Messrs. G. G. WHITELEGG AND CO., who also had a quantity of the dwarf Iris Formosa which is so delightfully fragrant (Silver Banksian Medal).

The yellow Saxifraga Faldonside, contrasting with the elegant S. lilacina and S. Burseriana speciosa, were well shown by Messrs. R. TUCKER AND SON (Silver Banksian Medal). Alpines were also shown by the Misses HOPKINS, Messrs. SKELTON AND KIRBY, and Mr. F. G. WOOD (Bronze Banksian Medals).

Excellent Carnations were again shown by Messrs. ALLWOOD BROS., who had a large vase of the perpetual-Malmaison Mrs. C. F. Raphael containing blooms nearly as large as the best true Malmaisons. Jessie Allwood, a yellow flowered variety, was also of uncommon merit (Silver Flora Medal). In the collection by Mr. C. ENGELMANN such pink sorts as Laddie, Cupid, Peerless and Boadicea were particularly good (Silver Banksian Medal). Carnations were also shown by Messrs. STUART LOW AND CO., who included excellent Hippeastrums, Acacias and Epacris otusmaeflora fl. pl. (Silver Flora Medal).

Large sprays of Roses Yellow Banksian bearing abundant flowers, and Fortune's Yellow were arranged by Mr. GEORGE PRINCE (Silver Banksian Medal). Many excellent plants of large flowered Cinerarias were shown by Mr. S. MORTIMER. The flowers were exceptionally large and of good substance, illustrating a very desirable strain (Silver Banksian Medal).

Fragrant Violets were staged by the REEDENS SCHOOL OF GARDENING (Bronze Flora Medal), and Mr. B. PINNEY (Bronze Banksian Medal). In the former collection Princess of Wales was particularly good and much attention was directed to the bunches of the uncommon variety Sulphurea. Messrs. REAMSBOTTOM AND CO. displayed their St. Brigid Anemones.

Narcissus and Tulip Committee.

Present: Messrs. E. A. Bowles (in the chair), George Monro, P. R. Barr, Herbert Smith, J. S. Arkwright, G. W. Leak, W. A. Milner, H. G. Hawker, W. F. M. Copeland, H. F. Chapman, W. B. Cranfield, Reginald Cory, J. W. Jones, Guy L. Wilson, J. D. Pearson, G. Churcher, and W. R. Dykes; Miss Wilmott and Charles H. Curtis, Hon. Secretary.

Narcissus White Dame.—A chaste and beautiful trumpet Daffodil of large size and excellent form. The colour is paper white. The perianth segments are somewhat thin in texture, almost transparent. The finely formed trumpet has a beautifully frilled rim, which is slightly rolled back. Shown by Mr. GUY L. WILSON, Brough-shore, Co. Antrim.

GROUPS.

An excellent collection of bulbs grown in bowls of fibre was shown by Messrs. R. H. RATH AND CO. Almost every seasonable kind was included, and all illustrated first-rate bulbs and skilful cultivation. There were Darwin Tulips, Narcissus and Hyacinths of many sorts attractively arranged along the centre of a large table space, while all around were many shallow bowls of Crocuses in great variety and many of the dainty and fascinating Fritillaria Meleagris (Silver-Gilt Banksian Medal).

What was decidedly the best collection solely of Narcissi was arranged by Messrs. J. R. PEARSON AND SONS. Not only was there a great variety, but the quality was high and the arrangement was very attractive. Generally, seve-

ral vases of each sort were shown, and this method served to illustrate their great decorative value. The large-flowered trumpet varieties were especially prominent, and these included immense but refined blooms of Mrs. J. H. Veitch, Weardale Perfection, King Alfred, Norah Pearson, Florence Pearson and Victoria. The vivid colour of the coronas of such varieties as Gipsy Queen, Firetail and Lucifer attracted a deal of admiration, as also did the incomparable variety Brilliancy (Silver-Gilt Flora Medal).

Large trumpet varieties were also prominent in the exhibit by Messrs. BARR AND SONS, but many of these were shown under their seedling numbers, though many of them were of great merit. Of the named sorts, Golden Herald, Yorick and Gwendolin were excellent. Many particularly good Leedsii sorts were also on view, and bright colour was present on the corona of Blackwell, a good incomparable variety (Silver Flora Medal).

Near the Orchid annexe Mr. G. L. WILSON had a select little exhibit. The centre was occupied with a goodly quantity of his new trumpet variety, White Dame (see awards), while adjoining it was a vase of Goldbeater, a rich yellow trumpet variety of great size and excellent shape. Darius, another trumpet sort, which has a primrose coloured perianth and a canary yellow trumpet, and Vestal Virgin, sulphur yellow tube, rising from a paper white perianth, were particularly good (Silver Banksian Medal).

Fruit and Vegetable Committee.

Present: Messrs. C. G. A. Nix (chairman), Jos. Cheal, S. Rivers, Geo. F. Tinley, S. B. Dicks, W. Giles, T. Pateman, P. D. Tuckett, A. Bullock, E. Neal, W. Bates, E. A. Merryweather, A. Metcalfe, G. Berry, W. H. Divers, W. Wilks, P. C. M. Veitch, G. Reynolds, J. C. Allgrove and Ed. Beckett.

There was very little for this Committee to consider, and only one award was made, to a variety of Apple from Devon.

AWARD OF MERIT.

Apple Peter Lock.—This variety had been before the Committee on two previous occasions, and a member, having visited the tree, reported favourably on the cropping and growth, which is of somewhat upright habit. The fruit is of the Bramley's Seedling shape, some of the specimens weighing 5 oz. to 6 oz. each. At this season the skin is a mellow yellow, freely marked with crimson lines. The eye is set in a shallow cavity, with closed segments. The stalk is set in a relatively deep, cone-shaped cavity. Trees of this Apple are said to be common in the neighbourhood of Dean Prior, near Buckfastleigh, Devon, and are the earliest to bloom in the orchards there. The quality is good and the variety is suitable for either culinary or dessert purposes. Shown by Mr. J. A. DEVENISH, Goulds, Staverton, South Devon.

Obituary.

W. H. Clarke. We learn with regret that Mr. W. H. Clarke, of the Royal Hampton and Gloucester Nurseries, Hampton, Middlesex, died on the 28th ult., after a severe illness, most patiently borne over a period of five months. Mr. Clarke had been in business at Hampton for thirteen years, and previous to that had a varied horticultural experience, being at one time head gardener to Sir W. Plowden at Aston Rowant. Early in life he gained experience in nursery work at his father's nursery at Wellington, Somerset, and this served him in good stead when he gave up private for commercial gardening. The funeral took place on the 4th inst. at Hampton Cemetery, and was attended by a large number of horticultural friends, who admired his personal qualities and business ability. Mr. Clarke was fifty-seven years of age. He leaves a widow, a daughter and son three years of age. The business will be carried on by Mrs. Clarke, who managed it during her late husband's long illness.

ANSWERS TO CORRESPONDENTS.

BOOKS: A. D. F. We recommend you to obtain *The Classification of Flowering Plants*, by A. B. Rendle, published by the Cambridge University Press, Fetter Lane, E.C., at 20s. net.—B. P. G.—The best books for your purpose would be *Forests, Woods and Trees*, by Augustine Henry. Published by Constable and Co., London; *English Estate Forestry*, by A. C. Forbes, published by E. Arnold, Maddox Street, Bond Street, W.; and Webster's *Practical Forestry*, published by W. Rider and Son, Cathedral House, Paternoster Row, E.C.4.

NAMES OF PLANTS: R. W. N. 1, Cedrus Deodara; 2, Juniperus chinensis var. albo-variegata; 3, Sequoia gigantea; 4, Juniperus virginiana; 5, Pseudotsuga Douglasii; 6, 8, 9, 10, 15, and 18, forms of Cupressus Lawsoniana; 7, Picea excelsa; 11, Cupressus pisifera var. plumosa; 12, Abies nobilis var. glauca; 13, Pinus excelsa; 14, Juniperus chinensis; 16, Abies Pinsapo; 17, Cupressus Lawsoniana var. lutea; 19, Pinus Cembra; 20, Cupressus Lawsoniana var. lutea; 21, Thuja occidentalis; 22, Taxus baccata var. fastigiata; 23, Ligustrum japonicum; 24, Osmanthus ilicifolius; 25, Arbutus Unedo; 26, Quercus Ilex; 27, Santolina chamaecyparissus; 28, Cedrus atlantica. —E. W. S. Skimmia japonica.

R.H.S. LIBRARY: H. P. K. Under certain conditions Fellows of the Royal Horticultural Society are allowed to borrow books from the Lindley Library. The principal stipulations are: (a) That the borrower be personally known to one or more of the officers of the Society, or, at least, shall produce satisfactory references; (b) that the borrower sign a receipt for the volumes, before removing them from the premises, in a book provided for that purpose (or by postcard if unable to do so in person); and undertake to restore the books in good condition, and generally to comply with the regulations; (c) that not more than three volumes be lent to one person at one time; and (d) that borrowers through the post pay the cost of the postage both ways.

VEGETABLES FOR THREE HUNDRED PEOPLE: W. N. To grow a liberal supply of vegetables for 300 people per annum would require about 5 or 6 acres of land, or perhaps a little more, as your soil is of a "poor, sandy nature." As all the cultivation is to be done by the spade, there would be plenty of work on 6 acres of land for three or four good men, assuming that in addition to ordinary digging, hoeing, seed growing, transplanting, etc., there would be a certain amount of trenching or double digging done each year. Potatoes, of course, would require a good deal of space, as 300 people would consume at least half a ton of tubers per week. It would be necessary to grow from 26 to 30 tons a year of early, mid-season, and late varieties, and from 3 to 4 acres would be absorbed by this crop alone from the spring to the end of autumn. Other crops such as Peas, Beans (broad, dwarf and runners), Carrots, Parsnips, Beetroot, Onions, Shallots, Turnips, Cabbages, Cauliflowers, Kale, Brussels Sprouts, Savoys, Lettuces, etc., would have to be accommodated at the same time; but it would be possible to get Cabbages and Winter Greens on ground occupied by the early Potatoes, Peas and Beans. It would require too much space here to give an approximate estimate of the quantities of each kind of vegetable likely to be consumed by 300 people in the course of twelve months, but it works out at a figure that would astonish most people. The value in money of such vegetables is also considerable, and should more than repay the entire cost of labour, manures, etc. Plenty of well-rotted stable manure should be incorporated with your sandy soil, or meagre quantities might be supplemented with a good organic fertiliser.

Communications Received: A. M. A. R. R. Nelson, G. H. J. H. W. H. B. E. H. W. J. A. P. J. P. H. H. T. S. H. B. M. I. C. J. F. E. T. E. W. R. H. C. B.

THE

Gardeners' Chronicle

No. 1839.—SATURDAY, MARCH 25, 1922.

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 42.1.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, March 22, 10 a.m. Bar. 30.1; temp. 40°.—Weather—Cold winds with occasional snow.

The Chamber of Horticulture has been engaged for some time past in considering the subject of how growers of horticultural produce may best meet the competition of foreign-grown produce. The subject is one of great difficulty. With the larger aspect of the question—whether it is to the ultimate interest of this country to admit foreign produce—the Chamber does not deal in its recent memorandum. In this we think it shows wisdom; for, as is well known, opinion is sharply divided on the principle involved. On the other hand, agreement is fairly general that whether it is or is not good policy to admit of free competition between home-grown and foreign-produced fruit and vegetables, there is little prospect of any political party taking action to inhibit the free importation of such produce. Wherefore the Chamber has confined its attention to the secondary, but nevertheless extremely important question—whether it is not fair and equitable that action should be taken by way of amendment to the Merchandise Marks Act to secure the systematic and conspicuous marking of foreign horticultural produce. The President of the Board of Trade has invited the Parliamentary Committee of the Chamber to submit a case, and will, we believe, shortly receive a deputation from the Chamber in order to hear the views of horticulturists in greater fullness. The recommendations which the Chamber of Horticulture make are that horticultural produce should be included in any new Bill brought in to amend the

Merchandise Marks Act, that "all containers in which horticultural produce is imported should be labelled or marked 'Foreign Produce,' and that all foreign fruit and vegetables exposed for sale in shops or on stalls should bear clearly a label indicating its foreign origin." In support of these recommendations the Chamber relies first on the undoubted fact that it is the national interest to increase home production. Horticulturists need no reminder of the fact that the raising of fruit and vegetables employs more labour than any other kind of cultivation and that an extension of the area under these crops leads to a corresponding and not inconsiderable increase of rural population. The Chamber also points out that at present actual misdescription is common and that foreign produce is not infrequently sold as of British origin. To these facts the Chamber attributes, in part at least, the diminishing proportion of home-grown fruit and vegetables consumed by the British community. Thus, in the case of Tomatos, Holland has become of recent years a large producer. Dutch Tomatos come in the market at much the same time as those grown here and the competition which ensues is becoming increasingly severe. The Chamber does not suggest the exclusion of this produce but points out that foreign raised Tomatos, which it claims are inferior in flavour and quality to British grown, often gain an unfair advantage by being sold as "real English."

Every fair-minded person—whatever his views on the vexed question of Protection and Free Trade—will recognise that this is a practice which should be opposed by every practicable means. To achieve this end the Chamber proposes that local authorities should be empowered to act for the detection of cases of misdescription and that misdescriptions of this kind should be punishable offences. It is further proposed that any recognised Horticultural Association should be empowered to institute proceedings in cases of misdescription. In addition to Tomato-growing, Grape-growing under glass suffers from foreign competition—particularly from Belgium and Holland—which are now large exporting countries. So serious is this competition that in the last five years the area of the home crop has been reduced by over one hundred acres of glass, and the Chamber predicts that if the competition goes on unchecked, the Grape-growing industry will shortly cease to exist in this country. Similarly in the case of jam-fruit, large quantities are imported—particularly Strawberries from Holland—but the jam made from such imported fruit is often sold under some such misleading description as "made in the Orchard factory." The facts that the Chamber and its affiliated associations comprises a body of 25,000 horticulturists, and that it and the National Farmers' Union are united in these efforts to check the abuses to which attention has been drawn entitles them to a sympathetic hearing on the part of the President of the Board of Trade.

Summer Time.—The Earl of Onslow stated in the House of Lords on the 14th inst. that summer time would operate this year from the last Saturday in March to the first Saturday in October, as this country was bound to carry out its agreement with France and Belgium to enforce summer-time during the period stated. He gave an understanding that when the matter is raised next year, the question of alteration of date should again be considered, and before coming to any decision, the Government would review all the interests of the community. The French Senate, which last November voted against the resumption of summer-time, this

year has agreed to the project adopted by the Chamber, whereby, in accordance with arrangements made with Great Britain and Belgium, summer-time will be adopted for 1922. It is stated that next year, unless the French Parliament has changed its opinion, summer-time in France will automatically lapse.

Flower Show Abandoned.—The Botanical and Horticultural Society of Durham, Northumberland and Newcastle has been compelled to veto the proposal to hold an exhibition during the present year, owing to a serious deficit of £225 on the exhibition held last season. The Newcastle Flower Show, as the Society's exhibition is termed, is a very important one in the North, and we regret that the Society is compelled to forego the show for 1922. Although an appeal was made for subscriptions, only about £130 was forthcoming, and of this sum £110 was given by the members of the Council themselves.

British Superintendent for a Canadian City's Parks.—Mr. James M. Craig, who has been appointed Superintendent of Parks for the City of Regina, Saskatchewan, Canada, was employed for ten years as Superintendent under the City Council at Port Arthur, Ontario, where he did excellent work for that city. He was previously head gardener to the Countess de Morella, at Wentworth, in Surrey, and prior to that was engaged on the Royal estate at Sandringham during the reign of King Edward VII. The newly-appointed superintendent hopes to make Regina a beauty spot in the centre of the great wheat-growing plains of Saskatchewan.

"Popular Gardening."—We congratulate our contemporary, *Popular Gardening*, on the excellent issue forming the special spring number of the paper, dated March 28. The advertisements and text occupy 52 pages, and there are numerous illustrations. The reading matter is of varied and general interest to gardeners and especially to amateurs. An excellent supplementary plate of *Lilium Brownii* shows a fine spike of this beautiful Lily with some fifteen open flowers and buds, and there are full-page illustrations in colour of varieties of *Dianthus Allwoodii* and *Pansies*. There are other illustrations in colour, but much the finer pictures are those in black-and-white, depicting, amongst other subjects, a dry wall garden. Flag Irises by a garden path, and rambler Roses in the Chalkwell Park, Westcliff—not at Leigh-on-Sea, as stated in the inscription.

The Genus *Eucalyptus*.—Dr. Botting Hemsley writes: "Many readers of *The Gardeners' Chronicle*, both at home and abroad, will welcome the appearance of Mr. Maiden's *Critical Revision of the Genus Eucalyptus*, the fiftieth part of which has been received. The first part of this large work was published in 1903. Part 50 contains illustrations of *Eucalyptus Houseana*, *E. Jutsoni*, *E. adjuncta*, *E. pumila*, *E. rariflora* and *E. mundijongensis*. The last species mentioned bears a name in the Australian vernacular which is also the name of a railway station in Western Australia. In addition, Part 50 contains the continuations of Part 49. A review of the fiftieth part must remain for a future time."

The Carnation Year Book.—We are glad to learn from the *Carnation Year Book* for 1922 that the British Carnation Society has increased its membership and that the finances are in a satisfactory condition, there being a balance of over £30 in hand on the year's work. The frontispiece of the *Year Book* is a portrait of the President, Lady Mond. One of the most valuable features of the *Year Book* is the classification list, in which Perpetual Carnations are classified in their various sections: (1) by colour, (2) by habit. In the colour classification the varieties are given in order, according to some special quality: thus those in the light rose and deep pink varieties begin with sorts of the lightest blush and end with those of deep cerise colour. In the classification by habit, nine types are selected, of which we quote a typical example: *Lady Northcliffe* type, growth light and short, producing plenty of side shoots: free and continually flowering: flowers inclined to come in quickly succeeding crops: plants do

not grow very tall; stems short to medium in length, mostly thin and wiry. This classification, carried out by a special committee, has been rendered possible by the co-operation of Mr. C. Engelmann, who cultivates an enormous number of varieties at his nursery at Saffron Walden. Mr. S. A. Pascoe, of the Royal Gardens, Windsor, gives some good advice, in an article entitled "Why grow Carnations," on the cultivation of the plants, whilst some hints on the raising of new varieties are contributed by Mr. W. Bishop, Elmhurst, Windsor. Many pages are devoted to reports of the Society's shows, meetings and annual dinner, and there is a useful list of varieties certificated each year since 1907.

Presentation to Mr G. Swift.—At the annual dinner of the National Federation of Fruit and Potato Trades' Association, held on Tuesday last at the Hotel Great Central, an illuminated address and a silver tea and coffee service were presented to Mr. George Swift in recognition of his services during the past two years at President of the Federation. Mr. F. R. Ridley, the newly-elected President, presided at the dinner, which was a great success.

A New Rose.—The American Rose Society has passed for registration the new variety Greatheart, a sport from the H.T. Mrs. Walter Easlea, and offered for registration by Mr. E. M. Rosenbluth, Wallingford, Pennsylvania. The colour is pale flesh, shaded salmon. The variety is said to be similar to and an improvement on Mme. Edmond Rostand, but more reliable in flowering. It has also a better stem and every bud opens perfectly. The plants bloom well in spring, summer and autumn.

Association of Economic Biologists.—The general meeting of this Association will be held at 2.30 p.m. on Friday, March 31, in the Botanical Lecture Theatre of the Imperial College of Science, South Kensington, London, S.W.7, when Dr. W. Lawrence Balls will discuss "Advantages and Defects of Team Work in Economic Biology," and Dr. Franklin Kidd will lecture on "Problems of Fruit Storage."

The Late Mr. Bisset.—The widow and other members of the family of the late Mr. Bisset, who was show superintendent to the Royal Horticultural Society, desire to express their grateful thanks for the deep sympathy shown them in their bereavement, and for the generous help they received from exhibitors at the R.H.S. meetings. We understand that donations amounting to over £85 were received by Mr. Frank Reader, who acted as treasurer to the fund.

Flora of Greenland.—At the early March meeting of the Linnean Society an interesting part of the proceedings was the display of lantern slides representing the Flora of Greenland. These were used to illustrate the remarks made by Mr. R. E. Holtum, who accompanied Prof. A. C. Seward to Disko Island and the neighbouring parts of the west coast of Greenland during the summer of 1921. Mr. Holtum observed that the most widely spread vegetation consists of a low Heath, the most important species being *Empetrum nigrum*, *Cassiope tetragona*, and other Ericaceous plants. In specially protected localities a scrub of *Salix glauca* may be found, which may reach eight feet in height, and accompanying this is a luxuriant vegetation of herbaceous plants of southern type. In unfavourable situations the ground is not covered by the vegetation, which consists of isolated plants of resistant herbaceous and woody species. The total flora of the whole of Greenland consists of 416 species of vascular plants, of which eighteen per cent. are high arctic in type, 22 per cent. widely distributed, and 60 per cent. of southern type. The problem of the means of arrival of the last-named group after the glacial period is an interesting one. Prof. Seward, who was present, stated that the main object of his visit to Disko Island was the collection of fossil plants. He recommended Greenland as a summer resort, the only difficulty being that of getting there. Mr. E. G. Baker and Mr. A. J. Wilmott commented on the absence of Leguminosae from the flora of Greenland, and in reply to questions, Mr. Holtum stated that

next to Leguminosae in order of sparseness came Cyperaceae and then the Grasses. Only four species of *Salix* had been recorded in Greenland.

Mr. W. H. Divers, V.M.H.—It is appropriate in the first week of spring to publish the portrait of Mr. W. H. Divers, who, in addition to being one of the most successful all-round gardeners, made a special feature of spring gardening and published the best work on the subject in *Spring Flowers at Belvoir Castle*, in which celebrated gardens this phase of gardening was brought to the highest state of perfection by Mr. Divers. He was born at Wierton Place, near Maidstone, where his father was head gardener for forty years. He commenced his professional career at Wierton Place and served for four years under his father, after which period he went to Linton Park as a journeyman and gained further experience in the gardens at Brantingham Thorpe, near Brough; Sandbeck Park, near Rotherham; Hatfield House, Hertfordshire; Tandridge Court, Godstone; and Burghley Park, Stamford. In 1884 he was appointed gardener and agent to J. T. Hopwood, Esq., at Ketton Hall, near Stamford. This celebrated garden contained the



MR. W. H. DIVERS, V.M.H.

largest private collection of Peaches and Nectarines in the country, and many prizes were won by Mr. Divers with these fruits. Another speciality of the place was the Marechal Niel Rose, and as many as 16,000 blooms of this variety were cut in one year. In 1889 Mr. Divers went to Florida to advise Mr. Hopwood on his estate near Winter Park, Orange County, and his experiences of that country were published in *Gard. Chron.*, May 31, 1890. In 1894 he was appointed gardener to the Duke of Rutland, Belvoir Castle, where he remained until his retirement, in 1917. During his 23 years at Belvoir Castle, Mr. Divers enjoyed a high reputation as a capable gardener in all aspects of horticulture, and his name was constantly before the public, both as an exhibitor and writer. A list of trees and plants at Belvoir compiled in 1904 showed that upwards of 2,000 species were in cultivation there. The natural scenery of the place is very picturesque, and many beautiful views of Belvoir have been published from time to time in these pages. Mr. Divers was awarded the Victoria Medal of Honour in Horticulture in 1915. He is one of the most regular attendants of the Fruit Committee of the Royal Horticultural Society, to which body he was appointed in 1892. Soon after his retirement from Belvoir he was appointed Special Representative and Lecturer for the Royal Horticultural Society for Middlesex, Essex and North-East Kent. He is a lec-

turer on horticulture to the Surrey County Council, and has served on the Committees of the Royal Gardeners' Orphan Fund, United Horticultural Benefit and Provident Society and the Enham Village Centres for disabled soldiers.

Appointments for the Ensuing Week.—Tuesday, March 28: Royal Horticultural Society's Committee meetings (2 days): first day, Masters' Memorial lecture by Dr. Harold Wager, at 3 p.m.; Bath and West and Southern Counties Society's Council meeting; Cardiff Gardeners' Association's annual general meeting.—Wednesday, March 29: Irish Gardeners' Association's meeting; Elgin Horticultural Society's meeting; Glasgow and West of Scotland Horticultural Society's lecture on "Rock and Water Gardening," by Mr. W. Besant.—Thursday, March 30: Bristol and District Gardeners' Association's meeting; Stockport Horticultural Society's annual meeting.—Friday, March 31: Association of Economic Biologists' meeting.—Saturday, April 1: Paisley Florists' Society's exhibition.

"The Gardeners' Chronicle" Seventy-five Years Ago.—*Horticultural Society's Garden, Turnham Green, March 15.*—The Orchid house here is now beginning to assume a gay appearance, the more favourable influence of longer days and brighter sunshine causing many of that beautiful tribe to come fast into beauty. The greenhouse next the Orchid house is also gay, most of Mr. Fortune's plants in flower having been placed here. Among them were *Azalea obtusa*, whose glowing red flowers have already sufficiently distinguished it to ensure it a place in every greenhouse. Whether or no it may turn out to be hardy has not yet been satisfactorily ascertained, plants of it having been hitherto too scarce to afford of the experiment being made. Associated with it was the beautiful yellow-flowered *Forsythia viridissima*. This has been proved beyond a doubt to be hardy, plants having stood the winter in various aspects without any protection beyond that afforded by the wall on which they have been trained. The Lilac-blossomed *Daphne Fortunei* has also been blooming here since the last meeting of the Society. This has likewise proved itself to be hardy in the open border, the buds being plump and good, and the shoots perfectly uninjured to the very points. *Jasminum nudiflorum* and the handsome *Weigela rosea*, the latter in the border near the Council room, with various Paeonies from Mr. Fortune, have also stood the winter. *Azalea ovata* has sustained no injury as yet, planted out in the American border; and we learn that it has also proved quite hardy in other quarters. In the greenhouse already mentioned was *Akebia quinata*, a brown-flowered climbing plant from hedges in Chusan, just coming into bloom, which, being sweet-scented, promises to become a desideratum; as does also another of Mr. Fortune's plants, in the shape of a double flowered white variety of *Prunus sinensis*, which is now in blossom. *Gard. Chron.*, March 27, 1847.

Publications Received.—*The Rose Annual for 1922.* Edited by Courtney Page. National Rose Society, 25, Victoria Street, Westminster. *Early British Trackways.* By Alfred Watkins. Simpkin, Marshall, Hamilton, Kent and Co., Ltd., London. Price 4s. 6d. net. *Sugar Beet Growing in Michigan.* By J. F. Cox and E. B. Hill. *Dependable Michigan Crop Varieties.* By J. F. Cox, Michigan Agricultural College Experiment Station, East Lansing, Michigan. *Potash.* By Sydney J. Johnstone. John Murray, Albemarle Street, W. Price 6s. net. *Forest Planting in Michigan.* By A. K. Chittenden. Bulletin No. 103; *Rosen Rye.* By Frank A. Spragg. Bulletin No. 105; *Diseases of Bees in Michigan.* By Russell H. Ketyl. Bulletin No. 107; *Fertilizer Analyses.* Bulletin No. 291; and *Quarterly Bulletin*; all from Michigan Agricultural College Experiment Station, East Lansing, Michigan. *Contributions from the Botanical Laboratory of the University of Pennsylvania.* Vol. V., No. 2. University of Pennsylvania, Philadelphia. *Cultural Experiments with Grain Sorghums in the Texas Panhandle.* By Benton E. Rothgeb. Bulletin No. 976. United States Department of Agriculture, Government Printing Office, Washington.

NOTICES OF BOOKS.

Manual of the Trees of North America.*

PROFESSOR SARGENT published the first edition of this book in 1905; the second has recently appeared. It is really a condensation into one convenient volume of his *Silva of North America*, a magnificent work issued between 1891 and 1902, and consisting of fourteen quarto volumes, with 704 plates. It is no doubt, the finest work on trees ever published. In the present *Manual* much interesting information given in the larger work has naturally had to be omitted, and the author has limited himself chiefly to giving a full and detailed description of every North American tree, an enumeration of its various habitats, and a description of its timber and the uses to which it is put. A system of keys is provided which enables one to identify any tree native of North America.

For the lover of trees in North America this work must be indispensable; and in the British Isles, where gardens owe so much to the arboreal vegetation of North America, its value is almost as great. This new edition has been prepared on the same lines as the original one, since the publication of which eighty-nine species of trees and many varieties have been discovered. A few species regarded in the first edition as trees are now considered more properly to be shrubs and are omitted. Thus we find that, according to this work and in Professor Sargent's estimation, there are now seven hundred and seventeen species of trees native of the North American continent, exclusive of Mexico.

An admirable feature of the book is the illustrations of the leaves, flowers and fruits of every species and most of the varieties described. There are 783 of them, reproductions of line drawings made by the late C. E. Faxon and, since his death, by Mary W. Gill. Mr. Faxon was one of the most talented of botanical artists.

There is every evidence that the work of revision has been most carefully done. In the course of many years' study of, and reference to, the first edition, I noted various mistakes, mostly due to printers' errors overlooked in proof reading and other trivial causes inevitable in a work of this character and dimensions. Nearly all these have been detected and made right. The authority for the genus *Malus*, however, is still given as "*Hall.*," when no doubt "*Mill.*" (in abbreviation of Miller) was intended. I am glad to see the old name of *Carya* for the Hickories is restored, displacing *Hicoria*, and that the duplication of one word for the generic and specific names of a tree—resulting in such dreadful combinations as "*Catalpa Catalpa*," and "*Sassafras Sassafras*"—has disappeared. It is gratifying, too, to find that the author has been able to drop the name *Magnolia foetida* for *M. grandiflora*.

In one respect I think the book might have been improved. It would have been a convenience if more well-known synonyms had been given. Professor Sargent follows the Vienna Code of Rules, and this involves the use of many names still unfamiliar. Probably he feels that the sooner all others except those he considers the proper ones are consigned to oblivion the better. At any rate, many names well known and long in use do not appear in the text or in the index. One looks in vain, for instance, for *Pseudotsuga Douglasii* or *Picea alba*; we get instead *Pseudotsuga taxifolia* and *Picea glauca*. To the professional botanist this does not matter, but to the amateur it is a hindrance. However, "popular" or English names are given wherever possible, and in these two cases "*Douglas Spruce*" and "*White Spruce*" point the way.

In his preface to this new edition of the *Manual*, Professor Sargent remarks that it contains the results of forty-four years' continuous study of the trees of North America, carried on in every part of the United States and in many foreign countries, and that if these studies serve to increase the knowledge and love of

trees he will feel that those years have not been misspent. To one like myself, who has had the first edition in constant requisition, that seems a very modest way of putting it. The real fact is, there is no person living who has done so much for tree lovers as the author of this book. When we remember the admirable works he has written, the others he has inspired and edited, the innumerable living plants he has been the means of introducing to our gardens, and his forty years of labour in the Arnold Arboretum, we cannot but be thankful that a man of such genius and powers of work should have devoted his life to our interests. W. J. Bean.

FOREIGN CORRESPONDENCE.

A NEW KIND OF FUEL. (See p. 106.)

In the war years coke was very scarce here, and we heated our greenhouses with briquettes, as used by our steam-trams. The convenience of these tarry briquettes appeared so considerable that we planned to use permanently this kind of fuel, which, however, proved later disappointing! Our heating apparatus was a sectional,

by Hooker. The reason that the famous botanist gave it this name is that when the flower fades there forms in the middle and in the direction of the length of the petal a reddish stripe, so that the corolla presents five such stripes. Those who do not know this truly magnificent plant will never, of course, judging by its name, realise that it has flowers of the purest sky-blue colour. The sky of the Riviera is famous for its deep, intense, pure blue, and often have I looked at the flowers of *Ipomaea rubro-caerulea* against the sky and never saw colours blend so absolutely. The flowers are some ten centimetres in diameter and produced in such numbers as to almost hide the heart-shaped leaves. The flowers open towards early morning and remain open till near evening time, when the above-mentioned red stripes are formed, just before the flower fades. The plant does not survive the winter here, and may be an annual, but it is of very rapid growth and flowers here all through the summer and autumn. Dr. A. Robertson Proschowsky, *Jardin d'Acclimatation Les Tropiques, Nice, France*.

[*Ipomaea rubro-caerulea* formed the subject of the coloured supplementary illustration in *Gard. Chron.*, Feb. 15, 1913.—Eds.]



FIG. 66.—CYMBIDIUM ALEXANDERI, WESTONBIRT VARIETY. R.H.S. FIRST-CLASS CERTIFICATE, MARCH 14. SHOWN BY SIR GEORGE HOLFORD, WESTONBIRT (SEE P. 131).

oval, cast-iron boiler, a "counter-current" system, with central fire and many smoke-canals on two sides of the fire, downwards to the smoke-chamber. After some months the burning of the fuel was less and less satisfactory, and the cleansing of the smoke-canals became gradually more difficult. Needle-sharp, glassy, black cones hung on both sides, like black icicles, into the smoke-chamber. A kind of crystallised asphalt had stopped up nearly half the smoke-canals. The only means we adopt to counteract this result of burning tar-containing fuel with slow draught consists in running off the water and heating the empty boiler, till the glass-hard asphalt is melted and can be scraped out. P. v. B., Wageningen, Holland.

IPOMAEA RUBRO-CAERULEA.

It is well known how very few flowers are a pure blue colour, and that nearly all so-called blue flowers really are not blue, but of different combinations of other colours with blue. When it is considered that several plants with flowers not pure sky-blue have received the name *coelestis*, it seems unfortunate that this *Ipomaea*, probably the most pure sky-blue coloured of all flowers, should have been named *rubro-caerulea*

THE BULB GARDEN.

TECOPHILAEA LEICHTLINII.

This exquisite, Crocus-like, bulbous flower is not generally known to garden lovers, but when once seen its fascinating blue flowers cannot fail in their appeal. The plant is well worth growing and its requirements are simple. When grown in light, sandy loam it is quite hardy, and the best position for it is one facing south, and if a place at the foot of a wall is available so much the better, as the wall affords shelter from cold winds, which prevail when the flowers appear. This *Tecophilaea*, a form of *T. cyanocrocus*, is from 3 to 4 inches high, and has slender foliage. If a sheet of glass is placed on supports over the plants just before the buds open the flowers will last a long while in beauty and will not be splashed during rain storms. Propagation may be effected by sowing seeds, and by means of offsets planted in the dormant season. Bulbs planted about three to four inches deep, in very sandy soil, will flower at the beginning of March in a normal season. R. H. Crockford, Weston Park Gardens, Stevenage.

* *Manual of the Trees of North America (exclusive of Mexico)*. By Charles Sprague Sargent. Second edition. Boston and New York, 1922. Price \$12.50.

The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKEE, Gardener to His Grace the DUKE OF MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Phalaenopsis.—These Orchids are not grown so numerous as formerly, and by many they are considered refractory subjects; still, there are few plants which can compare with them for beauty. They are best grown in baskets or shallow pans suspended from the roof rafters, but not too near the glass, as they are liable to suffer from extremes of heat and cold. Plants that are commencing to make new roots may be supplied with fresh rooting material if necessary. These Orchids are often allowed to suffer for the want of new material, as many growers are afraid to disturb them. Healthy established plants that have roots clinging to the baskets in which they are growing should not be disturbed, beyond removing the old decayed rooting material, and this must be done with care. Specimens in need of fresh receptacles should have any clinging roots carefully detached with the aid of a thin-bladed knife or similar article. Select for each plant a suitable basket or pan, then work the compost carefully amongst the roots, finishing with the crown of the plant slightly higher than the edge of the receptacle. A clean, fibrous compost, with live Sphagnum-moss, provides a suitable rooting-medium. These Orchids are best grown in a house by themselves, where a hot, humid atmosphere may be maintained while they are making their growth; they need a lower temperature and drier atmosphere whilst resting. Having no pseudo-bulbs, every care is necessary at all seasons to prevent any harm overtaking the plants.

Temperatures.—A slight increase in the temperatures of the different houses is now permissible, with a corresponding increase in the atmospheric moisture, according to the requirements of the plants grown therein. The increase in the amount of both warmth and moisture should be gradual until the summer or growing conditions are reached.

Ventilation.—As all Orchids delight in a pure atmosphere, and depend entirely upon the conditions provided for them in their artificial homes, every attention should be given to the admission of fresh air without exposing the plants to draughts.

Shading.—With the sun's increased power shading will now come into general use, but it should not be applied to excess. In the abnormally hot summer of last year the majority of Orchids made robust and perfect growth, which should produce an abundant crop of flowers this season. Heat and light are essential to certain classes of Orchids, and these should be kept apart from the shade-loving kinds, which are incapable of withstanding an excessive amount of light.

THE FLOWER GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

Pampas Grass.—This beautiful plant is worthy of inclusion in all gardens, and now is a suitable time for planting the various kinds. There is no more striking or lovely feature than a fine old-established plant of Pampas Grass on a lawn. Old specimens should be cleaned carefully, and, if it is desired to increase the stock, this may be done now by division of the old stools.

Lobelia cardinalis and L. syphilitica.—A word must be said as to the beauty and utility of these two species for border work, with their fine red and purple colours. The first-named is, however, not very hardy, and is best lifted in the autumn, boxed and wintered in cold frames, and where this has been done, the old

stools may now be replanted. There are some very fine varieties of this plant, and one especially worthy of note is Queen Victoria; this and allied varieties are very useful plants for inclusion in the summer bedding scheme.

Paths and Lawns.—Where it is desired to form new gravel paths, the present is a suitable season of the year to do the work. When the excavation is made for the site of the path, place a thick layer of coarse material, such as small flints, broken brick, etc., in the bottom to act as drainage, for nothing is more annoying than to find water remaining on the surface of paths after heavy rains. Place finer material on this bottom layer, and finish with material of a binding nature to the required level, and roll it well down. Old gravel walks should be renovated; in this case the surface should be well loosened, and the material drawn up to form a slight rise to the centre, before applying fresh gravel, which should be rolled in thoroughly. Bare patches on lawns should be renewed with fresh turf. Lawns from now on require careful and continual attention if they are to be kept in the finest order. Rolling should be frequent; edges should be trimmed with an edging tool, and, where mossy patches exist, the surface dressed freely with fine soil. Before rolling is commenced, the whole of the lawn should be efficiently swept, otherwise stones and portions of branches from trees may get rolled in, only to project again when mowing commences, a happening likely to cause damage to the mowing-machine.

PLANTS UNDER GLASS.

By T. PAULMAN, Gardener to Sir C. NALL-CAIN, Bart., The Node, Codiote, Welwyn, Hertfordshire.

Trachelium coeruleum.—The blue Trachelium is a most useful plant for the greenhouse and house decoration. Seedlings raised from seeds sown last July that have been growing steadily require their final potting. Where large specimens are required they may be repotted in as large receptacles as needed, up to 12-in. pots, but plants in 6-in. or 7-in. pots are generally the most useful. Large plants may be obtained by liberal feeding of the roots as soon as the latter are in a condition to assimilate plenty of food. Tracheliums will thrive in almost any soil; a mixture consisting of three parts loam and the remainder leaf-mould and manure from a spent Mushroom-bed will suit them admirably.

Ruellia macrantha. This plant is a useful flowering subject during the winter for the warm greenhouse, and will also be found excellent for grouping in warm corners of the house, but will not succeed in draughty corridors. Cuttings inserted now will make fine plants by the autumn. They should be grown on in 6-inch pots, and will make fine, bushy specimens, provided the shoots are pinched once or twice during the growing season. Rich, open loam mixed with a little peat and leaf-mould and a good dash of sand provides a suitable compost for these plants. During their growing season they should be placed in a house having a fairly high temperature, such as where Melons are grown.

Euphorbia jacquiniæflora.—Stock plants of this Euphorbia that have been cut back and rested as previously advised, may be stood in a warm house to encourage them to break into growth, with a view to obtaining cuttings for next season's plants. Syringe the plants frequently on bright days to encourage them to break freely. Plants of Euphorbia pulcherrima, which is better known in gardens as Poinsettia pulcherrima, may also be stood in a warm house and given the same treatment, with a view of obtaining suitable shoots for use as cuttings. The pink Poinsettia Trebstii and the white form may be left in their resting quarters for several weeks, as these plants break into growth more readily and root more freely than those of the red variety.

Shading.—The blinds should now be fixed to the conservatory and other plant houses, for plants in flower and others growing in small pots require protection from the direct rays of the sun.

THE KITCHEN GARDEN.

By JAMES E. HATHAWAY, Gardener to JOHN BRENNAND, Esq., Baldersby Park, Thirsk, Yorkshire.

Herbs.—If it is desired to increase the stocks of Sage and Thyme, the plants may be propagated from cuttings inserted now under a bell glass in a shaded position. The cuttings will root quickly. Mint, also, may be struck this way. Sage is much better increased from cuttings than from seed, as many of the seedlings run to flower.

Parsley.—This herb is always in demand, and a sowing should be made in a long drill near the edge of a path, where the leaves may be gathered easily. The ground should be dug deeply; light land should have plenty of manure added to it. Soot should be scattered on the land and raked in before sowing the seed, and light dressings of this material should be applied once a fortnight afterwards.

Rhubarb.—Fresh plantations of Rhubarb should be made now. Few other crops pay better than Rhubarb for generous cultivation, which does best in light soil that has been trenched deeply and manured. In the case of heavy land old garden refuse and leaf soil should be dug in to lighten it. Crowns that do not show a tendency to flower should be selected and planted singly. Plenty of space should be allowed between the rows, for, if planted too closely, the sticks will be poor and weak. Make the rows 5 feet apart, and allow a space of 4 feet between the plants in the rows. Work the soil well around the crown and make it firm, leaving the tip of the crown just showing through the surface. Stalks should not be pulled from the plants in their first year after setting, but flower stems should be cut off as soon as they show. A mulching of half-decayed manure should be put around the crowns before dry weather sets in. Daw's Champion is one of the best varieties. The leaf stalks are a beautiful colour when forced.

Carrots.—Where Carrots are required for exhibition in early autumn seed should be sown now. To ensure well-shaped roots make holes about 2 feet to 3 feet deep according to the type grown, and fill them with fine, light soil. Sow a few seeds at each station, and subsequently thin the seedlings to one. Exhibition Carrots should be grown in rows made 20 inches apart, allowing a space of 1 foot between the plants in the rows.

Globe Artichoke.—The protecting material should be removed from Globe Artichokes, and the ground between the rows well manured and dug. Plants that have failed should be made good by planting suckers which have been potted up for the purpose in the previous autumn. Fresh plantations should be made during the next week or two on ground that has been well trenched. Very heavy land should have plenty of sand or roadside grit well worked into it. Plant suckers that were potted in the autumn in rows made 3 feet 6 inches apart and allow a space of 3 feet between each plant in the row; if pot plants are not available use suckers from the old plants in the bed. Slugs are often troublesome to Globe Artichokes; soot or lime should be dusted around the plants, a dressing of ashes also tends to keep them away. Large Green Globe is the best variety.

HARDY FRUIT GARDEN.

By H. MAREHAM, Gardener to the EARL OF STRAFFORD, Wrotham Park, Barnet.

Orchards.—Large trees that have borne good crops of fruit annually should be top-dressed with rich farmyard manure and fed with liquid manure. Our best Apples at Wrotham are produced on trees planted in a grass orchard; the grass at all times is kept very short, and poultry have a free run beneath the trees, the manure from the birds being washed well down to the roots by the rains with gratifying results.

Wall Trees.—As the soil about the roots of wall trees is very apt to become hard through the grower treading on it whilst training and

CHINESE SHRUBS AT ALDENHAM.

(Continued from page 123.)

LONICERA MAACKII was introduced by Wilson in 1900, but had been known before that year, for plants were sent to St. Petersburg from Manchuria in 1880. It is a strong, almost rampant-growing, bush Honeysuckle; specimens at Aldenham raised from Wilson's seed have attained a height of 10 feet. When allowed sufficient room to display its spreading branches, it is a beautiful object, either in flower or fruit, the latter being red and produced in great numbers. It is, however, necessary to add the caution that no shrubby Honeysuckles can be depended on to fruit with the same constant profusion in our English climate as they do in the United States, where, whatever else they may have to put up with, gardeners do not suffer from frosts after winter is over. *L. nitida* (see Fig. 67) is

The handsome, dark green foliage and bright yellow flowers are most pleasing, and this Chinese form will prove a valuable garden addition to the genus. Although native of a high altitude and much harder than *P. nepalensis*, *P. concolor* is not quite hardy in Hertfordshire. A few winters since a big established plant was killed to the ground, though it sent up root suckers freely the next season, nevertheless, it is quite hardy enough to make it worth growing in the open even in a cold district such as Aldenham, whereas *P. nepalensis* would not survive two winters there without wall protection.

STAPHYLEA HOLOCARPA and its variety *rosea* are both perfectly hardy, and grow freely, either in bush or standard form. Mr. Wilson informed me that they are both very attractive in flower. When of sufficient age to blossom freely the tree form would undoubtedly prove very ornamental. *A. E. Thatcher.*

(To be continued.)

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER CLAY M.P., Ford Manor, Lingfield, Surrey.

Cucumbers.—Where the winter plants have failed, an early start with stout young plants is of great importance. The cucumber delights in a compost of rich, turfy loam, a little leaf-mould and rough lime rubble. Good drainage is essential as the plants need an abundance of water. Do not use manure in the compost, or for mulching, as it encourages worms, and does not promote steady growth that is secured by the use of constant supplies of warm diluted liquid manure, soot water and guano water. If other operations are well timed the hillocks of soil placed about four foot apart will be warmed through by the time the first rough leaves appear, therefore as root-bound seedlings are of little use, planting should not be further delayed. Place a straight stick from the compost to the trellis, turn the plants out of their pots, cover the roots with warm soil, and water the latter. The heat from the pipes and bed combined should warm the soil to 80°, with an atmospheric temperature of 66° to 70° by night, and 75° to 80° in the day, this being the greatest amount of warmth that should be permitted when the sun is shining.

Thinning Fruits.—Judicious thinning of the various kinds of fruits reacts beneficially on the size and quality of those that are retained, for the crop, and colour is rarely perfect when the quality is only second rate. Grapes, Peaches, Figs and Melons should never be overcropped. Large crops of Peaches and Nectarines appear to be fairly satisfactory until the stoning stage is reached, but later they remain small and lack colour. The inexperienced grower who fails to thin these fruits, and, after stoning, that they drop, until the tree is furnished with less than half a crop, and these seldom finish well, for the mischief has been done, giving the tree a check at a critical stage. The same is true of forced Figs; each well-ripened shoot of a Fig tree will produce three times as many fruits as are required, and if they are all left to swell a large percentage is sure to drop at the period of the final swelling, and often all are lost in this way. Bad culture may sometimes have something to do with this defect, but in many instances it may be traced to over-cropping. It is impossible to say how many bunches a healthy vine should be allowed to carry, for one must not overlook the fact that under-cropping is as big a fault as over-cropping. It is safe to reduce the bunches to one on each spur, and this would give a very heavy crop indeed; generally one-third of the bunches should be removed, as soon as the best bunch can be determined. Thinning the berries of Grapes is a tedious operation, and requires practice with the different varieties. The proper time to thin is immediately after all free-setting varieties have finished flowering. Muscats and others which require artificial pollination need a little more time. Lady Downe's, Gros Colmar, and other winter Grapes should be thinned until there is no danger of the berries "binding." Early and summer Grapes that are under-thinned do not suffer so much as the preceding.

FIG. 67.—*LONICERA NITIDA*.

one of the most useful of evergreens, which has, I believe, been employed very successfully as a hedge plant. As a single specimen it grows about 5 feet high and as much in diameter. *L. pileata* is a low-growing evergreen of neat appearance, and well suited for the rock-garden, or as a choice ground cover. It is apparently happy in partial shade. The foliage is larger, and the growth flatter, than that of the preceding, but both alike bear purple fruit, though the latter produces them the more freely. They are closely related botanically. *L. Standishii lancifolia* is a narrow-leaved form of this winter-flowering shrub, and a welcome addition at this time of the year. It is very sweetly scented, and flowers freely in January and February. Although having no special claim to beauty, *Lonicera prostrata* has a most pleasing habit, and is admirably adapted for rock-work planting. It is particularly good when seen, as at Aldenham, scrambling over large rocks on the edge of a stream.

PIPIANTHUS CONCOLOR. To the ordinary observer this species differs in no respect from the well known *P. nepalensis*, which is only hardy in the more favoured parts of this country, but *P. concolor* has proved quite a success at Aldenham, where it has grown and flowered freely as a bush in a very exposed situation.

TREES AND SHRUBS.

AZALEA PROCUMBENS.

It is regrettable that this plant should be so intractable in gardens, yet so abundant in the wild state. The species was the original *Azalea* of Linnaeus; it is now known as *Loiseleria procumbens*. The rose pink coloured, bell-shaped flowers are regular, and the seed vessel is rarely more than two to three celled. In Britain it is confined to the high Scotch alps, and wherever I have seen it, the situation was fully exposed to sun and wind. On a level plateau, at an elevation of 2,500 feet, where it covered many square yards, the peaty soil was very shallow and hard, while the plant covered most of the space with a close evergreen carpet. Evidently the compact soil and the exposure were to its liking, for it flowered and fruited freely. These conditions could not be imitated in lowland gardens, because the soil would get too dry in summer. I have seen *Azalea procumbens* planted to face the east, and also where it could get no sunshine till late in the afternoon; yet it made no visible progress, although various other mountain plants grew freely in the sod brought from the native habitat of the *Azalea*. The small leaves, revolute at the margins, can carry on transpiration in spite of heavy dews and mists. *J. F.*

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 5, Tavistock Street, Covent Garden, W.C.2.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.

Editors and Publisher.—Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication or referring to the Literary department, and all plants to be named, should be directed to the EDITORS. The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.

THE ORCHARD AND FRUIT GARDEN.

THIS is by far the best of the series (see p. 78), and exhibits Mr. McIntosh as a remarkably well read man in the literature of gardening, but also as possessed of a degree of education extending to a knowledge of Latin and of ancient writers in that tongue which would be regarded as uncommon among gardeners at the present day. He is probably only one among the many early Victorian gardeners who filled a position that few, if any, are called upon to occupy in the present Georgian period.

In the course of his review of the history of the various fruits treated of in *The Orchard and Fruit Garden*, McIntosh mentions familiarly nearly all of the early writers on Pomology, and quotes extensively from their works to illustrate and enforce his own propositions. Lists of fruits, unlike those of plants in previous volumes which were merely names of varieties, are in this volume select and reduced to moderate proportions. It would extend these notes beyond the necessities of the case to mention all the fruits treated more or less fully, and therefore only the more important will be chosen.

The fruits are arranged in alphabetical sequence which is followed here. Of Apples, 136 varieties are named and described, and the descriptions, as one might expect, are not copied from *The Practical Gardener*, but are re-written. Naturally there are many varieties which have passed out of cultivation, but there are also large numbers that still are grown. The Golden Pippin held its own as first among dessert varieties, only in estimating its qualities at the present day it should be noted that it required a fine season to bring out the unique flavour that an earlier generation did not find in newer varieties. Ribston Pippin, Claygate Pearmain, Irish Peach, Reinette du Canada, Court-pendû-plat, Blenheim Orange and Gravenstein are a few well-known sorts that were recognised as indispensable at the beginning of the Victorian era. The King of the Pippins of McIntosh is the one grown still by that name.

Were one given to conceit, such instructions as McIntosh gives would demonstrate how vain it is to imagine that anything new is to be discovered in practical gardening. In planting, the author notes that it is no benefit to a tree to preserve the small fibres, and that it is beneficial to root prune at intervals of five or six years. The reduction of fruit at a young stage to a moderate crop is recommended, both because it is a means of producing a finer sample, and because it ensures a constant crop, year after year. He also notices that some varieties were immune from the attack of American blight, which was found only on certain varieties of Apples. Types of stocks, methods of propagation, grafting, budding, etc., are very fully described and illustrated.

Only eight varieties of Apricots are recommended, and of the stocks used he strongly favours the "Muscle" Plum. The sudden decay of branches is attributed to electrical shock, and the routine management is similar to that followed by experienced cultivators at the present day. Gathering the fruit previous to

maturity is also noted. It is asserted that the name Apricot was first applied in 1782 by a gardener named Kyle, of Moredun, near Edinburgh. An anecdote from the French relying for its wit on the French name of the tree is recorded, and may be worth reproducing:—

"Après la mort de Louis XI., au commencement de la régence de Mme. de Beaufeu, plusieurs personnes furent disgraciées: entre autres Cotier, premier médecin du feu roi, qui s'applaudissant d'être échappé de cette cour orageuse, fit sculpter sur la porte de sa maison un abricotier avec cette inscription 'A l'abri Cotier.'"

Of Cherries, all are old varieties, 15 being named and described, and nothing worthy of particularising occurs, while other kinds may be passed over till we arrive at the Fig, of which twelve varieties are named, the descriptions being not always correct, as we know them. Moreover, the culture is scarcely so good as we should expect, the method of propagating by eyes being unknown, as likewise the stopping of shoots in early autumn to ensure a crop the next year. In a brief chapter on Filberts the author informs his readers that anciently they were eaten after fish, and quotes a Latin saying:—"Post pisces nuxes, post carnes caseus adsit." In the lists of Gooseberries are such well-known sorts, as Crown Bob, Roaring Lion, Red Champagne, Warrington, Sulphur, Glenton Green, Hedgehog, Green Gascoigne and Whitesmith.

Of Melons, 19 kinds are described. These were cultivated entirely in pits or frames heated by manure and leaves, entailing a vast amount of labour extending from the marshalling of the material, till its removal in an exhausted condition to the kitchen garden quarters. We are informed that some growers carried Melon seeds in their pockets for weeks or months previous to sowing, in order to induce fruitfulness, and other methods equally satisfactory to the grower were practised. The small Early Cantaloupe was grown extensively round London in beds sunk in the ground filled with hot manure, and covered with hand glasses, and even in the open. They were also grown for a time in pots and in baskets. Nothing is said of canker in the stem, but it was known in the branches and in the fruit. Thrips and red spider were the insect pests of the period.

McIntosh esteemed the Pear next to the Apple in value as a British fruit. Seventy varieties are named and described, a goodly number of which are still in cultivation. Such are Beurré Diel, Beurré Rance and Beurré d'Aremberg, Brown Beurré, Beurré Capiaumont, Catillac, Duchesse d'Angoulême, Easter Beurré, Hacon's Incomparable, Jargonelle, Marie Louise, Williams' Bon Chrétien and Winter Nelis. Brief historical notes are included in the descriptions, and the proper stocks recommended to give the best results. Double grafting is noted as productive of an earlier bearing condition, and heading down old trees as a certain method of renewing fruitfulness. He accords to Forsyth the discovery of this cultural procedure which, no doubt, is effective for a time. Regrafting is also mentioned for the same purpose. Another system was to cut back all old spurs to the branch from which they sprang—valuable alike for Apples and Pears. The root pruning of old trees is also recommended, but it is a dangerous operation for old Pears.

The chapter on the Peach is a lengthy one, 26 varieties being noted, Bellegarde, Noblesse, Grosse Mignonne, Late Admirable and Royal George being the best known, and of the 16 Nectarines, Elruge, Pitmaston Orange and Violette Hâtive. There is also a list of introductions from America, but none of these has survived. Several pages are filled with the opinions of various cultivators. One of the most important matters treated of is the early thinning of the fruit, which it would appear was neglected to a large extent. "Hot walls," that is walls heated by means of flues, were not yet out of fashion, but McIntosh recommended their assistance only to ripen late varieties and the young wood. For forcing under glass the structure recommended was to

be no more than five feet wide, the trees to be trained to the back wall.

The Pineapple follows, of which 30 varieties are described. Of this chapter it needs only be noted that the author records "two curious paintings, representing Rose presenting a Pineapple to King Charles." He mentions also a painting preserved at Cambridge in which a Pineapple produced in the garden of Sir M. Decker, of Richmond, is depicted. The author, after referring to various authorities, regards this as being the first Pineapple produced in England. The Plum occupies only a few pages, 36 varieties being described. Green Gage, Coe's Golden Drop, Kirk's, Washington, the Magnum Bonums, Goliah and Orleans alone surviving.

Of all fruits the advance shown by the Strawberry has been the greatest. Of the 21 varieties named I possess only one, the Grove End Scarlet, but probably few besides myself grow it. The author says it is "large," yet it is because of the smallness and the colour of the fruit that, where it exists, it is retained for preserving.

The list of fruits closes with the Grape Vine. Black Hamburg, Black Prince and Muscat of Alexandria only of the 21 sorts named being now in general cultivation. It is noted that the Hampton Court Vine produced annually 2,000 bunches, totalling 2,000 lb.; the Cumberland Lodge Vine, a nearly equal quantity, and that of Valentine's, near Ilford, similarly. When I saw the last-named, now a number of years ago, it was reduced to a few feet of stem. It is interesting as being the parent of the Hampton Court Vine. These and other old Vines are remarkable for virility and fecundity. The Tynningham Muscat growing here was introduced about the year 1760, and on many of its shoots three clusters are shown; last year bunches up to 3 lb. weight were produced. Owing to the light soil the berries are smaller than they would be on a strong loam, and consequently the clusters would weigh even more on such a soil.

The volume under consideration contains many engravings descriptive of fruit culture of the period. The training of fruit trees was quite a science, and a science which young gardeners seem to have no wish to master. Indeed, there are gardeners who ridicule perfect training as a waste of time. There are also many coloured plates of various fruits, some of which can scarcely be equalled, Currants, Nectarine, Apricot, Peach (Noblesse), Washington Plum and Green Gooseberries being the best. There is also a pretty vignette of various fruits and a frontispiece that adds no credit to the volume. R. P. Brotherton.

MR. KINGDON WARD'S SIXTH EXPEDITION IN ASIA.*

No. 11.—SOME CHINESE PRIMULAS—A DIGRESSION.

It does not fall to the lot of every man—and not even to a plant collector in China every day—to find seven Primulas in the course of a day's march. That was my luck on June 3. True, only five of them were in flower; but it required no esoteric imagination to picture the other two, whose corpses strewed the slopes, one of them being a Capitata and the other P. Littoniana, or more probably a geographical variety, since it was found on the opposite side of the Yangtze to its prototype; and what we know of the distribution of Primulas in far western China leads us to expect some degree of variation in plants found on opposite sides of that gulf.

And yet these two species were not quite corpses after all, for I extracted a few seeds from their skeletons. They would not flower for another six weeks at least—this year's bud was barely visible underground.

* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 23, August 20, September 3, October 8, October 29, 1921, January 7, January 31, and March 11, 1922.

It is becoming more difficult each year to find distinctively new *Primulas*, even in prolific Yunnan. And yet there must be scores more hidden away, waiting to be discovered. Assuredly they will be disclosed in time, only the pace is slower, that is all. Meanwhile, geographical varieties, types, etc., and new species, which superficially are old species, continue to arrive. So far as appearance goes, it makes little difference whether we grow *Primula Beesiana* or *P. burmanica* in the garden; *P. helodoxa* or *P. chrysoclora* (only the latter is not in cultivation), *P. malacoides* or *P. Forbesii*, *P. secundiflora* or *P. vittata*. However, convincing reasons are given for their distinction.

Botanists have multiplied the *Primulas* and not increased the joy. But I say deliberately, "so far as appearance goes." The minute distinctions between two very closely allied species are merely what we see. We know nothing of what they stand for, and yet they probably connote some invisible difference. They may

violet flowers and abundance of silver green meal. We had reached 10,000 feet by this time, and the crimson *Primulas* were beginning to be replaced by species with blue and violet flowers.

This last is probably a new species. It grows on limestone outcrops in open spaces in the forest, being rather abundant in certain spots. It is not above 9 inches high, with as many as fifteen flowers in the umbel. The leaves are brilliantly silvered beneath, and there is a powdering of meal on calyx and pedicels; add to which the plants are fragrant. The colour varies, being often lilac.

A climb up to the jagged precipices above the forest next day brought to light yet another two species of *Primula*, one of them being also a *Nivalis*, a section which apparently flourishes in this region.

This *Nivalis* had larger flowers in smaller umbels, not above four or five flowers, of a violet or purple shade, with white eye. The leaves are bright silvery white beneath, and,

NEW OR NOTEWORTHY PLANTS.

PIERIS TAIWANENSIS, HAYATA.

THE Marquis of Headfort showed a plant of this new and beautiful species of *Pieris* (Fig. 68) at the R.H.S. meeting on Tuesday, March 14th. It was raised from seed collected by Mr. E. H. Wilson in Formosa during his visit to that island in 1918. It is an evergreen shrub with perfectly glabrous young shoots and leaves. The latter are leathery in texture, oblanceolate to oval, tapered towards both ends, bluntish at the apex, shallowly toothed, 1 to 3 inches long, $\frac{1}{2}$ to 1 inch wide, deep glossy green. The flowers appear in a terminal cluster of racemes or panicles, each of them 3 to 6 inches long, minutely downy, the flowers nodding. The corolla is pure white, pitcher-shaped, $\frac{3}{4}$ inch long, $\frac{1}{4}$ inch wide, with five small, slightly reflexed lobes at the contracted mouth. The sepals are normally five, but sometimes reduced to four or three by the union of one or two



FIG. 68. *PIERIS TAIWANENSIS*. R.H.S. AWARD OF MERIT MARCH 14. SHOWN BY THE MARQUIS OF HEADFORT.

be correlated, with differences of constitution, immunity, fertility, or other abstraction; the outward and visible sign of some internal change which we can only discover empirically. Thus, even in the interests of horticulture, quite apart from the scientific (or, I should say rather, academic) interest of geographical races, and so on, it behoves us to secure the best of each species, which is only to be achieved by repeated trial.

But about these seven *Primulas*. The first was in the way of *P. lichiangensis*, but on a smaller scale—a jolly little plant just coming into flower in the deep and dark bed of the stream. The second was *P. Littoniana*, or near to it. The third and fourth were the two *Candelabras* of the marshes, both crimson, and already referred to in these notes. One of them appears to be *P. Poissonii*; the other I have not seen before. The fifth was—well, I do not know what the fifth was, as I have never seen anything like it. We found a single plant smothered in small, crimson flowers, the habit being that of a *geraniifolia*. The sixth was the corpse of a *Capitata*; and the seventh was a lovely *Nivalis* form, with

as usual in the section, there is a coating of meal inside the calyx, which shines through between the teeth. The plant was not exactly common on the precipices, always occurring singly; but we found perhaps a score just in this district.

The weather was so bad this day, with dense mists and slashing rain, that we were rather afraid to venture far amongst these frightful precipices, or we might have found more. As for the other species just hereabouts, it was quite rare—I found but three plants. It was not apparently a *Nivalis*, being entirely without meal, save for a spot in the centre of the corolla, which gave it a white eye. The flowers, though small, are a fine rich purple, darker than the darkest purple met with in the preceding species; the tube, on the other hand, is crimson. Both species grew in sheltered nooks and crevices on the crags, and there were signs that they crossed with each other, though that is hardly likely, unless they were both *Nivalids*.

I thus found nine *Primulas* in two days, and am hopeful of finding more in the immediate future. F. Kingdon Ward.

pairs; ovate, green, glabrous, $\frac{1}{4}$ inch long. The stamens are white, 1-10 inch long, thickened towards the base, downy at the base; anthers, brown; style, 1-5 inch long. I cannot find that either Hayata or Wilson have recorded the height of this shrub in a wild state, but it is probably from 5 to 8 feet high.

It is too soon yet to say anything definite as to its hardiness. Lord Headfort's stock of plants has, I believe, been grown and brought into flower in a cold frame, but small plants at Kew have passed through the last two winters in the open without injury. That, however, has not constituted a real test of hardiness. There is little doubt that the species will be hardy in the maritime counties of the south and west at least, and that it will make a lovely addition to the *Pierises* that are already cultivated there. Compared with *P. japonica*, which is now in flower, it has the merit of holding its racemes more erect, and thus shows the blossoms to better advantage. Of the older species it is probably allied most closely to *P. formosa* from the Himalaya, but that has much larger leaves of lanceolate shape, with smaller, sharper teeth. W. J. Bean, Kew.

THE ROSE GARDEN.

SEASONABLE WORK.

WHERE protection has been afforded Tea and Hybrid Tea Roses during the winter, the material may be removed at the end of the present month. Pruning of the Hybrid Perpetual group may be commenced, but the trimming of the plants of other sections, such as Teas and H. T.s, should be deferred until a little later. In pruning, do not hesitate to cut the shoots well back, especially those of newly-planted Roses, which need severe pruning their first season; it is not too much to shorten them to within two or three eyes from the base. This treatment will go a long way towards ensuring the future success of the plants. Remember to prune to an outward eye, so that the growth is from the centre of the bush. With older plants, first thin out all weak and worn out growths, and thereafter prune back the shoots of the previous season to three or four eyes from the base. The great object in thus dealing with Roses is to promote healthy growth, encourage them to grow in a good shape, and secure new growths from the base to replace, in due course, the older ones. The foregoing remarks apply to Roses grown for general garden decoration, but where the object of the grower is to have exhibition blooms, even more severe cutting back is desirable, and shortening to two buds is not excessive. H. T.s do not require such hard pruning as the others.

Standards should be treated somewhat similarly, but care should be taken not to damage the shapeliness of the head. Dwarf Polyantha Roses may be cut hard back in the same way if small plants are desired, but should large specimens be desired, then only the old wood should be cut hard back, merely shortening the shoots of last season a little.

Whilst dealing with Roses, it is well to consider the many lovely species of Rosa that are available for garden decoration. There are several that are well worthy of inclusion in the shrubbery. Rosa nitida, for instance, always looks well with its bright red wood, the year round, and being of fairly short growth forms an ideal front row plant. Rosa Moysesii, with its beautiful dark red flowers,

that are followed by fine red fruits, is another species that should be planted. Being of sturdy habit, the plant requires looping to a stout stake to show it at its best. R. sericea pteracantha, a variety that bears remarkable translucent bright red spines, always stands out clearly in its beauty amongst other shrubs, nor must we overlook the claims of such as R. Willmottiae, with its beautiful purplish rose flowers, R. Helenae, with its wonderful trusses of extremely fragrant pale pink or white flowers that are followed by scarlet fruits; and R. Prattii, a species with deep rose-pink flowers and conspicuous red wood, that makes it so useful for giving colour in the garden in winter. Many more could be named, and there are also many that form fine subjects for the wilder parts of the garden, where they can be allowed perfect freedom of growth, rambling over masses of piled tree roots, or growing happily over other supports.

Where Violas are used for carpeting Rose beds, the plants may now be set out in the open in well favoured districts, though where weather conditions are likely to be adverse to tender vegetation, it will be as well to defer their planting until the season is more advanced. E. B.

ORCHID NOTES AND GLEANINGS.

ODONTOGLOSSUMS WITH BRANCHED SPIKES.

THE white form of Odm. ardentissimum, shown by Messrs. Charlesworth and Co., with a tall branched spike of about seventy flowers, at a recent R.H.S. meeting, is an example of the habit of most Odontoglossums and Odontodas which, having produced a simple inflorescence in their earlier flowerings, on reaching maturity generally develop branched spikes of many rather smaller flowers, the lack in size being amply compensated for by the graceful, branched display. The branched spike is not a fixed character, as the plant may again return to the single spike with two rows of flowers, and indeed when such plants are divided and the portions potted as single specimens, they invariably do so unless there are branched species in their ancestry.

NEW HYBRIDS
(Continued from February 25, page 92.)

Name.	Parentage.	Exhibitor.
Angulo caste Sanderae ...	Anguloa Clowesii x Lycaste Skinneri alba ...	Sanders.
Cattleya Mrs. Barry Cooper ...	Pabia alba x Schraderae ...	Sanders.
Cymbidium Bullfinch ...	Garnet x Alexanderi ...	Sir G. Holford.
Cymbidium Curlew ...	Butterfly x Alexanderi ...	Sir G. Holford.
Cymbidium Eagle ...	Alexanderi x Gottianum ...	Sanders.
Cymbidium Garnet ...	Pauwelsii x Scamew ...	Sir G. Holford.
Cymbidium Petrel ...	Pauwelsii x Garnet ...	Sir G. Holford.
Cymbidium Pipit ...	Gottianum x Miranda ...	Sir G. Holford.
Cymbidium Wigeon ...	Dryad x eburneo-Lowianum ...	Sir G. Holford.
Cypripedium Ada Watson ...	The Baron x Tracey ...	Sir H. S. Leon.
Cypripedium Aesmanii ...	Aeson giganteum x Beekmannii ...	P. Smith, Esq.
Cypripedium Chrysotoim ...	Christopher x Pyramus ...	S. Gratrix, Esq.
Cypripedium Crusader ...	Julian x Lucifer ...	Sir G. Holford.
Cypripedium Constance Wrigley ...	Minos Youngii x insigne Harefield Hall ...	Mrs. Bruce & Miss Wrigley
Cypripedium Ethiopium ...	Parkerianum x Hera Euryades ...	Mrs. Bruce & Miss Wrigley
Cypripedium Glaucible ...	Invincible x glaucophyllum ...	Mrs. Bruce & Miss Wrigley
Cypripedium Glaucus ...	Thompsonii x glaucophyllum ...	Mrs. Bruce & Miss Wrigley
Cypripedium Haro ...	Invincible x insigne Harefield Hall ...	Mrs. Bruce & Miss Wrigley
Cypripedium Helen Walker ...	Constance Wrigley x Earl Tankerville ...	Mrs. Bruce & Miss Wrigley
Cypripedium Leopard ...	Mrs. Wm. Mostyn x triumphans ...	Mrs. Bruce & Miss Wrigley
Cypripedium Merlene ...	Selene x Lord Wolmer ...	Mrs. Gratrix.
Cypripedium Mons. Clemenceau ...	nitens Leeanum x Tracyanum ...	Mrs. Bruce & Miss Wrigley
Cypripedium Noel ...	insigne Berryanum x keighleyense ...	Mrs. Bruce & Miss Wrigley
Cypripedium Quindunc ...	Thompsonii x Beryl ...	Mrs. Bruce & Miss Wrigley
Cypripedium Ranelagh ...	villosum x Beryl ...	Mrs. Bruce & Miss Wrigley
Cypripedium Shadrach ...	Thompsonii x insigne Harefield Hall ...	Mrs. Bruce & Miss Wrigley
Cypripedium Spotted Snake ...	Beekmannii x Thompsonii ...	Mrs. Bruce & Miss Wrigley
Cypripedium Vestal ...	Jathanianum x villexul ...	Mrs. Bruce & Miss Wrigley
Cypripedium Vivid II ...	Thompsonii x villosum ...	Mrs. Bruce & Miss Wrigley
Cypripedium Tewne ...	Draco x Alcibiades Westonbirt var ...	Hon. R. James.
Laelio-Cattleya Emma ...	L.-C. eximia x C. Bowringiana ...	Mrs. Bruce & Miss Wrigley
Laelio-Cattleya Idona ...	L. pumila x C. O'Brieniana ...	McBean
Laelio-Cattleya Peter Pan ...	Wrigleyi x Gottianna ...	Mrs. Bruce & Miss Wrigley
Laelio-Cattleya Phueas ...	Phoenix x St. Gothard ...	McBean.
Laelio-Cattleya Sahara II ...	C. Enid x L. Cowanii ...	Mrs. Bruce & Miss Wrigley
Laelio-Cattleya Sladdenii ...	C. Octave Doin x L.-C. Bella ...	C. Sladden, Esq.
Miltonia Lord Lambourne ...	unrecorded ...	Charlesworth.
Odontoda Viscount Lascelles ...	Odm. Aglaon x Oda. Madeline ...	S. Gratrix, Esq.
Odontoglossum eximatum ...	eximium x maculatum ...	Charlesworth.
Odontoglossum leightonense ...	Promerens x Rossi ...	Dr. R. N. Hartley.
Odontoglossum Mavis ...	Lawrenceanum x Vuylstekeae ...	Sanders.
Odontoglossum Miresium ...	eximium x mirum ...	Sanders.
Rolfara Saxil ...	S.-C. Saxa x B.-C. Ilene ...	Mrs. Bruce & Miss Wrigley
Sophro-Laelio-Cattleya Prudence ...	S.-L. Orpetil x C. Fabia ...	Sir Geo. Holford

THE FLORISTS' TULIP.*

(Continued from page 128.)

THE garden Tulip was therefore "a made flower" as early as the 14th century, and we have little chance of doing more than guessing at its origin. Once made known, its spread in Western gardens became rapid; by 1629 Parkinson enumerated about 140 varieties grown in English gardens, and a few years later began the famous Tulip mania in Holland. At the outset of the mania the high prices represented the genuine enthusiasm of the planters, but at its height they were the outcome of pure speculation—the bulbs had little more signification than railway scrip or rubber shares, or any other counters with which men gamble. It is reported that 3,000 florins were offered for two bulbs of Semper Augustus; finally, the bulbs were sold by weight, and there is an auction record of 510 florins per azen (rather less than a grain) being paid in 1637. But long after the mania ceased florists were accustomed to pay good prices; about the 'thirties and 'forties of last century in London it was no uncommon thing to find a Tulip priced at £100, and a Mr. Davey, of Chelsea, refused £172 10s. for La Joie de Davey—a short-lived joy, for the variety never made an enduring reputation.

We now turn to garden Tulips as we know them. In the first place they may be divided pretty sharply into the early sorts, used for bedding and decoration, and flowering in the open about the middle of April; and the late sorts, which flower from the middle to the end of May. They have much in common, but the florists have always concerned themselves only with the late sorts. In order to understand the classification it is necessary to examine a flower or two. If we take a common pink Tulip we notice first that at the base of the flower round the stigma there is a more or less circular patch of a different colour, white or tinged with blue. Detach a petal, and with a little management we find that from both inside and outside we can strip off a thin skin, and that the pink colour resides in the skin, leaving a white tissue between. If we deal similarly with a scarlet or a bronze Tulip we can equally strip off the pink or purple skins and find between them a yellow foundation. Here, then, we have the first great division, yellow grounds and white grounds, overlaid with a skin which may be of any shade of pink, crimson or purple. Pink to purple Tulips have white grounds, the same skin colours on a yellow ground give rise to shades of scarlet, bronze and brown. Most Tulips are self-coloured, but those the florist chiefly esteems are marked or striped in ways to be considered later, either with shades of pink, crimson or purple on a white ground, or with brown on a yellow ground. How do these markings arise? This is a special peculiarity of the Tulip, which makes it unique among flowers.

When a seedling first blooms, some five to seven years after sowing the seed, it is self-coloured, and the offsets it throws are just like it, to whatever extent it may be multiplied. But sooner or later, it may be after two or three years, it may be after twenty, without any warning or apparent cause some of the flowers will be found to have become striped, as though the colouring matter in the skin had segregated into particular streaks or patches, leaving the white or yellow ground to show through in the other places. We call the self-coloured form a "breeder," and the marked form "broken" or "rectified." The offsets from a broken bulb are also broken and never revert to the breeder. All the bulbs of a particular variety do not break at the same time, so that we may have both breeder and broken forms growing together; some break more readily than others, and some soils seem to induce breaking, but the breaking habit is inherent in all garden Tulips, little as it is desired in some varieties. What is the cause we cannot even surmise, it only occurs with Tulips, and it is quite out of control.

(To be continued.)

* A lecture delivered by Sir Daniel Hall at a recent meeting of the London School Gardening Association.

WINTER-FLOWERING CARNATIONS.

EVERY Carnation grower has, at some time or another, been keenly disappointed in the behaviour of some of the varieties he has attempted to grow for the first time. Differences of soil, the house in which the plants are grown, or the methods of cultivation may have something to do with the failure. While certain varieties will flourish in a high and dry situation, some may resent being grown in one that is low and damp. Most gardeners are anxious to give all new varieties they fancy a trial, and with this I am in agreement; but should the new-comers not come up to expectations after giving them a fair trial, I would strongly recommend discarding them and trying another variety of that particular shade of colour. I do not propose to go fully into all details of cultivation, but I would specially point out to beginners and growers of a few plants only that, to be successful with the smallest collection, it is necessary to give up the whole of the house to their cultivation. No attempt should be made to grow other greenhouse plants under the same roof. Carnations need fresh air on all possible occasions, and, unless there is a strong wind, frost, or a dense fog prevailing, air should be admitted, both day and night, by the top ventilators.

In the early months of the year, do not maintain a high temperature by the use of fire heat, for this would result in weakened growth. A night temperature of 48° to 52° will suffice, and on very cold nights it will be wise to aim at the lower temperature rather than cause the atmosphere to become dry by excessive heating of the hot water pipes. It is not desirable to use much concentrated manure during mid-winter, but now that the days are lengthening a top dressing of rich material will be very beneficial to the plants.

My object in giving the following list of varieties is to help the small grower in selecting a list of reliable sorts to grow. As there are well over 200 varieties in cultivation, one becomes bewildered when making a selection for a small private garden, and, whilst giving my experience with the varieties mentioned below, I am fully aware that they may not be so consistently good in other localities as with me.

WHITE.—Crystal White is undoubtedly one of the best white Carnations of recent introduction. The flowers open most kindly, even in the dullest months of the year, and the calyx is good. The plant is of vigorous habit, and produces flowers with great freedom. This variety should not be stopped after the third week in June. White Pearl (see Fig. 69) is most probably the largest white perpetual Carnation in cultivation, and the flowers open most freely, but it is not so free as Crystal White. It is a vigorous grower, which should make it very popular with amateur growers. Cuttings of this variety should be struck early, and the last stopping should be done about the first week in June. White Wonder is one of the older varieties, and, in my opinion, it ranks with the best. The flowers attain a good size and open freely in winter.

CRIMSON.—In this colour there is not a great selection to choose from. Perhaps one of the most popular crimson varieties for private growers is Triumph. The habit of this plant is robust and healthy, and the flowers are developed on good stems. Cuttings of this variety should be obtained early, for I have found it difficult to strike them when the days are lengthening. The blooms last well when cut. Carola is a massive crimson of a beautiful shade, but it is not so free as Triumph. It should be included in all collections, for its beautiful flowers are produced early in the spring.

RED AND SCARLET.—Edward Allwood is undoubtedly a most promising variety in this section, and most probably will become very popular with growers. I prefer to give it a further trial before commenting on its habit of growth and flower production. General Joffre is a scarlet sport from Lady North-

cliffe, and has good qualities. It produces its flowers very freely, and the blooms remain in good condition for a considerable time when cut. To obtain good plants, the cuttings should be struck early in December. Lord Lambourne is another fine scarlet variety, and the plant is very vigorous in growth. The flowers open well, and the variety will most probably be grown in all private collections for its fine habit of growth and large flowers. The cuttings should be struck early, and the last stopping should be done about the first week in June. Tarzan is a new variety which is being distributed this year. It has been shown in fine condition at the R.H.S. meetings, and should be given a trial where a scarlet variety is sought after. Where Carola can be grown, Scarlet Carola should be included in large collections.

PINK AND SALMON.—Lady Northcliffe, of a light salmon shade, is one of the best varieties I grow. It produces its flowers freely in mid-

and have perfect stems and calyces. The colour is far more pleasing in the spring than in winter. This variety is one of the easiest to cultivate. Cupid is a salmon pink variety of merit. It is a strong grower, and the flowers last well when cut.

YELLOW.—Saffron is undoubtedly one of the best of the yellow shades, being a vigorous grower and one that opens its flowers well. Cuttings should be rooted early, and the plants pinched not too late in the season. Sunstar is a parent of Saffron. The colour is yellow, with a few pink markings, but in a small collection it is not necessary to grow both sorts. Saffron being the best flower. Those who prefer a yellow Carnation would do well to keep an eye on Maine Sunshine, a sulphur yellow coloured variety.

FANCY VARIETIES.—Wivelsfield Apricot is a very free bloomer in winter. The flowers are not so large as some of the fancies, but they are produced with freedom in mid-winter.

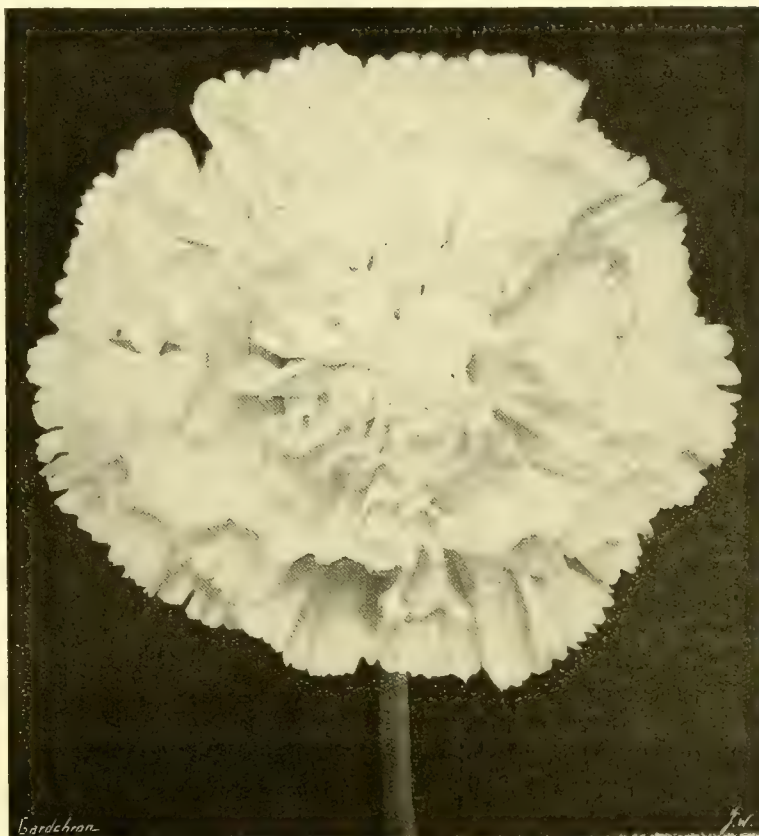


FIG. 69. CARNATION WHITE PEARL.

winter, and the bloom has a perfect calyx. The flowers keep well when cut. The cuttings should be inserted in December, and the plants pinched twice during the growing season. Laddie is undoubtedly a very fine flower that opens well, and this sort should be included in all collections. The only fault of this variety is that, after the flowers are cut, it appears to be slow in making new growth. Mrs. Walter Hemus is a pale shade of salmon fringed with pink. It is not so free in winter, but for early spring flowering it is worthy of a place in private collections. The fine old pink Enchantress and its descendants are worthy of a place in most collections, being good, strong growers, and they produce a fair number of flowers in winter. Baroness de Brien is not one of the freest bloomers in mid-winter, but it is deserving of a place in all collections for the fine flowers produced in early spring. The cuttings should be rooted early, and the plants stopped only once. Destiny is a beautiful flower of soft cerise colour. The blooms are produced very freely

which does much to recommend it. Freckles is another variety of the Lady Northcliffe type, and produces its flowers much in the same way. Jazz is a variety of very free habit that produces good yellow blooms flaked with reddish-bronze. Benora is white pencilled with carmine. The flowers are produced very freely. The cuttings should be rooted early, but the plants should not be stopped after the third week in June. When well grown, I consider that this variety is one of the best of the fancies.

MAUVE AND HELIOTROPE.—Mikado is with me still one of the best of its colour. It produces its flowers freely in winter, which is a great asset. Circe is a deeper heliotrope than Mikado, and, being speckled with pink, is an attractive flower, but I do not find it so free as Mikado in the winter months, although plenty of blooms are developed in early spring. Couquet is a deep heliotrope variety and a very free bloomer. The habit is good and the plant produces a fair number of flowers in mid-winter. T. Pateman.

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Musa Cavendishii.—Having been interested for many years in the cultivation of Bananas, it was with great pleasure I read the remarks of Mr. W. Hill on p. 106 in the issue of March 4th. During the 12 years I spent under the late Mr. H. J. Clayton at Grimston Park, Tadcaster, Yorks, we fruited many plants of *Musa Cavendishii*. Some years ago, when gardener at Farnley Hall, Otley, we fruited one there, which carried a bunch of 120 fruits weighing about 36 lb. Since that time I introduced the cultivation of Bananas at another place, and so successful was the venture that my employer instructed me to fill a house with them, which I did with 6 plants. I do not remember ever having a plant under my charge which failed to fruit. My experience is that in a high temperature Bananas may be fruited and ripened easily in 18 months to 2 years from the sucker. The 6 plants alluded to were, I believe, planted out. The aroma from the ripe fruits is an indication of their superior flavour. *J. Snell, Sunderland.*

—During my service at Colwood Gardens, Warminglid, near Haywards Heath, we fruited two plants of *Musa Cavendishii* in 1911. I enclose a photograph [not reproduced.—Eds.] of one of the bunches containing over 80 fruits. The bunch of the other plant contained a far greater number than 80, but the Bananas were not of such good form. I went to Colwood at the beginning of March, 1911, and the two suckers were in 8-inch pots. At the end of the following winter they were carrying these two bunches, the plants being then growing in tubs made from a paraffin barrel cut in halves. The soil used consisted chiefly of loam, decayed farmyard manure, leaf soil, and mortar rubble. The roots were stimulated with fresh cow manure and "Clays" fertiliser. Plenty of one-inch holes were bored in the tubs, and the soil from the bed thrown half-way up the tub. Very little air was admitted to the house. The temperature at night was about 60° to 65°, and the day temperature was allowed to rise as high as possible. The thermometer was hanging on the door frame facing north, so that only the shade temperature was recorded. These Bananas have been grown exceptionally well at Lydhurst, Warminglid, Haywards Heath. *H. Hills, Pawke Wood Gardens, Sevenoaks.*

A New Kind of Fuel for Heating Greenhouses.—I beg your permission to endorse the remarks of Mr. J. W. Forsyth (p. 106) *re* the new fuel supplied by the National Coal Exporters. A truck of nine tons is now in store here for garden and other heating apparatus. I find it all that the manufacturers claim for it, giving a very even heat. It was most difficult here to make up greenhouse fires so as to last over night, with the result that the temperature was low in the mornings. Now it is quite a different matter, as a bright fire exists in the morning, and with less than half the quantity of coal previously used. I am certain the saving will be quite 50 per cent. *David Jones, Hartsheath, Mold, N.W.*

January and February Rainfall in South Wales.—In your issue of March 11, page 116, *Market Grower* compares the rainfall of the first two months of this year with the corresponding period in 1921, namely, 6.76 inches, as against 3.14 inches. It may interest your readers to compare the rainfall in *Market Grower's* district to that in South Wales. In January we had 6.44 inches of rain and twenty-six rainy days, the largest fall being 0.86 inch on the 18th of that month. The total rainfall in February was 6.20 inches. There were nineteen rainy days and the heaviest fall was 0.88 inch on February 27; the total for the two months was 12.64 inches. Unfortunately, I have no record of the corresponding months of 1921. *J. Wiggins, Ty Clyd, Govilon, nr. Abergavenny, Monmouthshire.*

Bryophyllum calycinum.—My sister and I were in Jamaica in March 1920, and in the course of our wanderings picked a flower and leaf of *Bryophyllum calycinum*—"The Leaf of Life." This plant grows wild very freely in the island. My sister pressed the leaf between sheets of blotting paper, under a heavy weight, and brought it to England. The leaf was left untouched for five weeks, and on being examined, the entire outline of the leaf was found to be encrusted with the minutest white roots—as if edged with lace. The leaf was kept in the blotting paper for another two weeks, after which it was laid upon earth in a greenhouse, and lightly sprinkled with soil. In due course, the original leaf produced a little forest of small plants, which, up to last autumn, gave no promise of flowering. As will be seen, however, by



FIG. 70.—BRYOPHYLLUM CALYCIUM.

the enclosed photograph (Fig. 70), one plant has now produced flowering stems more than five feet in height, bearing flowers which are of a delicate green shade—though, in its native country, the flower is of a very pale buff colour. Such is the fecundity of this plant that any leaf which falls to the ground attempts to reproduce its kind. *H. Arden, Arderne Hall, Tarporley, Cheshire.*

Voies.—It may interest you to know that many of the readers of your paper have written to me to inquire where the Colin Pullinger Balance Mouse Trap may be obtained, and it occurs to me that as probably many more are making inquiries about it, you might like to mention in your next issue that the trap is manufactured wholesale by Messrs. Duke, Waring, Crisp and Co., 139, Wardour Street, London, W.1., and may be procured retail through any ironmonger. *T. Mark Howell.*

SOCIETIES.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

MARCH 2.—*Committee present:* The Rev. J. Crombleholme (in the chair), Messrs. H. Asplowth, B. J. Beckett, J. Birchenall, A. Burns, A. Coningsby, D. A. Cowan, J. C. Cowan, J. Cypher, J. Evans, J. Howes, A. Keeling, D. McLeod, E. W. Thompson, J. Thrower, H. Arthur, sen.

AWARDS.

FIRST-CLASS CERTIFICATES.

Cattleya Douai var. Our Princess. A pure white flower of grand shape. *Brasso-Cattleya Queen of England* (C. *Germania* × B. C. *Mdm. Ch. Maron*). A large flower with light rose sepals and petals; lip deep magenta, coloured with a yellow throat; from Mrs. GRATRIX.

Sophro-Laelia-Cattleya Samuel Gratrix. The sepals and petals are deep purple-crimson, the lip an intense purple. *Cattleya Linda var. Radiance.* A variety with broad sepals and petals; the lip is deep purple, throat yellow; from S. GRATRIX, Esq.

Cypripedium Idina Beckett's var. (see Fig. 63). A large flower of the Harefield Hall type, of grand shape and colour; from B. J. BECKETT, Esq.

Cattleya Tityus var. Evansiae. Sepals and petals mauve; lip large and coloured dark purple; side lobes yellow. *Odontioda Madeline var. Evansiae.* A large flower of grand shape and brilliant colouring; from Mr. J. EVANS.

Brasso-Cattleya Penelope var. rubra. Sepals and petals dark mauve; lip rich magenta with yellow side lobes; from Messrs. MANSELL AND HATCHER, LTD.

AWARDS OF MERIT.

Lycaste Skinneri vars. *Symmetry*, *Apple Blossom* and *Purple Emperor*, all from Mrs. BRUCE and Miss WRIGLEY.

Sophro-Cattleya Saxa West Point var. Lycaste Skinneri Lady Patricia Ramsay and *Dendrobium nobile rotundum*; from S. GRATRIX, Esq.

Cymbidium Dryad var. Silvarum, C. *Castor var. Primo*; both from the Rev. J. CROMBLEHOLME.

Cattleya Trianae var. Drednought and *Odontoglossum aspersum Hartley's var.*; both from Dr. HARTLEY.

Cypripedium Victor Hugo var. Little Gem; from B. J. BECKETT, Esq.

Cymbidium Niviana; from Capt. W. HERRIDGE.

Odontioda Wilsonii var. Sunbeam; from P. SMITH, Esq.

GROUPS.

S. GRATRIX, Manchester (gr. Mr. J. Howes), staged a group for which a Gold Medal was awarded. Mrs. BRUCE and Miss WRIGLEY, Bury (gr. Mr. A. Burns), were awarded a large Silver Medal for a group of *Lycastes* of the *Skinneri* section. The Rev. J. CROMBLEHOLME, Clayton-le-Moors (gr. Mr. E. Marshall), was awarded a Silver Medal for a group of *Cymbidiums*.

Messrs. HASSALL AND Co., Southgate, were awarded a Gold Medal for a group of *Cattleyas* in variety. Messrs. CYPHER AND SONS, Cheltenham, staged a group for which a Silver Medal was awarded.

ROYAL CALEDONIAN HORTICULTURAL.

MARCH 7.—The ordinary monthly meeting of this Society was held at 5, St. Andrew Square, Edinburgh; Mr. David King, presiding.

A paper on "Table Decorations" was read by Mr. W. M. Macdonald, St. Leonard's School Gardens, St. Andrews, who said that to carry out decorations pleasingly, ability to conceive an effective plan, an artistic temperament, and deftness in arranging the flowers were essential. He also dealt with the effect of artificial light on the colours of the flowers.

A decorated table was exhibited by Messrs. TODD AND Co., Edinburgh, which was awarded a gold medal. The other exhibits were: Tulips, from the President (Mr. King), who was awarded a Cultural Certificate; and Narcissi, from Mr. D. Arnott, Corstorphine.

BRITISH CARNATION.

MARCH 21.—The twenty-seventh annual show of this society, which was formerly known as the Perpetual-Flowering Carnation Society, held at the R.H.S. Hall, Westminster, on Tuesday last, was a particularly good one from nearly every point of view. The quality of the blooms at this early season was high and the extensive trade exhibits were especially meritorious. While good quality was sustained in all the competitive classes, the competition was not so large as could be wished, though the new "florists'" class for an exhibit illustrating the various decorative uses for which the Carnation is adapted resulted in an excellent competition and demonstrated the many interesting styles of arrangement possible with this flower. These and the large non-competitive exhibits were a great feature of the show, which was opened by Lady Mond, D.B.E., the President of the Society.

AWARDS OF MERIT.

Torrador.—A very showy Fancy Carnation of good size and form, and, apparently, great freedom in flowering. The blush ground colour is freely striped with scarlet. Shown by Messrs. ALLWOOD BROS.

Atlantic.—This is a perpetual-Malmaison of great promise. The exhibitors informed us that in their nursery this American variety flowers freely and "finishes well"—a statement which was borne out by the plants which accompanied the vase of blooms. The large, fragrant flowers are borne erect on stout stalks and the white petals have just a suggestion of the old Malmaison colour. Shown by Messrs. ALLWOOD BROS.

Wivelsfield White.—Visitors to the London shows have often had the opportunity of admiring this valuable white perpetual variety. It makes a shapely bloom which travels well. During warm weather it has quite a pleasant fragrance, though none was apparent on Tuesday. Shown by Messrs. ALLWOOD BROS.

Nigger.—The reason for the name is not readily apparent, for there are several Carnations of distinctly darker hue which would not warrant the suggestion. It is, however, a splendid, deep velvety crimson perpetual-flowering variety. The blooms are held well up on long stalks. Shown by Mr. C. ENGELMANN.

OTHER NOVELTIES.

Messrs. ALLWOOD BROS.'s Vivid was the most dazzling bloom in the whole show. The general colour may be described as rose cerise. Its peculiar, crimped appearance, suggesting that the blooms have been artificially opened, may not appeal to everyone, but its glowing colour is very striking. Oceanic is a medium-sized perpetual Malmaison and, like the former, was shown by Messrs. ALLWOOD BROS. In form it more nearly approximates the perpetual type, but has the broad leaves and sturdy habit of the Malmaison. The colour is a clear shrimp pink and the centres of the blooms are fuller than is usual with this type.

OPEN CLASSES.

As at the previous show of this Society Mr. C. ENGELMANN, Saffron Walden, was the principal prize-winner. He won the first prizes in 14 of the first fifteen classes. The exception was the class for a vase of not fewer than 100 Carnations, and here Messrs. A. F. DUTTON, LTD., Iver, Bucks, were decidedly first with beautifully coloured blooms of Lady Northcliffe. Mr. ENGELMANN was second with a well-arranged vase of paler pink blooms.

In the other classes Mr. ENGELMANN's blooms were of outstanding quality. In class 1, which required 7 varieties, 25 blooms of each, he showed Topsy, Jona, Tarzan, Cupid, Circe, White Wonder and Laddie. White Edward Allwood, Messrs. ALLWOOD's second prize exhibit, was also a good one.

The best of the British novelties in class 2 was Thor, shown by Mr. C. ENGELMANN, while Wivelsfield Claret by Messrs. ALLWOOD BROS. was the best of the second prize set. Amongst the American novelties Topsy in the first prize exhibit was pre-eminent.

In the colour classes Mr. ENGELMANN's first prize varieties were Peerless, light rose; Laddie, salmon pink, a magnificent vase which also received the Silver-Gilt Medal as being the best

in classes 9 to 22 inclusive; Aviator, red; Carola, crimson; Saffron, yellow; Jazz, fancy; and White Wonder. He also had an admirable vase of 25 blooms of Topsy in class 7.

There were two excellently packed boxes of 36 blooms as sent to market, and Mr. ENGELMANN was placed first and Messrs. ALLWOOD BROS. second.

AMATEURS' CLASSES.

The only group of Carnation plants was by Sir CHAS. NALL-CAIN, the Node, Welwyn (gr. Mr. T. Pateman), and it deservedly received the first prize, Lord Howard de Walden's Challenge Vase. It was composed of particularly well-grown, well-flowered plants in a pleasant variety. The principal varieties were Lady Northcliffe, Laddie, Mikado and Rose Sensation.

There were only two decorative arrangements of cut Carnations, and the first prize was won by Lt.-Col. Sir R. BAKER, Ranston, Blandford (gr. Mr. A. E. Usher), with a plentiful display of excellent blooms, while Mr. W. HOLDER, Upper Gatton Park Gardens, Reigate, was second with a light and elegant display of rather smaller blooms.

The Cory Cup, which is offered for 6 plants in bloom, was won by Sir CHAS. NALL-CAIN, who showed well-grown examples of Lady Ingestre, Mrs. W. Hemus and Lady Alington. Sir C. NALL-CAIN, was also first with three good plants of Wivelsfield Apricot, Lady Alington and Chastity. In each instance Mr. W. HOLDER was second with well-grown plants.

In the remaining classes chief honours were won by Sir CHAS. BAKER, who, in various classes, had especially good blooms of White Wonder, Rose Enchantress, Laddie and Aviator.

LADY MOND won first prize with beautiful vases of Carola and Circe, and Mr. E. W. BISHOP, Windsor, was first with a vase of British-raised novelties.

There were three exhibits in the decorated dinner-table class, and the first prize was won by Mrs. A. ROBINSON, Bourne End, with a table of Wivelsfield Apricot Carnations and Croton leaves and other foliage. The first prize in the class for a drawing-room vase was not awarded, but the second prize was awarded to Mrs. ROBINSON.

FLORISTS' CLASSES.

In the florists' classes the Covent Garden Challenge Trophy with a cash prize of £50 induced keen competition. Mr. R. F. FELTON, Hanover Square, London, was first with magnificent vases of Carnations and elegant Palms. The arrangement of the Carnation blooms was admirable, the small basket of Croton turnfordiensis and Saffron Carnations being particularly praiseworthy, but the Lady's Hat and Model Ship made up of innumerable Carnation petals were decidedly *outré*. The second prize was won by Mr. N. B. SHEARN, who included an admirable decorative screen and a wall bracket of Carnation blooms. In the third prize exhibit by Mr. R. SILVESTER, Sloane Square, London, there was a very charming basket of mixed Carnations and Croton foliage.

In the remaining florists' classes all the first prizes were awarded to Mrs. HAMMOND, Chelsea, for admirable exhibits.

NON-COMPETITIVE EXHIBITS.

Mr. C. ENGELMANN set up a great number of excellent blooms in large groups on either side of the entrance. The principal varieties were Cupid, Lady Northcliffe, Delice, Aviator, Mrs. Walter Hemus and Tarzan. These and many more arranged in artistic vases and *jardinières* made a memorable display (Large Gold Medal).

Nearly the whole of the wall space at the end of the hall was occupied by Messrs. ALLWOOD BROS. with an admirable and tastefully arranged collection. The central feature was of the yellow perpetual-Malmaison Jessie Allwood, nearly surrounded by Edward Allwood. Mrs. C. F. RAPHAEL, Wivelsfield Claret and Marion Willson were also shown in quantity (Large Gold Medal).

Amongst the many varieties shown by Messrs. STUART LOW AND CO., Brilliant, Red Ensign, Eileen Low and the new cerise scarlet Reginald Cory were prominent (Silver-Gilt Medal).

On a table space Messrs. KEITH LUXFORD AND CO. had a number of vases of excellent varieties,

including Aviator, Mrs. C. W. Ward, Enchantress Supreme and Carola (Silver Medal).

Miscellaneous exhibits included St. Brigid Anemones by Messrs. REAMSBOTTOM AND CO.; Roses by Mr. E. J. HICKS; Alpines by Mr. F. C. WOOD; and boxes of admirable fruit by Mr. N. B. SHEARN.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

THE annual general meeting of this useful Society, held at the Royal Horticultural Hall, Westminster, on Monday, March 13, was more largely attended than any similar meeting since 1912. Mr. Charles H. Curtis presided.

The annual report for 1921, as presented, showed that many young gardeners who served in His Majesty's forces during the war had failed to take advantage of the special conditions provided, whereby they could retain their membership on easy terms. This was unfortunate, as the conditional time limit was reached in 1921, and as a consequence about eighty of these members had lapsed. A fair number of new members had been elected; some deaths were recorded. Financially, the Society is in a very happy position, as its members have an excellent health record. The trustees invested £2,000 during the year, bringing the total investments to well over £61,000. An interesting paragraph in the report had reference to the long periods of service rendered by various officers and members of Committee, and special mention was made of the fact that Mr. C. H. Curtis had been Chairman of Committee continuously for twenty-one years.

The report and accounts, after a few remarks by the Chairman, were adopted. Mr. T. Winter unfortunately absent through illness, was re-elected Treasurer. Messrs. J. Hudson, Riley Scott and C. H. Curtis, the trustees, were thanked for their services, and thanks were also accorded to Mr. George Monro, for presiding at the annual dinner, to the Horticultural Press, and to the honorary members. The retiring members of Committee were all re-elected, and Mr. Brown, Burford Lodge Gardens, Dorking, was elected to fill a vacancy. Following a brief report and statement concerning the working of the State Section, the meeting agreed to the recommendation of the Committee, that for the year 1922 the Secretary's salary be paid in equal proportions from the State and Private sections of the Society's activities.

Some discussion as to ways and means of advertising the advantages of membership took place after the formal business, and it transpired that the advertisement in the *Gard. Chron.* had hitherto proved the most effective means of bringing the Society into touch with gardeners likely to become members.

Mr. C. H. Curtis and Mr. A. Bedford were re-elected Chairman and Vice-Chairman of Committee respectively.

Obituary.

W. A. Crowder.—A well-known horticulturist has been lost to the Horncastle district by the death of Mr. W. Ashley Crowder, of Messrs. W. Crowder and Son, seedsmen and nurserymen, Thimbleby Nurseries, Horncastle. His death, which was totally unexpected, took place suddenly at his residence. Mr. Crowder was a quiet and unassuming man with a wide circle of friends, who loved and respected him. He held several offices in connection with the public life of Horncastle and Thimbleby, and also with St. Margaret's Church, Thimbleby. Mr. Crowder is survived by his wife, one son, and one daughter, another son having given his life in the war.

Harry A. Barnard.—On March 14, Harry A. Barnard, a man as beloved in horticulture as in his private life, passed to a well-earned rest. His death removes one more link with the past, for he commenced his career with the Lows, of Clapton, over 60 years ago, and remained with his firm, at Bush Hill Park, until the last. Few men were better known in horticultural circles either in Great Britain, the United States, or

Canada, and readers of *The Gardeners' Chronicle*, spread all the world over, who spent some of their early days at the Clapton Nurseries, will recall the ready wit, or kindly help of Harry Barnard, and a host of other old comrades, among whom were the brothers Casey (William, Frank and James) and John Newberry, will mourn the loss of their old colleague Horticulture is all the poorer for his passing, for his knowledge of plants was most catholic. He was a man who always did the right thing in his own vigorous way, and for this reason alone his memory will remain green for many years to come. The interment took place at Abney Park Cemetery on the 18th, the grave being next to that of the late Hugh and Stuart Low. Among those present were Mr. Stuart H. Low (grandson of his first chief), Mr. Hugh Low, and three old comrades, Messrs. Fred Jenkins, E. Groves and W. Isobell, whose service with their firm aggregate some 130 years. It is only a few weeks ago that another old employee, Mr. Ted Heath, passed away after having been with the firm for nearly half a century.

Hugh Williamson.—The American horticultural papers record the death of Mr. Hugh Williamson, for 35 years gardener on the W. W. Astor estate. Mr. Williamson was a native of Ayrshire, and settled in U.S.A. in 1886. According to the *Florists' Exchange*, "he enjoyed the friendship of every florist and his knowledge was at the disposal of everyone."

Charles Willingham.—We much regret to learn of the death of Mr. Charles Willingham, on March 17, at the Pineapple Nurseries, Maida Vale. The announcement of his death in the *Times* for March 18, states that he was "For 40 years devoted gardener and valued friend of Sir Lawrence Alma Tadema, O.M., R.A., and family."

TRADE NOTES.

MANY gardeners and other horticulturists will be pleased to hear that Mr. F. J. Duck, who represents Messrs. Dicksons, Ltd., Chester, has just completed 50 years service with the firm. On the 27th ult. Mr. Duck had represented the firm for 42 years.

FOLLOWING its recent announcement, the Chamber of Horticulture states that Cabbage plants have now been placed in the new Class 15, as against Class 18, proposed by the railway companies. This minor point was not decided on at the hearing before the Rates Advisory Committee on February 23 last, as Mr. Pike (representing the railway companies) asked for an opportunity to look the matter up. This completes the Chamber's case for reclassification of goods by merchandise trains. The Council's decision to postpone the publication of a Bulletin was received with great regret by the Technical Committee of the Chamber, and the following resolution was passed: "That this Committee regrets to learn of the decision to postpone the publication of the Chamber's Bulletin, and is of the opinion that having regard to the important material available, and in pursuance of the resolution of the joint Conference of Insecticides and Technical Committees, the publication of a Bulletin is not only essential, but urgently necessary."

We learn that Queen's Club, Kensington, have decided that all their hard tennis courts are to be En-Tout-Cas; five new courts have been ordered, and older ones are to be converted into the En-Tout-Cas type.

MESSRS. RANSOMES, SIMS AND JEFFERIES have constructed a type of light motor lawn mowers, of 18 in. and 20 in. size respectively, suitable for use in moderate-sized gardens. These machines have been introduced to take the place of a two-men outfit as used on small sports grounds and in private gardens. The cutting knives are driven by a petrol motor and the machines are suitable for dealing with the work on grounds not exceeding from one to

three acres in extent. The general construction is simple, and the controls for machine and motor are easily operated from the handles.

An interesting exhibit at the Ideal Home Exhibition is a two-roomed bungalow erected by Messrs. T. Bath and Co., Savoy Street, Strand. It is substantially built, delightfully furnished, and with its climbing plants, window boxes and borders of flowers, presents a very cosy appearance.

In our account of the gardens at the Ideal Home Exhibition, we stated that Messrs. Whitelegg and Page had planted the garden designed by the Queen of Spain. We should, of course, have stated that it was Messrs. G. G. Whitelegg and Co. who carried out the work so pleasingly.

A SECOND Conference on the Marking of Foreign Produce was held by the Chamber of Horticulture on Friday, 17th instant, Mr. Geo. Monro presiding.

The Secretary reported that the National Farmers' Union had given their entire support to the case, and that the same had been submitted to the President of the Board of Trade. Tuesday, March 21, was fixed for the deputation to be received by Sir Sydney Chapman, K.C.B., C.B.E., Permanent Secretary, and the following gentlemen were appointed:

Mr. Geo. Monro, to introduce the deputation; Mr. G. W. Leak, to be the chief speaker, supported by Messrs. A. C. Daniels, A. C. Leeney, W. P. Seabrook (Federation of British Growers), W. Talbot Edmunds (National Farmers' Union), H. C. Larsen, J. Rochford (Lea Valley Growers), C. J. Miller, F. W. Ladds (N.W. Kent Growers), and C. M. Matthews, Secretary.

A meeting of the Council of the Chamber was held on Wednesday, March 15, Mr. Geo. Monro presiding.

The Secretary's report dealing with the decisions of the Rates Advisory Committee and meetings of the Technical and Parliamentary Committees was submitted and adopted.

The following gentlemen were duly elected as representatives to the International Conference, to be held at the Hague, on April 20 next: Messrs. J. S. Brunton, W. E. Wallace, E. A. Merryweather and Geo. Monro (for the Chamber), Messrs. E. A. Bunyard, C. E. Pearson, G. W. Leak, and C. G. L. Du Cann (for the Horticultural Trades' Association), and Messrs. A. W. White and C. H. Curtis (for the British Florists' Federation).

The Annual General Meeting has been fixed for Wednesday, May 3 next. A resolution from the Spalding and District Bulb Growers' and Market Gardeners' Association deciding to become affiliated to the Chamber was submitted and agreed to. Mr. J. B. Slade gave a most interesting and helpful address on the subject of Assessments, and he has promised to further assist the Council on these matters when desired.

A letter from the Horticultural Trades' Association referring to the threatened extension of the American Quarantine Regulation 37, and asking the co-operation of the Chamber with a view to taking immediate measures to prevent such action, was submitted and agreed.

WITH a view to getting cheaper postal rates, a large and representative deputation from all the chief commercial associations of Gt. Britain was received by Sir Robert Horne Chancellor of the Exchequer, at the Treasury, on Friday last. Mr. G. B. Barr attended for the Chamber and its affiliated associations, and the reply of the Chancellor is considered to be fairly satisfactory.

INQUIRY.

A CORRESPONDENT, resident at Helsingfors, Finland, asks: "Is there anyone who grows *Nomocharis pardanithina* successfully? If so, will he kindly state the cultural conditions adopted. I have some small bulbs planted in leaf soil, in pots, but they do not grow strongly."

ANSWERS TO CORRESPONDENTS.

BLIND FLOWERS FROM DAFFODIL BULBS: C. E. S. It is a difficult matter to decide why the bulbs have thrown the blind flowers. Excessive temperature with lack of water during the plants' growth will cause the flower buds to behave similarly to the specimens received. Daffodils enjoy an abundance of water during growth, and should be grown in a temperature of 60°, increasing the warmth to 65-70° when the buds are about to burst. Again, inefficient root action may be the reason, and bad root action may be due to bringing the bulbs into the house before they are sufficiently well rooted. The presence of diseases such as eelworm or corky base may also react on root action, and thereby cause failure in the development of the flowers.

FAILURE WITH ORCHIDS: W. H. B. The cause of failure with your Orchids cannot be attributed to a low temperature, for 50° during the winter months is sufficient warmth for *Cypripedium insigne*, *Coeloglyne cristata*, and *Dendrobium nobile*, which would be in a dormant condition. The *Cypripediums* should be repotted at once in a mixture of good fibrous loam, peat, and *Sphagnum*-moss. After being disturbed, afford the roots water in moderation, and keep the plants shaded from strong sunlight. Light spraying overhead will be beneficial in bright weather. *C. cristata* should also be repotted when the new growths begin to root. At the same time reduce the number of back pseudo-bulbs to three behind each lead or growing point. A suitable rooting-medium consists of three parts *O-munda* fibre or peat and one part *Sphagnum*-moss. Once *C. cristata* gets into a bad state of health, it will take quite two years for the plant to recuperate. This Orchid could be grown with the *Cypripediums*, and a minimum temperature of 50° should be maintained in the house. With sun heat this degree of temperature may be exceeded with beneficial results. Due attention must be paid to ventilating and shading, while the surroundings should be kept moist throughout the growing period. When the new pseudo-bulbs are fully matured, only enough water should be given to keep them in a plump and rigid condition. *Dendrobium nobile* will need repotting in a similar manner to *C. cristata*, and, if you possess a stove-house, the plants should be suspended from the roof-rafters of that house during the growing season. If such a warm house is not available, place the plant in a light position at the warmer end of your greenhouse. A Cucumber or Melon pit is also suitable while the plants are in active growth, but when they have completed the season's growth a cooler and drier structure is necessary. If the *Cattleyas* are not too unhealthy, repot them when root action is evident, and place them in a warm, moist house. Most of your Orchids will probably need smaller pots, which should be filled half their depth with drainage material. The Orchids you enumerate should not be grown in a dry atmosphere, nor exposed to strong sunlight, although they should not be densely shaded.

FOREST TREES AND TREE SEEDS: B. P. G. Write to Messrs. Little and Ballantyne, Nurserymen, Carlisle.

NAMES OF FRUIT: G. W. S. Fearn's Pippin.—J. C. C. Franklin's Golden Pippin.—R. W. T. Galloway Pippin.

NAMES OF PLANTS: *Old Subscriber*. *Ornithogalum lacteum*.—A. F. *Crinum* sp.; it is impossible to determine the species from a bulb only.—G. H. F. 1, *Azara microphylla*; 2, *Acacia dealbata*; 3, *Pieris japonica*; 4, missing; 5, *Colletia cruciata*.—A. G. L. 1, *Cypripedium Hera-Beeckmanni*; 2, *C. Leoniae*; 3, *C. calophyllum*.—J. E. *Iris japonica* (syn. *I. chinensis*).

Communications Received.—D. A. C. R. & Co.—C. E. H.—R. H. F.—P. A. W. E.—J. C.—G. M. H. C.—J. C.—A. M.

THE

Gardeners' Chronicle

No. 1840.—SATURDAY, APRIL 1, 1922.

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 44.1.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, March 29. 10 a.m. Bar. 30.1; temp. 44°.—Weather—Cold and bright.

A sight which recently caused astonishment to several interested amateurs of gardening is not without general interest and significance. A group of Rhododendrons which had been hurriedly planted in a nursery last spring had made excellent growth and were rich with flower buds. When lifted last autumn, however, the balls of black earth around their roots in which they had originally reached the garden were seen to be intact and not a root had penetrated into the soil beyond. The phenomenon served for a simple homily on the advantages of root restriction in the cultivation of various kinds of flowers and fruit, and it was surprising to find that those amateurs of keenness and experience who listened to it were not aware how much floriferousness and fruitfulness may depend on limiting the run of roots. Everyone who gardens is, of course, aware of the fact that such plants as Figs require to be severely restricted as to the range of their roots. Pot-culture of Figs as practised with such success at Wisley and elsewhere, illustrates clearly the fact that large masses of soil are not only unnecessary, but often harmful to fruit development. Similarly anyone who has planted rock plants on "dry" walls

must have noticed that the plants which are wedged tightly in with a limited amount of soil—connected it need not be said with a fair depth of soil—will become established quicker and flourish better than those which are inserted in large pockets and provided with ample masses of rich earth. A little physiological knowledge is not a dangerous thing, and a realisation that both the roots of a plant and the soil itself need air will often help the young gardener to improve his practice. So, also, will a knowledge that the amount of mineral substances which a plant requires for its development is extraordinarily small. One of the oldest experiments in plant physiology illustrates this fact in a striking manner. Nearly 300 years ago, Van Helmont planted a Willow in a pot of dried and weighed soil; watered it regularly with rain water, and found that although the Willow had increased by nearly 200 lb. in weight in five years, the weight of soil in the pot at the end of the experiment was only about two ounces less than at the beginning. It is true that this old experimenter drew a wrong conclusion from his results. He inferred that water was the "active principle" out of which plants make all their materials. The right conclusion to be drawn is, of course, that the two ounces of lost soil represented the essential—albeit actually small amounts of mineral food, which plants must have if they are to live at all. Many garden practices are based on the recognition of these facts. A Vine border which may be increased at intervals is better than a larger one made up once for all. Top dressing of relatively small heaps of compost is better than planting in large heaps. The common saying that a gardener is either good at flowers or vegetables but not both is, of course, untrue, and thousands of gardens testify to its erroneousness, yet there is this basis for the charge, that root and stem vegetation at all events yield their maximum when root run is unrestricted, that is when the soil is rich and worked deeply, whereas flowers in general do best in soils which, though well worked and well drained, are not too liberally supplied with organic matter. Sparing applications of farmyard manure—to which a light dusting of basic slag is added, will make a brighter border than will heavy applications of dung. Often it is advisable both to feed and starve as it were. Thus to renovate a lawn nothing is better than heavy winter dressings of farmyard manure raked occasionally and renewed as they disappear. Yet when the lawn is established, provided there be some bottom soil, dressings of lawn sand—sharp and not too fine—will improve and fine down the turf. Of course there are flowering plants which have special predilections for heavy soils; Roses and Pyrethrums for example, but for one of this class there are dozens of the other which flourish and flower best in light, well drained and therefore readily warmed soils.

Retirement of Sir Isaac Bayley-Balfour.—Sir Isaac Bayley-Balfour relinquished his duties as Regius Keeper of the Royal Botanic Gardens, Edinburgh, at the end of March. Sir Isaac had held the post, which his father, the late John Hutton Balfour, filled for many years, since 1838. He also relinquishes the position of the King's Botanist for Scotland, and the Chair of Botany in the University of Edinburgh, which appointments he has held for the past thirty-four years. His successor has not yet been announced. We take this opportunity of congratulating Sir Isaac Bayley-Balfour on the recent honour of Doctor of Laws conferred on him by the Senatus Academicus of the University of Edinburgh.

Summer Time.—In view of the misconception which exists among certain classes of agriculturists as to the effect of Summer Time, the Ministry of Agriculture desires to point out that neither the Order in Council, which provides for Summer Time this year from March 26 to October 7, nor the Summer-Time Bill which has been introduced by the Government, imposes any obligation on farmers or their labourers to revise their customary hours of work according to the sun. There is nothing in the Order in Council or in the Bill which would prevent farmers or their labourers from making any arrangements they like as to the hours of work, which can, therefore, be fixed by agreement so as to provide for whatever working day may be most convenient for the special conditions of agriculture.

Proposed New Park for Edinburgh.—The Parks Sub-Committee of Edinburgh Town Council have had under consideration the suggested purchase of Pilrig House and grounds as a public park for the Leith district, and have resolved to recommend that the Council should purchase the same. The total extent of the ground is about twenty acres, and it is proposed that the present proprietor should remain in the house (with a portion of the ground) as a life-renter. The proposed new park is in a very suitable position and would serve a considerable population.

Grey Squirrels in Kensington Gardens.—The grey squirrels introduced to Kensington Gardens have increased so rapidly that the Office of Works has decided to reduce their numbers. The principal reason for this decision is that the squirrels are very destructive to bird life; grey squirrels have been systematically shot, by order, in Richmond Park ever since the first official bird sanctuary was established there in 1915. There is ample evidence that the grey squirrel sucks the eggs of any bird, and it has even been known to destroy duck's eggs in Regent's Park. This type of squirrel was introduced from America, and in many parts of the country has practically exterminated our pretty, indigenous, brown or red squirrel, which is far less destructive. Sir Lionel Earle, Permanent Secretary of the Office of Works, states that so well are the bird sanctuaries in Kensington Gardens and Hyde Park developing that there is reason to hope that the nightingale might be heard at Kensington during the coming summer, and the great crested grebe be seen on the Serpentine.

Bee Diseases.—At a meeting of the Association of Economic Biologists on February 24, Mr. J. Rennie gave a paper on "The Present Position of Bee-Disease Research." Recent research has shown that there are at least three bee diseases of importance prevalent in this country which have hitherto been confounded with Isle of Wight disease. Besides Nosema apis, there are acarine and bee paralysis. It appears that Nosema is less common than acarine disease, but it is maintained to some extent by the importation of foreign bees. The mite causing acarine breeds in the thoracic tracheae and feeds on the blood of the bee. Bee paralysis is an intoxication due to phenolic acid developed in the combs and pollen by the growth of various moulds.

Hybrids of Primula Juliae and P. acaulis.—At a recent meeting of the Société Botanique de France, M. Jacques de Vilmorin showed some hybrids of Primula Juliae of which the particular interest lay in the fact that the seed parent was a form of P. acaulis with a "calycanthemum" or "hose-in-hose" flower. All the plants of the first generation, nineteen in all, had the "calycanthemum" feature more or less accentuated, which fact confirms, as regards the dominance of this characteristic, the results of the experiments formerly made by Correns with Campanula and Mimulus. It was interesting to study the heredity of this feature in a cross with so distinct a form as P. Juliae. All the plants raised showed the colouring of P. Juliae, with some slight differences in intensity. The flowers were about the same size as those of the P. acaulis, used as a seed parent, and the

foliage was intermediate in form between that of the two parents. That result had already been observed in various crosses made in England, and described from time to time in *The Gardeners' Chronicle*.

Leeds Chrysanthemum Show.—The Leeds Paxton Society has decided to hold an exhibition of Chrysanthemums in the Leeds Town Hall on November 17 and 18, and to devote the proceeds to the funds of the Leeds General Infirmary. Irrespective of a challenge cup and shield, the prizes offered will amount to £130. Numerous interesting classes have been provided, one of which is open to nurserymen, seedsmen, and florists, who will be allowed to fill a ground space of sixty square feet with plants and flowers arranged at their own discretion. The awards offered are a gold, silver and bronze medal for first, second and third prizes respectively. Mr. A. Colborn, 4, Laurel Grove, Armley, Leeds, will be glad to forward schedules on application.

The Genetics of Vegetables.—The Royal Academy of Belgium offers a triennial prize of 2,500 francs, to be known as the Prix Joseph Schepkens, for the best experimental work on the genetics of vegetables.

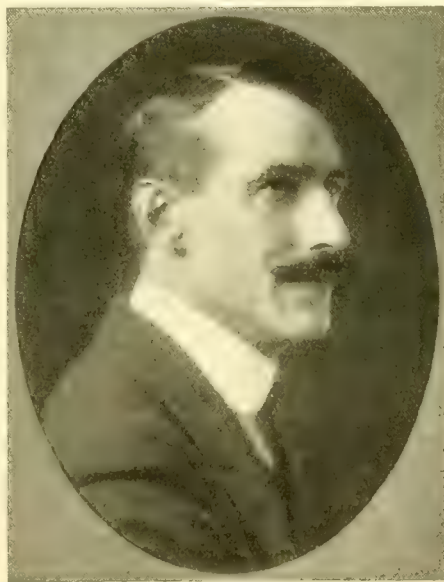
Honour for Professor J. B. Farmer and Mr. John Garton.—We learn with very great pleasure that the Senatus Academicus of the University of Edinburgh has conferred the honorary degree of Doctor of Laws upon Prof. J. B. Farmer, D.Sc., F.R.S., Professor of Botany and Director of the Biological Laboratories, Imperial College of Science and Technology, London; and a similar honour to Mr J. Garton, founder of the Garton Lecture ship in Indian and Colonial Agriculture.

Influences Affecting the Functioning of Stomata.—Mr. J. V. G. Loftfield makes some interesting observations* on the behaviour of stomata in relation to the environmental and physiological conditions of the plant. He found that while illumination affects the action of stomata, weather conditions also control the size of the openings, and with varying water supplies, the stomata may change their behaviour from day to day. Low morning temperatures cause the stomata to open very gradually, and even moonlight affects the size of the aperture. In cereals the stomata are very sensitive and never open at night. In the Potato and some other plants the stomata normally open at night and close only under conditions of high evaporation or low water-content. Light induces the opening of stomata by causing the conversion of starch in the guard-cells into sugar, and so increasing their osmotic pressure. The investigations proved that the regulations of water-loss by the stomata is very effective when they are nearly closed.

Boy Gardeners' Club.—In connection with the *Daily Mail* Young Farmers' Club, Messrs. Sutton and Sons have promoted a Horticultural Club at Reading, given half an acre of land, and promised to supply seeds, tools, etc., for the purpose. Membership of the club will be limited to twenty. The Reading Education Authority is interested in the scheme, and there is every prospect that the movement will develop in the locality.

Royal Gardens, Kew. Eighty-one years have elapsed since the Royal Gardens, Kew, were first opened to the public as a national institution; the opening day was April 1, 1841. When *The Gardeners' Chronicle* was eleven weeks old, in our issue of March 20, 1841, the following notice appeared:—It is with great satisfaction that we are at length enabled to announce upon authority that Sir W. J. Hooker has been appointed to the charge of the Royal Botanical Gardens at Kew. We trust this wise step will be accompanied by such other changes and improvements in this important establishment as will ensure its efficiency, and prove that the ill-advised plan of destroying it, last year entertained by certain gentlemen connected with the Government, was never approved of by Her Majesty's responsible advisers.

Mr. E. White, V.M.H.—On leaving school Mr. E. White, the eminent landscape gardener, had no intention of taking up landscape gardening as a profession, but turned his attention to farming and estate management, and it was not until he met the late Mr. H. E. Milner that he started upon the horticultural career which has proved so successful. For some years he studied garden design and landscape gardening under Mr. Milner, and eventually became associated with him, as managing director of the Estate Development Company, in laying out the grounds of Dartmouth Naval College, Christ's Hospital, and other places. Later he married Mr. Milner's eldest surviving daughter, eventually joined Mr. Milner, and since 1903 he has been the responsible partner of the firm of Messrs. Milner, Son and White. In his boyhood Mr. White had a horticultural environment, as his father, the late Alderman James White, seven times mayor of Worthing, was a keen amateur horticulturist with a great love for his garden and an excellent knowledge of plants, consequently Mr. E. White inherited a love of gardens, which has stood him in good stead in his work as a designer. Although recognised as one of the leading British landscape gardeners, Mr. White's reputation and work are not confined to the British Isles. At home he has ad-



MR. EDWARD WHITE, V.M.H.

vised on the construction and alteration of such famous gardens as those at Bagshot Park, Kedleston, Cowdray Park, Sundridge Park, Bovey Manor, Salford Park, Sandon Hall, Gatten Park, Langley Park, Marden Park, Stobo Castle, Ardross Castle and Moreton Paddox, among many others. In France his work is to be seen in the gardens of the members of the Rothschild family; in Sweden he advised the King in connection with the Royal Gardens, and the late Crown Princess in connection with her garden at Soljoro. Many important estates in Germany owe some of their best features to Mr. White's skill. Farther afield still, in India, Mr. White is well known for his work in connection with the Victoria Memorial at Calcutta, carried out in conjunction with the late Lord Redesdale. In Canada he provided the plan for the laying out of the grounds surrounding the new Government building at Ottawa. Mr. White came prominently before the horticultural world when he became Hon. Secretary of the Royal International Horticultural Exhibition of 1912; his appointment commenced in 1910 and continued until an organising secretary was appointed. It was Mr. White who planned the arrangements of that great exhibition in the Chelsea Hospital grounds. He possesses administrative ability of the highest order, with urbanity and courtesy which have won him hosts of friends, and skill as a landscape artist and

garden designer which has earned for him a foremost place in his profession and the Victoria Medal of Honour in Horticulture.

The U.S.A. Nursery Trade.—According to the latest census reports there are in the United States approximately 4,500 nurseries, covering 172,000 acres. It is estimated that these nurseries represent a capital of \$52,500,000, and they employ 45,600 men and 2,300 women. The amount of stock in these nurseries includes 3,400,000 woody plants and trees, in addition to millions of flowering plants. The American Association of nurserymen is the largest society of its kind in U.S.A. and embraces some 300 of the largest and most important nurseries in the United States.

R.H.S. Medal Awards.—The Council of the Royal Horticultural Society has arranged that the various medals of the Society shall be granted in future to specific subjects. Thus the Chairman of the Fruit and Vegetable Committee announced on Tuesday last that the Hogg Medals only would be awarded to fruit and the Knightian medals to vegetables. The Flora and Banksian Medals will be awarded for flowers and ornamental plants; the Lindley Medal will be given for a plant or plants of special interest or beauty, or showing exceptional skill in cultivation; the Grenfell Medal will be awarded to pictures, photographs or exhibits of a similar nature of botanical or horticultural interest. The Lawrence Medal, which is struck only in gold, is awarded directly by the Council; only one such medal is awarded annually and never to the recipient in either of the two previous years. The Society's Gold Medal will be awarded to exhibitions of special excellence. The Flora, Banksian, Hogg, Knightian, Lindley and Grenfell medals are struck in silver-gilt, silver and bronze.

Turnip Gall Weevil.—Quite frequently the galls produced by the grubs of the Turnip Gall Weevil on Turnip and other members of the Brassica family are mistaken for the swellings which indicate the presence of the dreaded Finger and Toe disease. A cursory examination and the use of a knife to cut open one of the rounded out-growths will enable anyone to determine whether the attack is due to insect or fungus, whilst the admirable description and illustrations given in the current issue of the *Journal of the Ministry of Agriculture* will render further assistance. Mr. Isaac* points out there are two races of the weevils, each producing one brood during the year. The race which appears in spring and breeds mostly in Charlock, and of which the adult beetles hibernate during the winter, is not of much economic importance. The other race, however, which appears in early summer and lays eggs in Cabbage, Turnip, and other cultivated Crucifers, remains in the galls, in grub form throughout the winter, and pupates in cocoons in spring. This is the race which does the greatest harm to farm and garden crops, hence it is of the utmost importance that infested roots and stems which have been in the ground all the winter should be removed early in March, and in the case of Spring Cabbages, the stems and roots should be removed at the earliest possible date. All infested stems and roots should be burnt so that the grubs may have no opportunity of reaching the adult or beetle stage and producing another brood. Mr. Isaac suggests that the land should be ploughed deeply immediately an infested crop has been removed, as this operation will crush and destroy numbers of the cocoons with the pupae within.

Stand Rents in Covent Garden Flower Market.—The standholders of Covent Garden Flower Market owe a debt of gratitude to the British Florists' Federation for successfully negotiating between them and the Covent Garden Estate Company. The latter proposed to raise the rents to £65 per year per stand; this has been reduced to £40 a year for the 208 market days, and if a tenant wishes to occupy his stand on the 104 bye-days, he may do so at 1s. 6d. per day; therefore he may occupy his stand every day the market is open at a cost

* Carnegie Institution of Washington. Publication No. 314.

* "The Turnip Gall Weevil." By P. V. Isaac. *The Journal of the Ministry of Agriculture*, March, 1922. His Majesty's Stationery Office, Kingsway, W.C.2. Price 6d., post free.

of £47 16s. This arrangement, which comes into force at midsummer, is a great boon to growers who sell their own produce, because pot-plant growers rarely use their stands other than on market days; for such tenants a saving of £20 5s. per year per stand has been effected, while for flower growers and flower salesmen always in the market the saving, as compared with the proposals, amounts to £17 4s. We understand the negotiations have been proceeding for three months, that the B.F.F. has acted for all the stallholders, whether members of the Federation or not, and that the British Florists' Federation has further established its position as the body to be consulted by the Covent Garden Estate Co., in all matters affecting the Flower Market.

Appointments for the Ensuing Week.—Reading and District Gardeners' Association's meeting and lecture by Mr. H. H. Cook: Tuesday, April 4.—Royal Caledonian Horticultural Society's meeting; Bournemouth Gardeners' Association's meeting: Wednesday, April 5.—Royal Hort. and Arbor. Soc. of Ireland Spring Show (2 days); National Viola and Pansy Society's meeting; Wimbledon and District Gardeners' Society's meeting. Thursday, April 6.—Manchester and North of England Orchid Society's meeting; Linnean Society's meeting at 5 p.m. Friday, April 7.—Paisley Florists' Society's meeting. Saturday, April 8.—Ringwood Society's meeting.

"The Gardeners' Chronicle" Seventy-five Years Ago.—*The Fa-tee Gardens, near Canton.*—In his book entitled *Three Years' Wanderings in the Northern Provinces of China*, Mr. Robert Fortune refers to the Fa-tee Gardens, long celebrated for their beauty by English residents, as follows: "It is, of course, in spring that the Fa-tee Gardens possess the greatest attractions. They are then gay with the Tree Paeony, Azaleas, Camellias, Roses and various other plants. The Azaleas are splendid, and reminded me of the exhibitions in the gardens of the Horticultural Society at Chiswick, but the Fa-tee exhibitions were on a much larger scale. Every garden was one mass of bloom, and the different colours of red, white and purple blended together, had a most beautiful and imposing effect. The principal kinds grown were *Azalea indica*, *indica alba*, *phoenicea*, *lateritia*, *variegata*, and the yellow *Azalea sinensis*. I may mention, in passing, that I found the latter plant wild on the Ning-po hills, so that there is no doubt of its being a genuine Chinese species. The air at this season around Fa-tee is perfumed with the sweet flowers of *Olea fragrans* and the *Magnolia fuscata*, both of which are grown extensively in these gardens. Dwarf trees, as may be supposed, occupy a principal station; they are trained into most grotesque and curious forms. The plants which stand next to dwarf trees in importance with the Chinese are certainly *Chrysanthemums*, which they manage extremely well, perhaps better than they do any other plant. So high do these plants stand in the favour of the Chinese gardener, that he will cultivate them extensively, even against the wishes of his employer; and, in many instances, rather leave his situation than give up the growth of his favourite flower. I was told that the late Mr. Beale used to say that he grew *Chrysanthemums* in his gardens for no other purpose than to please his gardener, not having any taste for this particular flower himself. Tree Paeonies are not natives of the south of China, but are brought down in large quantities every year, about the month of January, from the northern provinces. They flower soon after they arrive, and are rapidly bought up by the Chinese to ornament their houses, after which they are thrown away, as they do not thrive well so far south as Canton or Macao, and will not flower a second season. They are sold according to the number of flower-buds they may have upon them, many of them fetching rather high prices." *Gard. Chron.*, April 3, 1847.

Publication Received.—*Agricultural Co-operation in England and Wales*. By W. H. Warman. Williams and Norgate, 14, Henrietta Street, W.C.2. Price 5s. net.

COLOURED FREESIAS.

A NUMBER of raisers, including Van Tubergen, Jacob, Dalrymple, Mauger and Chapman have in recent years been as busy as bees among *Freessias*, and as a result new varieties in many colours are to be seen at every meeting of the Royal Horticultural Society at this time of the year. The colours range from the yellow of Buttercup to nearest-to-blue Bluebeard. There is the bright carmine Le Phare, the rosy pink Robinetta, the bright pink of Apple Blossom, and the violet lilac of Mr. Jacob's Merry Widow. Strange to say, the old *F. refracta alba*, which gained a First-Class Certificate in July, 1878, is still the favourite pure white, one of the best-known of all forcing plants and largely grown for market. Some varieties are more or less tubular, as in Buttercup, and in Treasure, in which the tube is restricted; others open Streptocarpus-like, and one of this type, named Eldorado, was shown by Messrs. Wallace and Co. at the Vincent Square meeting on March 14. This variety is as remarkable for its colour as for its form, and it has a resemblance to *Iris Eldorado*, in its rich combinations of yellow, heliotrope and clear gold. *H. C.*

of *Nikaria* it has as good a claim to specific distinction as any. But we know little or nothing of the geographical limits of *G. plicatus*, and it may be that *G. Ikariae* is not indigenous or restricted to the island; and we have only the word of unknown Greeks for that locality, as I have not heard of any botanist who has found the plant. Boissier, *Flora Orientalis*, V., p. 145 (1881), describes *G. graecus*, *Orph. in litt.*, as intermediate between *G. Elwesi* and *G. nivalis*, flowering in April at 3,800 feet on Mt. Pellinos, in the island of Chios. Halacsy, *Flora Graecae*, III., p. 206 (1904), gives *G. nivalis* var. *corcyrensis* from the Cyclades, and *G. "craecus," Orph.*, from Chios, but does not mention any other species except *G. Olgae*, an autumn-flowering form of *nivalis* from Mt. Taygetus. On referring to a good map, I find that *Nikaria* is only about thirty miles south of Chios, with no intermediate land, and the elevation of the mountains are much about the same. It therefore seems likely that the plant referred to by Boissier and Halacsy is the same as Baker's *G. Ikariae*. *H. J. Elwes, Colesborne.*

AMERICAN LILIES FOR THE GARDEN.

OF American Lilies, some of the finest are *Lilium pardalinum* and the exquisitely



FIG. 71.—FREESIA ELDORADO; A VARIETY WITH WIDE-MOUTHED FLOWERS; COLOUR, HELIOTROPE AND GOLD.

THE BULB GARDEN.

GALANTHUS IKARIAE.

LADY MOORE, writes in *The Garden* in commendation of *Galanthus Ikariae*, which I consider one of the best members of the genus, on account of its good constitution, which none of the other Greek Snowdrops seem to have, its free increase both by seed and offsets, in which, so far as my experience goes, it is unique, and in its lateness of flowering. In my garden it is now (March 22nd) in perfection when all others have passed, except a form (or hybrid, as supposed by Mr. Bowles) of *G. Elwesi* of unknown origin.

Now comes the question: What is *G. Ikariae*? It was described by Baker in *Gard. Chron.*, April 29, 1893, p. 506, from half-dried specimens in flower sent by Mr. Whittall from Smyrna, without the experience in cultivation, which is so important in deciding the systematic position of most bulbous plants. All the characters relied upon by Baker are very variable; but they remain constant in my garden, which is not the case with many oriental plants of this nature. It seems to me nearer to *G. plicatus* than to *G. Elwesi*, and if it is confined to the little island

coloured *Humboldtii*—both natives of far distant California. Another very beautiful Lily, introduced into this country from the Western States of America, is *Lilium Washingtonianum*—whose exquisite, somewhat miniature flowers have the rich fragrance of the Honeysuckle. When strongly established, it adapts itself to its environment in a marvellous manner. I saw it once in a "forsaken garden" flowering with the utmost composure among very rank grass.

Among the most grandly effective Lilies in our gardens are *L. auratum* and *L. speciosum*. Of the former, two of the most reliable forms for growth and floral impressiveness are the varieties named *platyphyllum* and *rubro-vittatum*; *platyphyllum* is a veritable giant in growth, occasionally approximating to the dimensions of *L. giganteum*, with broad and massive flowers; while *rubro-vittatum*, with its blood-red bands down the centre of each petal, is one of the most distinctive Lilies in cultivation. The *speciosums*, of which perhaps the finest representations are *Melpomene* and *Kraetzeri*, are invaluable in autumn for garden decoration. They have, in comparison with other Lilies, this supreme fascination: that their fragrance, like their aspect, is very refined. The long-florums are, I think, especially adapted for conservatory cultivation. *David R. Williamson.*

SPRING FLOWERS AT DRYNHAM.

THE winter, up to the present very cold spell, was unusually mild, and vegetation in the neighbourhood of London was particularly forward. Almonds, which do remarkably well on light soil, have been splendid this spring, the flowers being large and bright and the trees laden with them. *Prunus Pissardii* has also developed a wealth of bloom and with the pretty purple tips of the young growths, which are just developing, makes a pleasing contrast with the Almonds. In this district, both these trees have been beautiful features during the past few weeks. Forsythias have also flowered unusually well this season. One of our trees is ten feet in height and fifteen feet in diameter and has been covered with the beautiful yellow blossoms. Standard specimens have also been laden with flowers; some of the pendent shoots, which sweep almost to the ground level, have carried their full share of beauty.

The showy *Rhododendron praecox* has been exceptionally good and so has *Clematis Armandii*, which is fully a fortnight earlier than

blooms. *Osmanthus Delavayii* is a mass of white flowers which greatly resemble those of the *Bouvardia* individually. *Cornus Nuttallii* is showing profusely for bloom; apparently the hot summer of last season suited the plant. Our border of *Rhododendron* Pink Pearl promises better than ever; so numerous are the flower buds, it will be necessary to resort to severe thinning. This also is true with some of the Himalayan *Rhododendrons*.

Of the lowlier plants, Crocuses have been extra good, both the species and varieties. We have thousands of these plants dotted in various parts, and large numbers in the Rose garden, where each bed is massed with Crocuses in one colour and one large bed is filled with *Scilla sibirica*. These Crocuses and Scillas make the Rose garden gay at the dull season of the year and we find that they do not affect the Roses in the least. The smaller flowered Narcissi, such as *N. minimus* and *N. cyclamineus* are planted freely on a grass terrace surrounding the tennis lawn here and they look fine in this prominent position. We have also planted Narcissi, together with Snowdrops, on a mound around an old Thorn, with other bulbs such as

HARDY FLOWER BORDER.

ASTER PORTERI.

ASTER PORTERI is one of the plants I have had and lost, but this was not the fault of the plant, but of an unusually wet and trying winter that is naturally unsuited to this Starwort, which comes from Colorado, where the climate is quite different to that of the rather humid West of Scotland. But it is quite hardy on dry, well-drained soils in a climate fairly dry overhead. The plant needs a specially light and well-drained soil. It is quite worth some consideration, even among the plethora of members of the genus *Aster*. It is a suitable subject for the border, and grows to a height of two to three feet, and on neat stems carries a pleasing head of flowers that are a good white and prettily formed. It is not, I think, plentiful in cultivation in nurseries, but specialists in hardy flowers may be glad to know of this good *Aster*.

CAMPANULA RADDEANA.

BELLEFLOWERS of beauty abound, and the choice is a most embarrassing one when only a few can be accommodated. But one which may well be included in all good rock gardens, is that called *Campanula Raddeana*, a beautiful species from the Transcaucasian mountains, which has not been very long in cultivation, but has gained a high reputation for its beauty and obliging character in our gardens. Almost any soil which is not of a heavy nature will meet its wants, and as for position, it will grow in sun, partial shade, or full shade, although not under the drip of trees. It has elegant little foliage, rather heart-shaped and prettily notched, and made more pleasing by its glossy green. Its full beauty is revealed when it flowers in summer, and we can enjoy its exquisite violet bells of a shade difficult to describe, but of a most glorious colour. The plant will attain a height of nine inches in some places, and is then exceedingly pretty with its bells hanging from the graceful stems, but in poor soil it is much dwarfer and hardly reveals its full grace through the brevity of the stems. No one can grow it without pleasure.

ASTER SUBCAERULEUS.

SOME confusion has always appeared to exist between *Aster subcaeruleus* and *A. diplostephioides*, and this seems difficult to dispel. The main distinguishing feature which should be sufficient for identification is the eye of the flower, which in *A. subcaeruleus* is yellow, and in *A. diplostephioides* purple. Of the two, also, *A. subcaeruleus*, besides being longer lived, is a little taller in most places, being about sixteen inches high, while the other is about a foot or so.

A. subcaeruleus is very frequently met with under the name of *A. diplostephioides*; but the foregoing remarks should enable the reader to discover whether he has the plant under its proper name. The one under notice has almost leafless stems, each surmounted by a grand flower, like that of *Aster alpinus*, and rising from a carpet of soft green leaves. The plant is not difficult to cultivate in the ordinary border in good loam, and is one of the most acceptable of our June-flowering perennial Asters. It is increased by division or seeds. *S. Arnott.*

TREES AND SHRUBS.

PINUS CANARIENSIS.

PINUS canariensis (see p. 77) is found wild only in the Canary Islands, where it becomes 80 feet or more high, with a trunk 10 feet in girth. The leaves are in bundles of threes, and average 8 or 9 inches in length; the cones are about 5 inches long. The Canary Pine is not hardy at Kew, but there are several plants in the Temperate House. Even in Cornwall it does not seem to thrive well, but it is very good on the French Riviera. See *Gard. Chron.*, p. 723, fig. 94 (1888); and Vol. XV., p. 333 (1881). *W. J. Bean.*



FIG. 72.—*SAXIFRAGA IRVINGII*; FLOWERS FAINTLY TINGED WITH PINK.

last year. *Lonicera Halleana* has been a mass of blossoms, which give off a most beautiful perfume. *Pieris (Andromeda) japonica* has a profusion of flowers and is a most glorious object. *Ericas* that escaped injury by the drought of last summer are very good, including *E. lusitanica*, *E. Veitchii*, *E. mediterranea* and *E. australis*. All kinds of *Pyruses* give great promise for rich displays of their pretty blossoms, a few being already out. Some of the later flowering shrubs are also very promising and especially the *Magnolias*. Our plants of *Viburnum Tinus (Laurustinus)* have given an unusual quantity of bloom this winter and never before have I seen *Jasminum nudiflorum* so fine as this season. Early-flowering *Barberries* have been glorious, especially *B. japonica (Bealei)*, whose blossoms have a delicate perfume. *Daphne indica* has wintered well and is now in bloom. This is one of the most sweetly scented of all shrubby plants. *D. Blagayana* is also finely in bloom and this, like the other species, is an evergreen. Our plants of *D. Mezereum*, both red and white kinds, are excellent; several specimens of the white form are over six feet high. *Sarcococcus ruscifolia* is an early-flowering evergreen which produces small, white, fluffy

Grape Hyacinths and other forms of Narcissi to furnish a succession.

Early Saxifragas are flowering well in the rock garden, and amongst the most beautiful are *S. Faldonside*, the finest of all the yellow Saxifragas, *S. Irvingii* (see Fig. 72), a pretty pink hybrid, and *S. Burseriana*. Of blue flowers, *Anemone blanda* is flowering very freely, as also is *Scilla biflora*. *Iris reticulata* makes a fine show amongst the many patches of yellow Saxifragas. Where these Irises are planted in sunny nooks, the blooms appear early and the plants ripen off before they have time to become shabby. *W. A. Cook, Drynham Gardens, Walton-on-Thames.*

Berries of *Aucuba japonica*.—We have an extra fine display of berries on our Aucubas, the branches bending down with them; they make a cheerful show at this season, in contrast to the Snowdrops and Crocuses. The reason of our plants being so well berried is that a goodly number of male specimens were included at the time of planting. The buds of the male plants are opening their scales and showing the flower buds; but there are no signs of the female buds bursting. *J. P., Aberaman.*

NEW OR NOTEWORTHY PLANTS.

RHODODENDRON PRAETERITUM,
HUTCHINSON, NEW SPECIES.*

For two or three years, in early spring, there has flowered at Kew a *Rhododendron* with much the appearance of *R. maculiferum* and *R. oreodoxa*, but with a very different corolla, which has not up to the present been referred to any described species. In the two species mentioned, the corolla is funnel-shaped, whilst in the new species here described it is very widely campanulate (see Fig. 73).

It differs further from *R. maculiferum* in having no blotch at the base of the corolla, and in having a perfectly glabrous ovary, but like that species it has a hairy mid-rib on which, however, the hairs do not persist for any length of time. From *R. oreodoxa*, it is at once distinguished by the shape of the 5-lobed corolla and by the eglandular pedicels.

The specific name, from *praeteritus*, passed over or left behind, is intended to commemorate the fact that though this species has flowered consistently since 1918, it has only just been deemed worthy of a name.

RHODODENDRON PRAETERITUM, HUTCHINSON, new species allied to *R. MACULIFERUM*, and *R. OREODOXA*.

A shrub; older parts of the branchlets reddish-brown, terete, about 6 mm. thick, laxly and minutely pustulate; one-year-old branchlets short, sparsely and finely pubescent, bright green and shining. Leaves crowded and supporting the flowers, evergreen, oblong or oblong-elliptic, rounded and obtusely mucronate at the apex, slightly unequal and rounded at the base, dull dark green above, pale green and closely reticulate below, glabrous, except for the sparsely hairy mid-rib, from which the hairs soon fall off; mid-rib prominent below, pale yellowish green, soon becoming glabrous; lateral nerves 12-14 on each side of the mid-rib, diverging at an angle of 45 deg., slender, fading away and forking towards the margin; petiole 1.5-2 cm. long, rounded below, narrowly grooved above, at first finely pubescent, soon becoming glabrous. Inflorescence shortly racemose; axis 2 cm. long, pale sap green, glabrous except around the base of the bracteoles, larger bracteoles yellowish-white, spatulate-oblancoolate, obtuse, up to 3 cm. long and 1.5 cm. broad, appressed-villous outside; pedicels rather unequal, the lower about 1 cm. long, the upper 2 cm. long, reddish, with a few scattered white non-glandular hairs which soon fall off. Calyx oblique, small, shallowly 5-lobed, lobes broadly triangular-ovate, very slightly hairy on the

margin, up to 2 mm. long. Corolla, pink or white, flushed outside with pink, shining, widely campanulate, 5-pouched at the base, about 5.5 cm. across the top; tube 3-5.5 cm. long, with a few carmine spots inside the back, but no blotch; lobes 5, transversely oblong, deeply emarginate. 2.5 cm. broad, about 1.5 cm. long. Stamens 10, declinate, the longest slightly shorter than the corolla; filaments up to 3.5 cm. long, very slightly and sparsely pubescent towards the base; anthers chocolate-purple, 4 mm. long. Ovary glabrous, abruptly merged into the style, 7 mm. long, 6-celled; style glabrous, longer than the corolla, curved below the stamens, with a pale yellow lobed stigma. Cultivated in the Royal Botanic Gardens, Kew, from Wilson's Veitchian Seed, numbers 1800, 1864. *J. Hutchinson, Kew.*

PAEONIA MLOKOSIEWITSCHI.

A FLOURISHING plant of this yellow-flowered *Paeny* in the gardens of Rev. B. Douglas-Dick, S. Mary's, Newabbey, in the S.E. of Kirkcudbrightshire, flowers with comparative freedom each season. The owner of the garden, who is a keen plant-lover, informed me, however, that

ORCHID NOTES AND GLEANINGS.

BRASSO-CATTLEYA THORNTONII ALBA.

A VERY fine clear white form of the cross between *C. Gaskelliana* alba and *Brassavola Digbyana* is sent by Messrs. H. E. and W. Lack (gr. A. J. Mayes), Wellingborough, who state that the flower has been open a month, and that the seed parent was *B. Digbyana*. The cross on to the *Brassavola* is rare, the *Cattleya* as seed bearer in all the sections being usual. The large flower is of very firm substance (a character always shown when *Brassavola* is the seed bearer); it is pure white, with a sulphur-yellow disc to the fringed lip.

ONCIDIODA STUART LOW.

A FLOWER of this remarkable cross between *Oncidium macranthum* and *Oncidioda Cooksoniae* (*O. macranthum* × *C. Noezhiana*) sent by Messrs. Stuart Low and Co., shows a decided advance towards imparting rich red colour to the yellow *Oncidium macranthum* and retaining its large size. The flower in the new combination again with the *Oncidium* has attained to two-thirds of the full dimensions of the *Oncidium*, with its broad segments. The



(Photo by R. Kellv.)

FIG. 73. RHODODENDRON PRAETERITUM; NEW SPECIES; FLOWERS WHITE, FLUSHED WITH PINK ON THE OUTER SURFACE.

* *Rhododendron praeteritum*, Hutchinson, sp. nov.; affinis *R. maculifero*, Franch., et *R. oreodoxae*, Franch., ab illo pedicellis fere glabris corollae tubo emaculato ovario glabro ab hoc pedicellis eglandulosis, et ab ambobus corollae tubo late campanulato differt.

Frutex; ramuli vetustiores rubri-brunnei, teretes, circiter 6 mm. crassi, laxi et minute pustulati; ramuli annotini breves, parci et tenuiter pubescentes, virides et nitidi. Folia conferta, rosulata, sempervirentia, oblonga vel oblongo-elliptica, apice rotundata et obtuse mucronata, basi leviter inaequalia et rotundata, supra opaca et atro-viridia, infra pallide viridia et crebre reticulata infra costa pilis deciduis excepta glabra; costa infra prominens, pallide flavo-viridis, mox glabra; nervi laterales utrinsecus 12-14, a costa subangulo 45° abeunt, graciles, marginem versus evanidi et furcati; petioli 1.5-2 cm. longi, infra rotundati, supra anguste canaliculati, primum tenuiter pubescentes, mox glabri. Inflorescentia breviter racemosa; axis 2 cm. longa, pallide viridia, circumbracteolarum hasae parce pubescentes, strum gibba bracteolae majores flavo-albae, spatulato-oblancoolatae, obtusae, usque ad 3 cm. longae et 1.5 cm. latae, extra appresse villosae; pedicelli parum inaequales, inferiores circiter 1 cm. longi, superiores 2 cm. longi, rubescentes pilis albidis eglandulosis deciduis parce induti. Calyx obliquus, parvus, 5-lobus, lobis late triangulari-ovatis, marginibus leviter pubescentibus usque ad 2 mm. longis. Corolla alba, extra roseo suffusa, nitida, late campanulata, basi 5-saccata, apice circiter 5.5 cm. diametro; tubus 3.5 cm. longus, intra dorso maculis carmineis ornatus; lobi 5, transverse oblongi, profunde emarginati, 2.5 cm. lati, circiter 1.5 cm. longi. Stamina 10, declinata, corolla leviter breviora; filamenta usque ad 3.5 cm. longa, basius versus leviter et parce pubescentia; antherae purpureae, 4 mm. longae. Ovarium glabrum, in stylo abrupte contractum, 7 mm. longum, 6-loculare; stylus glaber, staminibus longior, curvatus, stigmate pallide flavo lobato

he considered *P. Wittmanniana* the better coloured species of the two.

Although I have seen both plants, I have not had an opportunity of comparing them at one time, but Father Dick's opinion confirms the one I had formed regarding the respective merits of the two. In the *Journal of the Royal Horticultural Society*, Vol. XLVI. (May, 1921), in the report of the meeting of the Scientific Committee, held on April 20, 1920, it is stated, regarding various plants shown by Mr. H. J. Elwes, *inter alia*, that "Paeonia Mlokosewitschi is the best and earliest yellow Paeony." It is, generally, I think, the earliest yellow one, but I wonder if Mr. Elwes has compared this species with *P. Wittmanniana*. The latter is reputedly difficult to cultivate, but in the garden at St. Mary's and in a few other South of Scotland gardens known to me, it thrives and flowers well. I may add that this Paeony grows well in an ordinary border of good soil. *P. Mlokosewitschii* was the subject of the Supplementary Illustration in *Gard. Chron.*, July 25, 1908. *S. Arnott.*

broadly ovate sepals are dark purplish-red, the upper one being rather lighter. The broader petals are red with yellow margin and tips. The lip, which adheres closely to *O. macranthum*, is fleshy in substance, the two side lobes purple at the base and yellow outwards; the narrow intermediate lobe is yellow at the tip and red around the prominent crest.

Laelio-Cattleya sol.

A FLOWER of this finely-coloured new cross is sent by C. J. Lucas, Esq., Warnham Court, Horsham. It was obtained by crossing *L.C. Apollo* (*C. Schröderae* × *L.C. Warnhamensis*) and *L.C. Luminosa*, most of the parents having been raised at Warnham Court. The flower, which is of good size and shape, has light yellow sepals, slightly tinged with pink. The broad petals, show the white mid-rib at the base, from which a faint mauve flush extends to the outer parts, which are pale apricot yellow. The broad lip is entirely bright violet-purple, except for a small white space beneath the pure white column.



THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Dendrobium Phalaenopsis.—Plants of this delightful Orchid are developing new growths, and as soon as fresh root action commences any necessary repotting should be carried out. The plants will grow best suspended from the roof rafters of the warmest house, where they will receive plenty of light. They should be grown in shallow pans, as they do best in a small amount of compost. In potting, half fill the pans with drainage material, and arrange the plants so that the bases of the young growths are on a level with the rim of the receptacle. Tie the pseudo-bulbs to neat sticks, and not to the wire, as in the swaying of the pan the plants may be disturbed at the base, which will prevent them rooting into the new material. A suitable rooting medium is composed of equal parts of *Osmunda* and A1 fibres, and one part *Sphagnum*-moss cut up rather short, according to the size of the pans to be used. Pot firmly, and keep the plants on the dry side until the new roots have entered the fresh material, after which they will require liberal supplies of moisture, both in the atmosphere and at the roots. If water is applied too soon, there is a danger of moisture getting in between the new growths and causing them to decay. The plants should only be shaded from bright sunshine during the hottest part of the day, and then only when there is a danger of them scorching. The chief needs of these Orchids, which comprise such species as *D. superbiens* and *D. Goldei*, are plenty of heat, light, and moisture whilst they are in full growth, with a dry rest after blooming.

Various Dendrobiums.—At one time spring-flowering *Dendrobiums* were in great demand, and formed a prominent feature in most collections. The majority of the plants are passing out of bloom, although it is possible to have them in flower until well into May, by keeping them in a moderate cool house until the inflorescences are nearly developed. As soon as the flowers are faded, the plants will develop new growth rapidly, and when fresh roots are observed those that require repotting should have attention. Like other Orchids, all the plants will not be ready for potting at one time, therefore it is advisable to attend to them as they become ready. At this stage let the plants receive the least possible check in repotting. Large, healthy, well-established specimens should not be disturbed too much, only the decayed, sour compost removed. Plants with a quantity of leafless pseudo-bulbs should have them removed and be placed in receptacles which just accommodate them. *Dendrobiums* of all kinds resent a large quantity of material about their roots, and the compost should be of a clean, open nature, such as coarse A1 fibre mixed with live *Sphagnum*-moss.

THE FLOWER GARDEN.

By EDWIN BECKETT, Gardener to the Hon. Vicar, Gibbes, Aldenham House, Hertfordshire.

Border Carnations.—The present is a suitable time to plant young Carnations raised from layers last autumn, and if placed in groups, all of one sort, they will form a very beautiful and important feature of the herbaceous border. The modern race of *Dianthus Allwoodii* is a valuable addition to the Carnation family, and includes many lovely named varieties.

Kniphofia.—The old-fashioned Red-hot Poker Plant, sometimes known as *Tritoma*, is a favourite flower still, and when well grown is a fine ornament to the herbaceous border. About the middle of March such species as *K. Uvaria* (aloides) may be lifted and divided, where this is deemed advisable. Some of the smaller species, such as

K. Nelsonii—a dainty plant for the front of the border—are rather impatient at being disturbed, and where they can be left it is far better merely to clean them over, removing dead foliage and any rubbish that may have accumulated around them. *Kniphofias* are somewhat tender, and for winter protection they should have a good layer of fine cinder ash placed well round them; the foliage of the taller varieties should also be gathered together, twisted lightly, and then formed into one loose knot. *Kniphofias* prefer well-drained sandy or loamy soil that has been freely enriched with manure, and should be planted in a sunny spot.

Seedlings.—Young plants of annuals and perennials raised from seed sown in boxes, etc., last month, should be pricked out into other boxes, and grown on in the same temperatures as those in which they were raised, until they are well established, when they should be hardened gradually, with a view to planting them in the open when suitable weather arrives.

The Fernery.—Where hardy Ferns are grown in beds or other places by themselves, they should receive attention at this season. A previous caution was given not to remove the dead fronds too early, but this may now be done, and where desirable the plants lifted and replanted. New borders should also be prepared, and a description of the border at Aldenham may be useful, as this phase of outdoor gardening may well prove one of the most interesting. The border in question, containing upwards of 130 hardy species and varieties of Ferns, is about 6 to 8 feet wide, and runs along the northern side of a fruit wall. Our soil is heavy and tenacious, but a good bed is formed of decayed leaf-mould, and in this the Ferns thrive happily and well, and are a constant source of interest to our many visitors.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir C. NALL-CAIN, Bart., The Node, Coddicote, Welwyn, Hertfordshire.

"Malmaison" Carnations.—One-year-old plants of *Souvenir de la Malmaison* Carnations that were transferred to 7-inch pots are growing freely, and when it is found that they are well rooted an occasional light dose of some approved Carnation fertiliser may be given the roots. The stimulant will be best applied in a liquid form; soot water is also beneficial to the plants and also makes a change of food. In my opinion these Carnations resent overfeeding, and where excessive stimulants of an organic nature are given, the flowers will, in all probability, show coarse centres, but when the plants are fed judiciously the flowers show a marked improvement in quality. Greenfly is very partial to these plants, and must never be allowed to infest them; occasional fumigations will keep the pest in check. Air should be admitted freely on all favourable occasions. Warmth from the hot-water pipes will not be necessary except on very cold nights.

Primula sinensis flore pleno.—The old double white *Primula* is now very rarely grown in gardens, although it is still worthy of its place among greenhouse subjects. The plants are now passing out of flower, and should be prepared for propagating, as this variety cannot be raised from seed. The bottom leaves should be carefully cut away, and a slit made with a sharp knife in each division of the stem in an upward direction, placing a small piece of crock or charcoal in the cut to keep it from closing up. The plant should then be packed around with *Sphagnum*-moss, leaf-mould, and silver sand to encourage roots to develop. When it is found that the top-dressing is filled with roots, the plant should be pulled to pieces carefully and potted in a very light compost. The plants should then be stood in a propagating frame for a few days to favour root action, but they should not remain in a closed frame for any length of time or they will probably damp off very badly. Double-flowered *Primulas* require very similar treatment to the single type after they are established, but they will bear a little higher temperature after flowering is over.

THE KITCHEN GARDEN.

By JAMES E. HATHAWAY, Gardener to JOHN BRENNAND, Esq., Baldersby Park, Thirsk, Yorkshire.

Pricking Off Seedlings.—Plants of Onions, Leeks, Cauliflowers, etc., sown in boxes, should be carefully watched and transplanted as they become ready. After the roots have been disturbed in this way use the syringe freely, but not to the extent as would cause the soil to become excessively wet.

Peas.—Plants raised from seed sown in turves or boxes should be gradually hardened off ready for planting out of doors. If they are placed in a cold frame the lights should be removed during the day and air admitted on mild nights. Sowings of Peas should be made every fortnight from now onwards to ensure continuous supplies.

Asparagus.—Asparagus beds should be raked over and the rough material put in the alleys and dug in. The beds should then be dressed with Asparagus manure, and the surface forked over lightly. This plant is greatly benefited by frequent dressings of salt, and the best time to apply the salt is just before or during a shower. New beds should be made on ground which has been previously trenched 3 feet deep; on heavy land the beds should be raised; this may be done by marking out the beds 4 feet wide with 2-feet alleys between them, and throwing the soil from the alleys on the top of the bed to raise it about 1 foot above the general level. The planting should then be done quickly so as not to expose the roots to the air longer than is necessary. Plant three rows in each bed, allowing a space of about 18 inches between each plant in the row. Where old plants are not available, seed may be sown in drills and the seedlings thinned to a requisite number; but this method is a very slow one, and means waiting a long time before the crop is ready to cut. It is much better to sow a few seeds annually on a special seed bed, and have a reserve of three-year-old plants.

Carrots.—The main sowing of Carrots should be made in ground that has been well trenched in the autumn. Apply a liberal dressing of lime and wood ash, and well work the materials in the soil either by forking or the use of a Planet Junr. scuffler. The surface should afterwards be levelled and the seed sown in drills made 12 inches to 15 inches apart, according to the variety. As soon as the seedlings begin to show apply light dressings of soot along the rows.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER CLAY M.P., Ford Manor, Lingfield, Surrey.

Successional Figs.—Trees growing in restricted borders with warm fermenting material packed about the turf walls need a temperature of 55° to 60° at night, and 10° higher by day. The season being well advanced, the house may be closed very early to make full use of the sun's heat. Syringe the trees well with tepid water twice on fine days, and occasionally with clear soot water. Let the roots have ample supplies of liquid manure made 5° warmer than the bed. Remove all superfluous side shoots to prevent crowding; at the same time look well to the proper furnishing of the tree with spur wood, that is short pieces with good points, and train in all leaders at their full length, as these will produce a continuous succession of fruits throughout the season.

Thinning Grapes.—Grapes should never be touched by the hand or rubbed by the hair, as when the bloom is removed in this way the berries "rust." The operator should use a short, forked stick for keeping the bunch steady and lifting the shoulders; then, with the scissors, cut away all stoneless berries, and plenty in the centre of the bunch to keep it open. The outside berries may then be regulated to a nicety, and the first thinning finished. Thinning in the morning is to be preferred, as the house as well as the body is cool and free from moisture. The bunches should be gone over again for thinning after

they have stoned, and, finally, when they commence their last swelling.

Vines from Eyes.—Single eyes, rooted as recommended on page 16, should be ready for planting in 6-inch or 7-inch pots. An atmospheric temperature ranging from 70° to 85° is suitable, with a steady bottom-heat of 75°. These vines should make good plants for putting into new borders in May and June. The soil for the border should be similar to that recommended for fruiting vines, and should be kept somewhat dry and warm with the pots plunged to the rims. When the vines have become well established at the roots, the pots may be drawn out of the bed and placed thinly apart on the surface.



G. N.E. Brown.

FIG. 74.—GIBBAEUM PERVIRIDE; NATURAL SIZE.

HARDY FRUIT GARDEN.

By H. MARKHAM, Gardener to the EARL OF STRAFFORD, Wrotham Park, Barnet.

Grafting.—The sap is on the move, and the bark of most trees intended for grafting will part freely. Push forward with this work as fast as time will allow. Select scions of the best varieties, and those most useful for furnishing a long supply of good fruits. For large stocks that have been suitably headed back in advance, crown or rind grafting is the best method, whilst whip grafting is the kind usually adopted for smaller stocks. There should be no difficulty in getting the majority of the scions to unite quickly at this season, provided the inner bark of the graft and stock are made to meet. Do not bind the scion too tightly, and use a broad material in a moist condition for the purpose. When the binding is completed encase the whole with a mixture of clay and cow manure made into a paste. The clay should be examined at intervals, and where it has cracked or parted from the wood make good again.

Peaches and Nectarines.—The flowers of both Peaches and Nectarines are opening fast; the flower buds appear to be strong and plentiful, so that, should the weather prove favourable, we may expect good crops of these fruits. Protection from cutting winds and keen frosts will be necessary: canvas blinds, raised and lowered by means of ropes and pulleys, are easily manipulated, but they should only be lowered when frosts threaten and very cold winds prevail. Two or three thicknesses of fish netting will keep out a lot of frost and prevent sleet and cold winds from doing much damage to the blooms, especially when the flowering wood is neatly nailed to the bricks. In very favourable districts protection may not be needed, but the grower should be on the safe side by having protective material in readiness in case the weather proves very severe.

Espalier Trees.—In building up evenly balanced trees of this type, great care should be taken to have the horizontal branches suitably placed. If there is any doubt about the bud needed to form a "tier" remaining dormant, it should be made to break by practising what is termed notching, that is, making an incision just above the bud deep enough to penetrate the wood and check the sap passing beyond it. If this is done carefully good results are certain.

MESEMBRYANTHEMUM AND SOME NEW GENERA SEPARATED FROM IT.

(Continued from page 129.)

II. GROWTHS, GLABROUS AND SMOOTH.

4. *G. PERVIRIDE*, N.E. Br. (Fig. 74). Plant with age, forming short, branching, woody stems 1-2 inches long and $\frac{1}{2}$ - $\frac{1}{4}$ inch thick, spreading upon or partly buried in the ground; each branch bearing one growth or a small cluster of growths. Each growth $1\frac{1}{2}$ - $1\frac{1}{4}$ inch long, 8-9 lines broad across the two component leaves when resting and closed together, and 6-7 lines thick, with the apical part of the larger leaf more or less compressed, with a slight keel down the front and over the obtusely rounded apex, and the smaller leaf ovate or ovate oblong, flattish on the inner or upper side, and rounded on the back, deep grass-green, not at all glaucous, shining when in a plump growing condition, and then with the two leaves widely separated. Flowers not seen, described by Haworth as having a "small unequally 6-lobed calyx, as in *M. gibbosum*,"

Although I have cultivated *G. perviride* for many years, it has never attempted to flower. The variety *luteoviride* I have never seen.

5. *G. GIBBOSUM*, N.E. Br. Stem of old plants 1 inch long, densely furnished with very short, alternate, prostrate branches. Leaves variable, expanding, scarcely two of equal size on the whole plant, one of each pair always larger, longer and more gibbous than the other on the back, few of them more than 1 inch long, very thick, united at the base, all more or less blunt, compressed and gibbous on the back, dullish glaucous-green. In another place they are described as "one short and gibbous, the other much enlarged and oblique at the apex, spreading, ovate, semicylindric, rarely keeled at the apex, yellowish-green." Pedicel very short, compressed, 2-edged or almost winged. Calyx unequally 6-lobed; 4 lobes flattish, with more or less membranous sides; 2 larger, with an acute keel decurrent upon the pedicel. Corolla small, about half an inch in diameter. Petals linear, reddish, with paler margins; stamens numerous, short, convergent; anthers yellowish-white. Styles 6, erect, very short, greenish-yellow. *M. gibbosum*, Haw. *Obs. Mesemb.*, pp. 137 and 451 (1794).



FIG. 75.—GIBBAEUM GIBBOSUM (?) IMPORTED PLANT; NATURAL SIZE.

and a corolla "a little larger and paler than in *M. gibbosum*. Petals uniformly red, very obtuse. Stamens short, spreading, with white filaments and yellowish anthers. Styles 6, very spreading, as long as the filaments, with subulate subvillose recurved tips." *M. perviride*, Haw. *Obs. Mesemb.*, p. 136 and 451 (1794), and *Misc. Nat.*, p. 37.

South Africa. Locality unknown, introduced in 1792; collector not stated.

Var. *LUTEOVIDE*, N.E. Br. Leaves larger and longer than those of the type, yellowish-green. "Calyx 2-edged at the base, 6-lobed, the two outer lobes larger than the others, obtuse, keeled, the remainder flattish, subovate, retuse, with purplish, membranous margins. Corolla almost as in *M. perviride*; petals numerous, somewhat imbricate at the base, rather broad or cuneate-linear, often notched, pale reddish, with a darker mid-line, whitish at the sides at the base. Stamens nearly three times as short as the petals, spreading, white, with sulphur-coloured anthers. Styles 6, strongly plumose, at length spreading, but very short and much shorter than the stamens." *M. perviride*, var. Haw. *Misc. Nat.*, p. 37 (1803). *M. luteoviride*, Haw. *Synop.*, p. 226 (1812).

South Africa. Locality and collector unknown; introduced about 1795.

South Africa. Locality unknown.

The above description is compiled from that of Haworth, and represents all that is known of this species, for no plant at present in cultivation that is known to me corresponds to the above characters. But I have a plant, collected near Matjesfontein, and sent to me by Dr. Pole Evans under No. 968 that I strongly suspect to be *G. gibbosum*. It is reproduced in Fig. 75, and consists of a number of growths crowded upon a very shortly branched woody rootstock, forming a hemispherical tuft about 4 inches in diameter. Each growth is $1\frac{1}{2}$ - $1\frac{1}{4}$ inches long and 7-8 lines thick at the lower part, stoutly conical-ovoid, tapering from about the middle into a conical obtuse point, slightly keeled down the front, with the smaller leaf (measuring from the base of the fissure) about half as long as the larger one; at first they are closely pressed together, afterwards more or less separating, smooth, quite glabrous, of a light and somewhat yellowish green at the basal part, suffused with purple on the upper part, and with a faint glaucous tint. I have not seen a flower of it. If this proves to be Haworth's *M. gibbosum*, then Fig. 75 will represent its appearance as it grows under natural conditions. *N. E. Brown.*

(To be continued.)

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NOTES ON MYCORRHIZA PLANTS.

THE story of the Orchids and their root fungi (*Gard. Chron.*, March 4) teaches us how remarkable and varied may be the relation of the two partners in mycorrhiza plants. In general, Orchid plants are not formed with the roots free from fungal mycelium, nor can seeds produce normal seedlings unless sown under conditions favourable to infection.

The only other group of vascular plants in which a similar dependence has been discovered is the Heath family (*Ericaceae*). Here, as in *Orchidaceae*, we are dealing with plant species showing marked soil preferences and a well-defined distribution in Nature. How this distribution is affected by the double nature of the plant is not easy to say, but it seems probable that the two sets of facts may be causally related, since it is obvious that unfavourable conditions in the environment are likely to be intensified in the case of plants with which are regularly associated fungal species of a potentially parasitic nature.

Before giving a brief account of the remarkable state of affairs in *Ericaceae*, it may be of interest to review our modern knowledge of the mycorrhiza habit in general.

In the first place, the occurrence of mycorrhiza of the type described by Frank as endotrophic is known to be far more widespread than was formerly imagined. Not only is it a constant feature of the anatomy of certain families, e.g., *Orchidaceae*, *Ericaceae*, *Epacridaceae*, etc., but it is known to be present in a vast number of species belonging to widely separated groups of both *Monocotyledons* and *Dicotyledons*. Nor is the condition confined to flowering plants; it is found also among *Gymnosperms*, and is not infrequent in *Ferns* and their allies. Even among the lower plants an association between plant cells and fungus hyphae other than that of parasite and host has been recognised in *Liverworts*, although in the case of rootless plants the term mycorrhiza can hardly be used to describe it.

Turning once more to the flowering plants, we find in some species mycorrhiza invariably present, in others frequently recorded; affecting sometimes all the roots of the plant, or confined to the younger roots. It is rare for roots to show external features whereby the condition may be identified without microscopic examination. Within the root the distribution of mycelium varies from species to species, and not infrequently features are present pointing to an advanced stage of specialisation in the fungus and a high degree of adaptation between the two partners. Thus, the mycelium often develops special organs, the microscopic appearance of which indicates exchange of food materials, the evidence usually pointing to a balanced relation, in which now one partner and then the other profits. This interpretation is consistent with the fact that the fungus is doubtless always of the nature of a facultative parasite; that is, an organism which, given appropriate conditions, lives and grows at the expense of living tissues, but can also exist if supplied with dead organic material.

Among the many species known to form mycorrhiza may be mentioned the following:—*Asparagus officinalis*, *Colchicum autumnale*, and various species of *Allium*, *Scilla*, *Yucca*, *Agave*, and *Aloe* among *Monocotyledons*; *Anemone nemorosa*, *Teucrium*, *Scorodonia*, *Stachys*

Betonica, *Ranunculus* spp. and many other *Dicotyledons*.

In none of the plants, however, is the systematic position of the root fungus known, nor has any attempt been made to cultivate any one of them under experimental conditions such that mycorrhiza is not formed. Were all the facts available it is probable that a series could be traced leading from a relatively unspecialised condition in which a flowering plant suffers infection of the root-cells and tolerates mycelium in the tissues—a condition comparable with that of an individual who "carries" the bacilli responsible for causing typhoid fever or diphtheria without himself showing symptoms of these diseases—to that found in the *Orchids* and *Heaths*, where the very existence of the species is bound up with early infection of the seedling.

In *Ericaceae*, the facts are fully known in the common *Ling* (*Calluna vulgaris*), and there is abundant evidence that a similar state of affairs

microscopic examination of germinating seeds shows that an infection of the seedling tissues takes place regularly from the seed coat.

Observations such as these led to a successful attempt to sterilise the seed-coat without damaging the viability of the seed, and to the discovery that seeds so treated germinate normally, although the resulting seedlings fail to develop roots or to form more than a couple of pairs of leaves. The evidence pointed to superficial infection of the seeds by the root fungus, while still within the fruit, followed by inoculation of the seedling from the seed-coat at germination. All the necessary experimental proofs have now been supplied that this is actually what happens in *Ling*. This peculiar mode of infection involves the spread of the root fungus throughout the green, actively-assimilating tissues of the shoot and within the organs of the flower, a condition contrasting sharply with that found in *Orchids*, in which growth of the fungus is usually restricted to the colourless parts.

The remarkable fact emerges that the *Ling* plant, like a *Lichen*, is always of a dual character, involving the intimate association of the cells of a green plant with the mycelium of a fungus. Only for a brief space of time within the resting seed does the embryo retain its individuality as an independent plant. Subsequent to germination, mycelium soon becomes active and vigorous in the roots and spreads throughout the shoot, although in the green tissues it is greatly restricted in growth, and there is evidence of digestion by the cells of the leaf. A plant partnership indeed of a unique and remarkable kind! Cases of equally wide distribution of mycelium without obvious injury to the host are not unknown in certain of the parasitic "Smut" fungi, which attack cereals, but here the "balanced" relation between parasite and host is maintained only for a relatively short time.

Now what do we know of the bionomics of this curious partnership? On the one hand we have a green plant which can absorb water and salts and manufacture abundant sugar in its leaves; on the other, a fungus species which, when grown independently outside the plants, produces the characteristic spore bodies of the parasitic genus *Phoma*. The *Ling* plant grows naturally in poor, peaty soils, deficient in nitrates; the fungus can doubtless use the organic remains abundant in such soils as a source of the carbon and nitrogen compounds required for growth.

Speculation on the history of the relationship leads to some such view as the following:—The ancestors of the *Ling* plant suffered invasion by a parasitic fungus, which became widely distributed throughout the tissues. In the roots a relation was established which permitted the two organisms to carry on their nutritive processes without injury to one another, leading eventually to a symbiotic partnership with some degree of mutual exchange and benefit. The exact chemical nature of this exchange is difficult to establish with certainty, since it is not possible at present to produce a *Calluna* plant free from the fungal partner. In the shoot of the plant the balance of profit would tend to be on the side of the fungus, and it is not surprising to find that in this region growth of the invader is extremely restricted, and that there is evidence of digestion of mycelium by the cells of the leaf.

Within the fruits infection of the seed-coats takes place apparently during the late stages of ripening and may possibly be associated with the alteration and breaking down of the outer cells of the hard seed-coat. Certain it is that the seeds are shed carrying the hyphae of the fungus partner with them, and that their germination is regularly accompanied by a corresponding activity on the part of the mycelium which they bear.

Now in the case of plants like *Ling* and *Heather*, which often monopolise large areas of soil very poor in available salts of nitrogen, the suggestion is almost inevitable that possibly the fungus partner possesses in some degree the power of utilising the free nitrogen of the air as a source of food.

This matter has been studied experimentally



FIG. 76. — *ARECASTRUM ROMANZOFFIANUM*, DIFFERENT VARIETIES, IN A PALM WOOD AT GOLFE JUAN, NEAR NICE (see page 153).

is widespread in the group. Throughout the family, mycorrhiza of a characteristic kind is invariably found, and the condition observed in *Ling* may be regarded as typical. The root system is richly branched, with a relatively large proportion of young, very slender roots, all of which develop mycorrhiza. Mycelium grows sparingly on the outside of the root, but fills the majority of the outer cells with masses of closely branched hyphae.

It had always been assumed that infection of the roots in *Ericaceous* species took place directly from the soil. This theory is at once discredited by the observation that the seeds of *Ling*, sown on moist blotting paper and protected from contamination, produce seedlings showing early and characteristic infection. Moreover,

and the evidence is very strong that such is indeed the case. This in itself provides an intelligible explanation of the successful competition of such slow-growing plants as Ling and Heather on poor soils, a fact otherwise difficult to understand in view of the small size and slow growth of their seedlings. Assuming that this is the correct interpretation the general relation is probably not unlike that between Leguminous plants and their nodule bacteria, although the details of the association may differ widely.

We do not yet know how infection by the fungus and root formation on the part of the seedling are related to one another in either the Orchids or Ericaceae. It is likely that the effect is one closely related to nutrition, and an attractive problem is presented by the possibility of replacing the stimulus produced by entry of the fungus in some other way, for example, by a supply of some special nutrient.

Many other observations bearing on these curious cases of symbiosis might be described, but enough has been told to enable the reader to judge how fascinating is the task of unravelling the complicated story involved in each one of them.

Partnerships they undoubtedly are, although the actual condition in both the Orchids and Ling at any given moment would perhaps be better described as one of mutual and balanced parasitism rather than symbiosis in the ordinary sense.

From the evolutionary point of view, all such relations between plants are of the nature of compromises brought about by the severity of the struggle for existence. Many of them are as yet only in the experimental stages; the Orchids and Ling represent extreme cases in which a relatively high degree of stability has been reached. In both cases the balance of profit is probably on the side of the vascular plant. The condition in Ericaceae is the most specialised yet recorded. The seedling is insured against risk of non-infection. Some problems of nutrition have doubtless been solved, but the premium paid by the plant has been a heavy one: the loss of independence and the presence of a parasite fungus throughout the vegetative tissues. *M. C. Rayner.*

PALMS OF THE RIVIERA.*

I now come to a Palm which is considered the most beautiful of the many grown on the Riviera, a Palm which usually goes here and elsewhere under the names of *Cocos plumosa*, *Cocos flexuosa* and *Cocos Romanzoffiana*, but which has been separated from the genus *Cocos* by Prof. O. Beccari and given the name *Arecastrum Romanzoffianum*. Prof. Beccari considers, though it seems to me hardly justified, that all these Palms—which he himself admits have rather different characters, especially as concerns the shape of the fruit and its endocarp, form only one species, with six varieties. All have most beautiful leaves resembling enormous ostrich feathers and of an extraordinarily graceful shape because the leaf stalk is erect and only the upper third of the leaf curves outwards with its point slightly bent down, so that a bouquet of utmost grace is formed by the crown of some fifteen or twenty-five leaves, which are of some three to four metres in length, and even longer in certain varieties. The colour of the leaves is a pure, glossy, dark green, which contrasts well with the whitish, grey, smooth, and mostly slender trunk so different from the trunks of the Palms which I have mentioned hitherto. As the leaves die, they fall off, leaving a distinct, annular mark on the whole circumference of the trunk, and as the leaves are not closely packed, as in many Palms, the annular marks of the fallen leaves are rather distant and show distinctly against the whitish trunk, constituting quite an ornamental feature. Everybody has heard of the famous royal Palm of Cuba, *Ore-*

doxa (*Roystonia*) *regia*, which is too tender to survive the winter on the Riviera (at least up to now it has not succeeded); certain forms of *Arecastrum Romanzoffianum* may be compared favourably with this famous royal Palm, to which they bear some resemblance, mainly on account of the shape and position of the leaves. The different varieties of *Arecastrum Romanzoffianum*, being indigenous in far distant parts of South America with different climates, are, as is to be expected, of different hardiness here. Some varieties, such as *Arecastrum Romanzoffianum* var. *ensifolium*, from the country around Bahia, which has a tropical climate, are, of course, less hardy than others like *Arecastrum Romanzoffianum* var. *australe* from Argentina, Uruguay and Rio Grande do Sul. Some varieties have trunks thicker than others, and some have a crown of leaves more dense than others, but all are ornamental in the highest degree, and the extra-tropical varieties have proved so hardy, that they can be planted safely anywhere on the Riviera. Still, these remarkable Palms are not nearly met with so commonly as most of those I have mentioned before, because they do not as a rule succeed well in calcareous soil, and among a great number of seedlings one finds differences as to re-

and therefore *Arecastrum Romanzoffianum* is eminently adapted as a cover and shelter tree, where it is desired to produce in the highest degree the aspect of tropical scenery, for instance, that of a Palm wood. The flowers of *Arecastrum Romanzoffianum* are whitish and followed by large bunches of orange-yellow fruits of different size, from that of a Cherry to that of a small Plum, according to variety, and these fruits give an additional ornamental value to the plant. Of a few varieties, the flesh of the fruit is fairly edible, but of most, it is insipid and full of fibres. M. Paul Nabonnand, horticulturist of Golfe Juan, some thirty-four years ago pollinated *Butia capitata* var. *pulposa* with pollen of *Arecastrum Romanzoffianum* var. *australe*, and obtained a most strikingly characteristic hybrid, having intermediate characters, which I have described and named in *Riviera Floricole* as *Butiareastrum Nabonnandii*. As is often the case with hybrids, it has proved to be of rapid development, like that of *Arecastrum Romanzoffianum*, and much quicker than that of *Butia capitata* var. *pulposa*, but is as hardy as this parent, which is much harder than *Arecastrum Romanzoffianum*. Dr. A. Robertson Proschowsky, *Jardin d'Acclimatation, Les Tropiques, Nice, France*.



FIG. 77.—THE PARENTS OF BUTIAREASTRUM NABONNANDII; IN FRONT BUTIA CAPITATA VAR. PULPOSA; BEHIND (THE TALL PALM) ARECASTRUM ROMANZOFFIANUM VAR. AUSTRALE 3.

sistance to lime, which is the kind of soil found in most parts of the Riviera; but where the soil is only moderately calcareous, as is the case with most of the red clays, these Palms succeed fairly well. I know a plant lover who decided to possess this remarkable Palm, and tried hundreds of seedlings for years, with the result that he has obtained at last a dozen prosperous plants. However, the Palm never succeeds so well in other soils as in the micaceous of Golfe Juan, a form of granitic soil, in which also Camellias, Rhododendrons and Acacia dealbata are quite happy, and in the gardens of Golfe Juan are seen specimens of splendid development and perfect beauty, having that pure dark green colour of foliage which these Palms never have in calcareous soils. The different varieties of *Arecastrum Romanzoffianum* attain different heights, varying from 12 to 25 metres or more, and groups of these tall, slender Palms, as they may be seen in different gardens of Golfe Juan, present a view of beauty not to be forgotten. On account of its very fine narrow folioles and crowns of leaves of no great density, this Palm does not shade the ground underneath too much for the growth of many other plants including Palms and others that enjoy a position in half shade,

BEGONIA FROEBELII.

For some years after its introduction in 1872 this Begonia was extensively grown; but it is now met with much less frequently than at one time was the case. It is both an interesting and showy species, that differs from the garden varieties of the tuberous-rooted section in some well marked particulars. In the first place the tuber proves to be little more than a mass of fibres, the actual fleshy portion being but small. For this reason, it kept too dry during the winter, it will suffer more than the fibrous kinds. Another feature is that it is quite stemless, both the leaves and flower spikes being pushed up direct from the centre of the tuber. The flowering season, too, is later than those of the more generally grown members of the tuberous rooted section, excluding, of course, the newer socotrana hybrids. It will frequently maintain a succession of blooms till autumn is well advanced, or sometimes till the early days of winter. Though the flowers are, as a rule, of a bright crimson or scarlet colour, seedlings show a certain amount of variation in this respect. This Begonia was introduced by Messrs. Froebel, of Zurich. *T.*

* The previous articles by Dr. Proschowsky were published in our issues for May 1, June 12, July 10, September 7, November 20, December 18, 1920; May 12, April 30, June 11, October 8, November 19, 1921; January 21, February 11, 1922.

INDOOR PLANTS.

DRACAENA.

No ornamental foliage plant, taking into consideration the habit, freedom of growth, and distinct colouring of the foliage, is superior to the *Dracaena*, the members of which are indispensable for all kinds of decorative purposes. The late Mr. John Gould Veitch, on his return from his trip to Australia and South Sea Islands in the 'sixties of the last century, brought home some most beautiful *Dracaenas*, hitherto unknown in this country, and these became the forerunner of the handsome race which now stands out so prominently among fine foliage plants. They are peculiarly adapted to purposes of ornamentation, whether in the conservatory, the mansion, for table decoration, or for grouping at floral exhibitions. All are comparatively easy of culture

include *D. Jamesii*, *D. norwoodiense*, *D. elegantissima*, *D. Duchess of York*, *D. Mayii*, *D. The Queen* and *D. angustata*. Of medium leaved varieties we have *D. Exquisite*, *D. His Majesty*, *D. Lord Wolseley*, *D. De Smetiana*, *D. amabilis*, and *D. Youngii*. Among the broad-leaved section are *D. Baptistii*, *D. John Luther*, *D. Thomsonii*, *D. Lindenii*, *D. Mrs. Robert Turner*, and *D. Victoria*. This last is a very distinct and handsome plant, exquisite in colour. The broad leaves are striped with a little green on a golden ground. It is a beautiful foliage plant, and colours well in small pots. The members of this section require a stove temperature during their season of active growth, and a warmth of about 60° to 65° on winter nights. As the weather gets warmer during the summer a temperature of 70° should be maintained. A moist atmosphere is necessary, as the plants are subject to attacks of thrip and red spider, which are especially troublesome in houses that are kept

any other are *D. Godseffiana*, a plant of bushy growth with ovate, bright green leaves thickly spotted with creamy yellow; *D. Sanderiana*, a very distinct variety with narrow, bright green leaves striped and margined white—three or four cuttings rooted together in small pots are very useful for furnishing small vases—*D. Goldieana*, with leathery leaves of pea-green ground colour, barred and striped with dark green, and *D. Broomfieldii*, of which the variety *superba* is illustrated in Fig. 78.

The members of this section are best propagated, if the plants are small, from side shoots that will soon develop if the leading shoots are stopped. If the plants have strong stems and are furnished with leaves, cut the foliage off and lay the stem in a warm case in fibre or other light material, when it will soon throw out shoots suitable for use as cuttings. All these *Dracaenas* require a warm temperature. There are others suited to ordinary cool greenhouse or conservatory decoration, that require during the winter months a temperature from 40° to 45°. The plants of this section are most useful during the summer for outdoor purposes, such as furnishing vases, planting on terraces, or in sub-tropical bedding. The majority have green foliage, but a few have coloured leaves, although none have the beautiful bright tints of the warm-house section. The best are *D. indivisa* and its varieties, *atropurpurea*, with deep reddish brown foliage, *D. Doucettii*, a species with variegated leaves, and *D. Veitchii*, with bright red midrib. Others are *D. Brantii*, *D. australis*, *D. congesta*, and *D. Eckhautei*, a graceful variety of *D. rubra*. The majority of these plants are increased from seed imported from their native country. The seed should be sown as soon as it is received from the seedsman, and germinated in a warm house of 60° to 65°. When seed is not procurable, cuttings may be obtained by placing the stem in a warm case similar to the stove varieties to obtain cuttings. When the seeds begin to germinate, care must be taken in watering, for if kept too wet the seedlings will damp off. As soon as the seedlings are strong enough they should be potted singly. *John Heal, V.M.H.*



FIG. 78.—*DRACAENA BROOMFIELDII* VAR. *SUPERBA*.

with few exceptions, and afford as great a variety in habit, style of growth and colour of foliage as in any plant known. Their utility in a small state is well recognised, particularly, the light and more elegant kinds. They vary much in character of growth, thus affording abundant choice of material for all purposes.

The coloured leaved section may be divided into broad, medium and narrow leaved types. Those of the broad-leaved section make the finest specimens, and are best adapted for exhibition purposes. The medium leaved varieties adapt themselves to all purposes, while the narrow-leaved varieties are best suited for table decoration. Not only by importations has much progress with these plants been accomplished, but the hybridist has contributed some valuable and varied forms.

The following are a few of the best in their sections. Those of the narrow leaf section, suitable for table decoration or small vases,

dry. Syringe the plants well under the leaves once or twice daily in hot, dry weather. If grown in a very high temperature with a moist, close atmosphere, the foliage is apt to become tender and the coloured leaves do not last so long. Admit a little air on warm, fine days, but be careful not to expose the plants to cold draughts. For potting soil use a compost consisting of two-thirds good fibrous loam, one-third good leaf-mould or peat, with silver sand added. Well drain the pots. Shade the plants from the strong rays of the sun.

Dracaenas are easily propagated from cuttings. A good plan is to lay the old stem on moist cocoanut fibre or sandy soil, just covering it lightly, in a warm case or frame. Young growths will soon appear, and when sufficiently strong, may be taken off as cuttings and inserted in small pots. They will root in a frame with a temperature of about 70° to 75°. Other types of *Dracaena* forming very handsome, variegated plants quite distinct from

HARDY HERBACEOUS PLANTS SUITABLE FOR NATURALISING BY SHADY WOODLAND WALKS AND DELLS.

CERTAIN well-known hardy herbaceous plants do remarkably well in cool, shady situations. They produce a charming effect planted in large, natural drifts either in open spaces, in woodlands, or partly shaded spots by woodland walks. *Campanula lactiflora* planted in masses is very fine as seen in the R.H.S. gardens at Wisley. The plants provide natural groups of beautiful pale blue, tall spikes, and flower luxuriantly from June until August.

Aconitum pyramidalis, A. Sparks' variety, A. Fischeri and A. Wilsonii are all very effective in partial shade, and may be planted in bold masses, giving a fine display of blue and purple colours from July until September.

Artemisia lactiflora is a tall, stately white flowering, hardy perennial that produces white plumes of sweetly scented blooms, and does splendidly in moisture and shade. *Lythrum Salicaria* Rose Queen and *L. roseum superbum* are both excellent in cool, partial shade, producing a fine display of tall spikes of rich rosy-purple flowers from June until August.

Solidago Golden Wings, planted in large groups, is one of the best yellow, tall flowering plants. The branching spikes, forming pendent sprays, show to advantage in bold groups in open glens. The plant grows six feet in height and flowers from August until October.

Spiraea Aruncus has creamy white flowers on pendent spikes about four feet tall. *S. palmata*, rose crimson, and *S. venusta* are both fine for damp positions in partial shade. The effect produced by these Meadowsweets through July and August is excellent. *R. H. Holton.*

NOTICES OF BOOKS.

The Perpetual-Flowering Carnation.*

IN the preface of this "pocket edition" of the larger work, which, unfortunately, is out of print, Mr. Montagu Allwood apologises for his "presumption" in writing it. One is certainly inclined to the opinion that an apology is due from the writers of certain books on gardening subjects, but no apology is needed from an author who is recognised as one of the greatest authorities on his subject.

Mr. Allwood tells the whole life-story of the ideal Carnation plant which ultimately bears a profitable crop of high-class blooms, and he is convinced that anyone with a garden who reads the book and has a greenhouse must be fired with his own confident enthusiasm. One feels that it is so easy—almost fatally easy. All that is needed is to have a good stock, to give the cuttings a good start in life, and keep them going in the right way. Then, on second thoughts, one realises the need, insisted upon by Mr. Allwood, of meticulous care in all the various operations connected with the Carnation. As he writes on page 22, "the best care and the best position in the house is none too good for the young Carnation stock. It is folly to select only the best cuttings and take every care in their propagation, if this good work is to be destroyed later. Too often the young plants are looked upon as a sort of necessary evil, and, being non-productive of bloom, are crowded into any out-of-the-way place, regardless of surrounding conditions."

Besides treating of the perpetual-flowering Carnation in all its aspects, Mr. Allwood devotes useful chapters to the true border Carnation, perpetual-border Carnation, and the now well-known Allwoodii hybrids, and for the two last-named types he predicts a great future. *Dianthus Allwoodii*, in particular, is the garden plant in excelsis. With his well-known and infectious enthusiasm, Mr. Allwood contends that it is the best plant for forcing, for retarding, for the cool greenhouse, for the window box, the dry wall, and the herbaceous border—in short, for anywhere and everywhere. Anyway, Mr. Allwood has given the world a charming and useful race of Carnations of which one feels certain he has even better sorts for the future.

With a wise discretion, no lists of best varieties are given. It is fully realised that such lists all too soon become out of date, and they can always be obtained from the various current catalogues. But there is a sufficiency of illustrations which tell their story excellently, and altogether the book can be confidently recommended to all interested in Carnations.

THE FLORISTS' TULIP.†

(Continued from page 140.)

THE breaking is accompanied by certain other changes in habit; the Tulip does not grow so tall and is less vigorous and prolific, the leaves take on a peculiar mottling of lighter and darker green, the stem becomes streaked with colour.

From the first the florist has treasured these broken varieties, and from the earliest days of the Dutch Tulip cult he began to lay down degrees of excellence in the marking, and bred for points. We can trace clearly enough the progress of the fancy; during the seventeenth and eighteenth centuries the Dutch florists led the world, and they sought for clear and finely pencilled markings. Towards the close of the eighteenth century they drew a distinction between feathered flowers, which had only pencilled markings along the edge of the petal, and flamed flowers, which, in addition to the feathering, carried a beam of marking up the centre

of the petal. But about the beginning of the nineteenth century the fancy which had been common to all countries passed over to England, and British florists gradually evolved a much severer standard.

In the first place they turned their attention to the base of the flower. One of the wild parents of the garden Tulip must have had a blue blotch at the base, and though some of the old Dutch Tulips had a clear circle of white at the base, in the majority it was still more or less stained with blue. The English florists made the clean base and clean filaments to the anthers a *sine qua non*; any speck or stain disqualified the flower, and many were the heart-

Show began to be held alternately in the north and in the south, but, alas, not many years later, began the decay of the fancy. The Tulip had always been mainly a working man's flower, and from the middle of the nineteenth century the working man began to lose his garden. The spread of the town hit the London growers first, but the same process gradually overtook the men of the midland and northern manufacturing towns. In the early 'sixties there would be at least 100 Tulip shows a year held in public-houses round the smaller manufacturing towns of Lancashire, Yorkshire, Cheshire, Nottinghamshire and Derbyshire. Only one lasted on into this century. Nowadays there is a local show



FIG. 79.—*DRACAENA FRAGRANS* VAR. *LINDENII*, IN FLOWER (see p. 154).

burnings through old favourites being cast out because of their lack of "purity." It was the London florists, men who had their gardens in Clerkenwell or the City Road between 1810 and 1840, who carried the day for purity; the northern growers were more concerned about marking, a point on which the southern growers were inclined to be weak. Both sides concurred in a standard of form. The old Tulips were inclined to be long and lop-eared, with pointed petals; the English florists insisted on a short cup and broad-rounded petals, half a hollow sphere when open. The standard was fully established about 1850, when the National

at Wakefield, and a National Show which owes a somewhat precarious existence to the hospitality of the Royal Horticultural Society. There are perhaps a hundred growers of the English florists' Tulip, all told; and though I am still raising seedlings in the pursuit of the perfect flower, there have only been two or three others doing so in my time. The Dutch raisers dropped out long ago. There seem to be no florists in Holland now; only raisers of bulbs for sale. Years ago I saw in Provence the ruins of what I believed to be the last French collection, and America has never taken up the fancy.

(To be concluded.)

* *The Perpetual-Flowering Carnation*. By Montagu C. Allwood. Cable Printing and Publishing Co., Great Queen Street, W.C.2. Price 3s., post free.

† A lecture delivered by Sir Daniel Hall at a recent meeting of the London School Gardening Association.

RAISING ALPINE PLANTS FROM SEED.

THE simple, extremely interesting, and generally profitable method of raising the majority of rock and alpine plants from seed may not be generally known to lovers of alpine plants. Quite extraordinary results may be obtained by only ordinary care, when this method is understood and followed along rational lines. Plants raised from seed vary to some extent in colour, in form and sometimes in habit; this variation, however, is greatest among what are known as florists' flowers, and, although always more or less present in the progeny of species, for our present purpose, in dealing with rock plants, this variation may be entirely disregarded. I have an English seed catalogue in front of me, from which I take the following three dozen genera, some of which contain quite a dozen species, so that at a rough calculation there are probably something like 150 different sorts of rock plants offered as seed by this firm alone. The genera are as follow:—*Acaena*, *Achillea*, *Adonis*, *Aethionema*, *Alysum*, *Androsace*, *Anemone*, *Antirrhinum*, *Arenaria*, *Asperula*, *Aubrietia*, *Campanula*, *Dianthus*, *Draba*, *Erinus*, *Gypsophila*, *Geranium*, *Hutchinsia*, *Hypericum*, *Iberis*, *Leontopodium*, *Lithospermum*, *Onosma*, *Papaver*, *Phyteuma*, *Primula*, *Ramondia*, *Saxifraga*, *Sedum*, *Silene*, *Thymus*, *Tunica*, *Veronica*, *Viola*, *Wahlenbergia*, and *Zauschneria*.

Having selected the species or varieties most likely to suit the purpose of the grower, sowing may be done as soon as the seed comes to hand in spring, March being one of the best months for this work, although it must be remembered that certain alpine plants are best sown within a few days after harvesting the seed, notably *Gentiana* and *Primula*, while bought seed of these may lie dormant, after sowing, for quite twelve months. Should germination fail within a normal period, stand these pans of seed in a north aspect, keeping them moist and the pans covered with glass, in the hope that germination may take place at a later period.

The method I have successfully practised for years is to sow in pots, pans or shallow boxes, the finest and smallest seed in pots and pans, larger seed in boxes. These receptacles are provided with liberal drainage, in the form of potsherds, covered with a few pieces of rough compost. The remaining space is filled with a fine compost, consisting of yellow loam, leaf-mould and sand in equal parts. The soil is made moderately firm and level on the surface. Seeds of such plants as *Erinus*, *Papaver* and *Tunica* are extremely small and require a very light covering of soil, whereas those of *Dianthus*, *Gentiana* and *Primula* will bear covering to a depth of $\frac{1}{4}$ th of an inch.

Great care must be exercised in watering the seed pans, and to those inexperienced in watering fine seeds with water pot and rose I would suggest a safe method is to stand the pots or pans almost to their rims in a tub of water. By this means the seed is not displaced, as may readily occur from careless use of a waterpot. After the surplus water has drained away stand the seed pans in an ordinary glasshouse or in a frame on a slow hot-bed and cover each pan or box with a square of glass. This helps to retain moisture over the maximum period and thereby hastens germination. Then, as the seedlings appear, gradually tilt the glass cover and admit air until eventually the glass is removed entirely.

Once germination takes place, the seedlings should be kept well up to the light, and from this stage onward an unheated garden frame will give the best results, using sunheat alone to maintain a growing temperature. When the seedlings are sufficiently large to handle, prick them out singly into pans or boxes, using a compost similar to that advised for seed sowing, to which the addition of some rough grit and crushed brick or mortar rubble is added. In pricking out and at all subsequent pottings keep the soil moderately firm, otherwise growth will be coarse and sappy and the plants will give trouble in hardening them off before planting

them permanently out-of-doors. When the plants have attained a fair size, they should be potted singly in small pots, and either plunged in nursery rows or in beds of coal ashes. This system simplifies watering and results in stocky, hard-grown plants, which rarely fail to give satisfaction when used in the permanent scheme of the garden.

Reference has been made to alpine plants that frequently fail to germinate when first sown, and the course to follow in these cases has also been indicated.

There is another class, of which *Ramondia* and *Haberlea* are typical, in which the seed is exceedingly fine, and the seedlings make very slow growth. Such seeds should be sown very thinly and considerably more grit should be used in the compost to facilitate the free passage of superfluous moisture.

The great majority of rock and alpine plants that can be raised from seed will flower in the year following that in which they were sown. Plants raised and grown in the manner indicated will give a good account of themselves in whatever garden scheme they are employed: the finer kinds will, perforce, have precedence in kindly crevices and fissures on the rock gardens. More robust sorts will form ideal material for clothing the bolder slopes of the same, or to beautify the rugged courses of dry walls, while paved paths, garden steps and edging to flower borders are suggestive positions where seedling rock plants will display themselves to good effect. *Thomas Smith, Coombe Court Gardens, Kingston Hill.*

EARLY FLOWERING CHRYSANTHEMUMS.

THOSE beautiful Chrysanthemums, which, in the early autumn, brighten our gardens and lend colour and charm to our homes, may be divided into two sections.

The first of these sections is represented by varieties of the Massei type, dwarf and bushy in habit, and by sorts like the old *Madame Desgrange*, with its more upright growth, yet possessing the inherent quality of commencing to flower in August and September. These may strictly be termed "early-flowering." The second section, which, if left to itself, would not commence to open its terminal buds until October is well advanced, forms a distinct class.

With proper management, members of the second section will produce flowers on long stems from mid-August onwards, and it is with this group that these notes are principally concerned.

Naturally, the story should begin when the last flowers are cut and the stools ready to lift, but the time is rapidly approaching when the young plants should be ready for transference to their permanent positions. At all events, the end of April should see the business started and it should be completed before May is out.

I am assuming that the cuttings were rooted in cold frames, the lights of which may be removed on all favourable occasions, as it is most essential to maintain a stocky growth; and, at the same time, to harden them so that the young plants will not suffer from the frosts that are often experienced during the month of May, after they are planted out.

In many gardens, the usual place assigned to early Chrysanthemums is the herbaceous or mixed border, on the share-it-amongst-you principle. In consequence of this, the plants often present a straggling appearance and the resulting bloom is anything but pleasing and attractive. A border or piece of ground quite free from other plants should, for preference, be set apart, with some provision for protecting the blooms from early frosts and fogs; and, for this latter purpose the best material is good canvas or lights, or a combination of both.

The ground should be deeply-dug or trenched and enriched with manure, as some of the varieties are strong growers and require a rich soil to bring their blooms to perfection. When planting, place the young plants at least 18 in. apart each way: in fact, 2 ft. from row to row

would be better. Water the plants in to settle the soil round them and tie each one to a Bamboo cane.

Subsequent treatment is much the same as that followed when producing large blooms in pots; but, instead of three blooms, from nine to a dozen may easily be carried by most of the varieties now grown for the market. I refer here more particularly to such sorts as *White Countess*, *Cranford Pink*, *Cranford Yellow*, *Cranfordia*, *Soliel d'Octobre*, *Framfield Early White* and *Almirante*.

Generally speaking, the plants only need stopping once, and that just before the break bud appears. After thinning out the growths to the number the plants are to carry the resulting buds are taken and rigid disbudding of all other growths must be followed up if the finest flowers are desired.

In very dry weather watering is necessary after the buds are taken, and this class of early Chrysanthemum will repay growers for the extra time and attention given, as they may be lifted and potted, without much loss in size, if the buds are not too far advanced. They are much appreciated in the Midlands by artisans who gather in small societies, and the rivalry is very keen in producing the best specimens in their gardens for the shows, with only a sheet of glass or canvas over them.

The after-care of the first section, which opens its sprays without any special treatment (though even here partial disbudding is advantageous) in the period of growth, is very similar. These varieties should be struck early in the year, in a low temperature; they must then be encouraged to make healthy growth either by potting on or bedding out in cold pits, for a drawn or attenuated plant will never produce blooms of the quality which all growers desire.

Most of the spray varieties require to be stopped twice, and this work should end not later than the middle of July; but it is not possible to go into this subject with any wealth of detail, on account of space. The varieties are numerous and many possess peculiarities of their own which must be noted before entire success is assured. To appreciate these autumn flowers at their best they should be seen growing as they are handled by large growers and they then form a sight that is not easily forgotten. *W. T. A. Roots.*

FORESTRY.

THE GIANT THUYA.

It must be half a century since the late Mr. Peter Lawson, of Edinburgh, an enthusiast in arboriculture, whose name is perpetuated in the *Lawson Cypress*, told me that he believed that, among all the trees that had been introduced to this country from America, *Thuya plicata* (known at that time as *Thuya Lobbi* or *Menziesii*) would prove to be the most valuable in British woodlands. Very few planters seem to have acted on Lawson's advice, for although there are plenty of fine specimens of this species in most parts of our island, I know of only one place, Benmore, in Argyll, where it has been grown in close forest long enough to develop its quality. At Benmore the late Mr. Hunter planted nearly 2,000 acres of hillside and low ground with a great variety of Conifers between forty and forty-five years ago; and although this *Thuya* has suffered suppression where it was mixed with *Douglas Fir*, it has proved a rapid producer of straight, fine timber where it was planted pure or mixed with *Larch*. About the quality of that timber, Professor Sargent reports that it is "very valuable; it is light, soft, and easily worked, and so durable in contact with the ground or when exposed to the elements, that no one has ever known it long enough to see it decay. . . . It is largely used in Oregon and Washington for the interior finish of buildings." A remarkable example of the durability of this timber is given in *Elwes' and Henry's Trees of Great Britain and Ireland* (vol. II., p. 236), where there is shown a photograph of a *Western Hemlock* (*Tsuga Albertiana*) about 150

years old, grown from a seed germinated on the fallen trunk of a huge Thuya, the timber of the latter remaining perfectly sound.

It seems unfortunate that more use of this fine tree has not been made by owners of British woodland. Planted as a specimen, more or less isolated, it gives no right impression of its behaviour in forest, for its lower branches spread wide and root themselves, and the timber is rendered coarse by the persistence of side branches. But grown in close canopy it produces fine, clean boles, and is singularly free from the tendency to form double or treble tops, which is the tiresome habit of the Lawson Cypress. It comes most readily from seed—we raised 70,000 here from fifteen shillings' worth—and in the nursery it forms excellent roots, rendering it very easy to plant out. In two respects only have we found it impatient of our climate; first, it suffers from exposure to wind off the sea; and, second, it is liable to be killed when young if planted in a "frost hole." We planted about 20,000 pure in 7 acres of low-lying peat, and lost them all; whereas those planted in the same season on sound land are now over 30 feet high and growing vigorously.

Introduced by Lobb in 1853, there are already many specimens in the British Isles of a height verging on 100 feet, which is only half the stature it attains in Oregon and British Columbia. Grown in this country under favourable forestal conditions, the timber is probably at the height of its value at 80 or 90 years, before massive buttresses are formed, which often indicate that the centre of the trunk is hollow. *Herbert Maxwell, Monreith.*

FRUIT REGISTER.

RASPBERRY PYNE'S ROYAL.

I HAVE grown this fine Raspberry for a few seasons and can highly recommend it for dessert purposes, the fruits being large, dark coloured and of excellent flavour. The variety is practically a continuous cropper from August to October. It has one peculiarity of throwing up numerous growths from the base of the stool to a height of about 2 feet, which crop almost to the ground level, and, after fruiting, die away. At the same time, there are usually 2 or 3 strong canes, which grow about 5 or 6 feet high and show no signs of fruiting until the following season. The flower clusters are continually produced throughout the whole season, and fruit and flowers are seen in all stages on the one cluster. *G. Horne, Craigavad House Gardens, Craigavad, Co. Down.*

APPLE GRAVENSTEIN.

I HAVE always wondered why this Apple is not more generally planted in counties suited to Apple cultivation.

It is a variety of great utility, either for dessert or culinary purposes. The tree is hardy, healthy, and a good bearer when planted with other sorts. The fruits are handsome and of first-rate quality. This Apple may be grown as a bush, half-standard, or espalier. The fruits are in season until December.

APPLE NANNY.

THIS variety of Apple ranks in flavour with Cox's Orange Pippin and Margil combined. The growth of the tree is not over strong, therefore, the bush, cordon or espalier methods of training suit it best. The skin is greenish-yellow, streaked with crimson; the flesh is yellow, soft, sugary and very juicy, combining all the qualities of an excellent Apple. The season of this old variety is November, but it is sometimes ripe in October on warm soils. *Pomona.*

DUAL-PURPOSE APPLES

THE remarks published in your columns under the above heading cause one to reflect, and to ask, whither are we tending? Also, where have we been? Surely a well flavoured Apple is as admissible among culinary Apples as among dessert varieties, and quite as welcome, especially after partaking of a pie, tart, or pudding made with one or other of the nasty-flavoured varieties which have

scarcely any other merit than that of mere size. True, some of the best-flavoured dessert varieties are poor bearers, and their fruits can ill be spared for the oven or the pot; but in that old variety named Reinette Grise we have at once a good and almost constant bearer and a highly flavoured Apple. Dr. Hogg, in the fifth edition of his *Fruit Manual*, published in 1884, says of it: "A very fine dessert Apple of first-rate quality; in use from November to May. The tree is healthy and vigorous and an excellent bearer. One of the finest old French Apples." I can endorse, without qualification, that opinion, which tersely describes its qualities.

In the spring of 1896 I had the privilege of planting in an experimental garden one standard tree of Reinette Grise with twenty or thirty other varieties, and careful records were kept of their behaviour in the matters of flowering and fruiting. The first 4 years were ignored for the present purpose (the report) and given to the tree to make growth. This tree of Reinette Grise flowered during 20 years and produced fruit during 20 years.

APPLE BUSHEY GROVE.

THIS new Apple has been submitted to the Fruit and Vegetable Committee of the R.H.S. on several occasions recently by Mr. J. T. Good, Bradfield, Bushey Grove Road, Bushey, and on January 31 last it received an Award of Merit. Specimens were exhibited at the meeting on March 14, to show the long keeping qualities of the variety, and one of the fruits shown then is illustrated in Fig. 80.

The variety was raised from Queen crossed with Bismarck, and shows the influence of both the parents, but the shape is somewhat angular and the basal part has four or five slight angles. The fruits are of pale yellow colour, freely marked and spotted with crimson on the side next to the sun. The eye is set in a moderately large cavity, and the segments are almost closed. The stalk is about three-quarters of an inch long in a narrow, conical depression. The flesh is very white, juicy, and of good flavour. The texture is soft, and the variety will appeal to those who prefer a sweet, soft Apple for dessert.



FIG. 80. APPLE BUSHEY GROVE; A NEW LATE CULINARY AND DESSERT VARIETY.

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

excluding any produced prior to 1900. The total of the 20 years' crops was 1,466½ lb., or an average of over 73 lb. per year for 20 years, and an average of a trifle less for 21 consecutive years—69 lb. 10½ oz., to be exact.

Among 24 varieties, which include such as Bramley's Seedling, Beauty of Kent, Rymer, Maltster, Queen, Gloria Mundi, Grand Duke Constantine, Lord Grosvenor, Galloway Pippin, New Hawthornden, Greenup's Pippin, Ecklinville Seedling, Lord Sudfield, Lodington Seedling (Stone's Apple), Cox's Orange Pippin, King of the Pippins, Reinette Van Mons, Norfolk Bearer, and Golden Spire, it ranks eleventh in order of cropping. Norfolk Bearer is a good companion to Reinette Grise for cooking and for flavour; but under equal conditions of cultivation, it is not so good for bearing, being twentieth in order in that respect.

One hundred and three varieties of Apples were grown in the small garden mentioned, but not all were planted at the same time. The newest as well as the oldest sorts were represented. If whiteness of the Apple after cooking is considered a *sine qua non*, then Reinette Grise will disappoint in that respect, the fleshy part being yellowish, and it is not very beautiful at any time, except to the eyes of its lover. For dessert it is richer after January than before that month, and is in season until the end of April. *J. Udale.*

VOLES (see pp. 95, 106, 118).—I have read with interest Mr. Mark Hovell's advice on trapping mice and voles. I venture to give an experience I had during the winter 1920-1921. The plants in our earliest Cabbage bed at the south end of the garden, containing about 350 plants, were being continually eaten off. We filled the rows one day; the plants were gone the next. I thought the damage was being done by birds, so had nets put over the bed. The Cabbages, however, were still eaten off. I had traps for mice set along the wall, baited with cheese, but failed to catch any. One day the garden boy saw mice in the potting shed. He set two traps baited with a piece of Potato, and during the day caught ten mice. I changed the bait on the traps by the wall, and put Potato on instead of cheese, with the result that the first night's catch was 12 mice from 12 traps. On the second night I increased the number of the traps to 18 and examined them at 10 at night, when 10 mice were trapped, and next morning I caught another 18. Altogether, or up to date, 250 mice have been caught, including both the short-tailed and long-tailed kinds. Kestrels visited that end of the gar-

den during the day and the birds dived down by the wall very frequently. *D. H. Dunn, Hafod, Devil's Bridge, Aberystwyth.*

Iris unguicularis.—So far as my experience goes, *Iris unguicularis* gives a longer season of flower than any other species. Here it usually commences to bloom as early as October and continues to produce an abundance of pale mauve flowers until the beginning of April. I know of no plant which, during this period, produces a better return for the small amount of trouble entailed. I find the best and most serviceable method is to gather the flowers when quite in bud, and if these are arranged in receptacles containing water or moist sand they open perfectly and last for a very long time. *I. unguicularis* grows about 18 inches to 20 inches high and has rush-like foliage, and its flower stems are from 9 inches to 12 inches in length. The best time to divide and replant this beautiful species is at the end of March or early in April. The site chosen should be one receiving the maximum amount of sunshine, and I have proved that the foot of a wall or fence is the best position for the plants. The best medium for planting in is a good loam, with an abundance of old mortar rubbish, ballast or broken bricks added. *E. H. Crookford, Weston Park Gardens, Stevenage.*

Roofing of Garden "Fruit-cages."—I should take it as a kindness if you could find space for this note, and should be grateful to any of your readers who would give me their experience of garden "Fruit-cages." There seems to be much difference of opinion as to the effect upon the plants beneath a galvanised wire-netting roof; some gardeners maintain that it is harmful to all fruit, some that it is injurious to Strawberries only, others that it is harmful to none. It is really quite an interesting question, even if it has all been discussed before. Put briefly, the points seem to be these: Injurious or non-injurious? If injurious, is it only so to certain fruits, e.g., to Strawberries? Is the injury due to chemical action? Does the free hydrochloric acid in the damp air, acting upon the zinc, form a chloride which drips injuriously upon the plants? (I have been shown cracks in fruit said to be due to drip from galvanised netting.) Or, again, is it a question of radiation?—i.e., is it possible that temperature is adversely affected, during heat or cold, in an enclosure contained in a large area of small-meshed metallic netting? Netting made of twine—as is well known—excludes frost from wall-fruit; does wire-netting act in the same way? Presumably not. If drip from a galvanised wire-netting roof be harmful (whether to Strawberries or any other fruit), is the growth and bearing power of the plant affected, or is the damage confined to the actual berry or drupe? Lastly, if the cause of the damage be chemical, does this only apply to galvanised netting in the first year? Does the damage lessen from year to year, and finally cease, as all the zinc becomes converted? *Aubyn Trevor-Battye, Ashford Chace, Petersfield, Hants.*

Do Plants Know Time?—The question asked on pp. 31 and 118 requires more explanation than anyone has yet been able to give. The farther one goes and the more often one makes observations the more complicated the subject becomes. A good explanation can be given in some cases, but in others the periodic movements have become hereditary, and not directly dependent upon change of environment. For want of a proper explanation the opening and closing of flowers, particularly those that open during the evening and night, are termed autonomous movements. Probably most flowers that open and close a number of times can only do so while growth is incomplete, and the movements cease with the completion of growth. This would apply to Gentians, Anemones, the Daisy and other Composites. These and many others have anthocyanin on the outer or under side of the petals, and the rays of the rising sun are converted into heat, causing the flowers to open. *Gentiana verna* on the east or south side of a rockery will open widely before those in a northern aspect close by. *G. nivalis* has been observed to open and close repeatedly in

the course of an hour, if the sun shines and gets obscured by clouds alternately. The floral clock constructed by Linnaeus does not hold good for more southern latitudes. At Upsala, *Nymphaea alba* opens at 7 a.m., but thirteen degrees south of that it does not open before 8 to 9 a.m. During the summer the sun rises earlier and sets later in northern than in southern latitudes, and closing is longer delayed. This holds good for Hepaticas in a mountain valley, and at a higher elevation on the mountain, the opening being delayed on the latter. Tulips and Crocuses can be opened at night in a warm room, although they may have been closed all day. The autonomous movements of night-flowering plants are connected with night-flying insects and heredity. *J. F.*

Carnation Bis Greenfield.—This variety is undoubtedly the best scarlet Carnation I know. The plants are strong-growing and produce large flowers of good substance, which do not split at the calyx. The stems are long and stiff. As this variety does not seem to be generally known, I should like to know why? *W. J. Carter (Foreman), Leighton Hall Gardens, Welshpool, N. Wales.*

Violets in Frames.—I herewith send a photograph [not reproduced—Eds.] and a few blooms of Marie Louise Violets, as grown in these gardens. I often see queries in your paper from correspondents with regard to the cultivation of these flowers, and perhaps my experience may be of use to some. I have tried autumn planting from the open ground, also plants in pots, but I have found that the best plan is to strike the cuttings or side shoots during April, make up the frame, and plant out the cuttings, as soon as they are rooted, direct in the frame. Our frame is made of old 4 inch by 2 inch rafters, fitted up roughly to take a couple of lights, which are used elsewhere when not required for the Violets. Since adopting this plan, I have never experienced a failure. My method of cultivation as regards soil, etc., is the same as advised in your columns from time to time. *W. H. Clark, Bussock Wood Gardens, Newbury.*

Spraying a Neighbour's Plants.—Recently a neighbour syringed his fruit trees with Berger's lime-sulphur wash. On my side of the fence I have a nursery bed and plunging ground, in which there are some 800 choice Alpine plants, mostly in pots, which were thoroughly drenched with the mixture, some having the appearance of a slight fall of snow. I spent some hours in trying to wash the stuff off, with not a great deal of success, as it had dried on before I discovered what had been done. Plants with broad foliage are badly marked and look very sorry for themselves. I shall be very glad if you can kindly tell me whether the health of the plants is likely to suffer. The incident may interest your readers, as it is one which might easily occur in other suburban gardens. I know nothing of the properties of winter washes except that some are caustic and some even poisonous, and, while beneficial to fruit trees, it seems to me cannot be otherwise than undesirable when applied to young alpine plants. Is one's neighbour liable for damage resulting from squirting liquids over his neighbour's plants? Their replacement value, at the low average of 1s. each, is £40. But, apart from this aspect of the matter, do you consider that I am unreasonable in suggesting that no man is justified in using materials in such a way that may possibly do damage to another's property, or, for that matter, throwing anything, harmful or not, over his fence into his neighbour's garden? I might add that my neighbour has expressed regret and the hope that no lasting damage has been done, but that is a poor consolation for the loss of plants, many of them the result of hybridising and selection, the value of which to the owner cannot be expressed adequately in terms of money. *S.*

[Your neighbour has committed a trespass in acting as he has done, and if it is your intention to claim damages you should proceed to give him notice accordingly.—Eds.]

SOCIETIES.

ROYAL HORTICULTURAL.

MARCH 28 and 29.—A delightful display of spring flowers greeted those Fellows of the Royal Horticultural Society who attended at Vincent Square on the above dates. The attendance was good, and although the exhibits were not so extensive as on some occasions, they were numerous, as may be gathered from the statement that no fewer than thirty-four groups were judged by the Floral Committee. Medal awards were numerous, and Messrs. Sanders were granted a Gold Medal for Orchids. The latter were admirably shown, and included several novelties of considerable merit. Daffodils, Tulips, flowering shrubs, Camellias, and Alpine plants were other subjects prominently displayed.

Orchid Committee.

Present: Frederick J. Hanbury, Esq. (in the chair), Prince Shimadzu, James O'Brien (hon. secretary), J. Wilson Potter, R. Brooman White, Richard G. Thwaites, W. J. Kaye, Chas. H. Curtis, S. W. Flory, Arthur Dye, Frederick K. Sander, Stuart H. Low, T. Armstrong, A. McBean, H. T. Pitt, J. E. Shill, C. J. Lucas, J. T. Barker, and Gurney Wilson.

AWARDS.

FIRST-CLASS CERTIFICATES.

Odontoglossum Garnet (Lambeaurianum × eximium Le Papillon), from Messrs. J. and A. McBEAN, Cooksbridge. The small plant bore four flowers of perfect form and large size, well showing the influence of Messrs. McBean's strain of *Odm. eximium* as parents. The greater part of the segments is of rich reddish violet, the margins and tips clear white. The lip is broad and finely blotched in front of the yellow crest, the exterior portion being blush white with mauve markings.

Sophr. Laelio-Cattleya King George (S.-L.-C. bletchleyflora × C. King George), from Messrs. FLORY AND BLACK, Slough. A decided advance in size and colour in its section, the flowers being equal to *Laelio-Cattleya*, but with unmistakable evidence of the *Sophrontitis*. The sepals and petals are rosy-mauve, with a gold shade; the lip is entirely ruby-purple with light lines at the base.

AWARDS OF MERIT.

Dendrobium Perfection (Euryalus rubens × nobile nobilium), from Messrs. SANDERS, St. Albans. A grand *Dendrobium* and a great improvement on *D. nobile nobilium*, which is in itself a great recommendation. The splendidly flowered plant bore numerous large and finely formed flowers of rosy-mauve tint on a white ground; the broad lip has a deep maroon base surrounded by white, the tip being coloured like the petals.

Cymbidium Alexandri var. Imperial Prince; a superb flower, ivory white tinged with rose and with well-displayed reddish-purple markings on the lip. From Messrs. J. and A. McBEAN.

PRELIMINARY COMMENDATION.

Odontoglossum × Llewelyn (amabile splendens × Georgius Rex), from H. T. PITT, Esq., Rosslyn, Stamford Hill. Shown with its abnormally large first flower, this new hybrid is of great promise. The segments have two-thirds of their surface coloured claret-red with the white mid-rib showing at the base. The lip is coloured like the petals, but with mottled light rose front.

GROUPS.

MESSRS. SANDERS, St. Albans, were awarded a Gold Medal for a splendid group admirably arranged, the principal plants being elevated and all set in green moss. This tasteful arrangement had much weight with the Committee in giving the highest award to the exhibit.

The main features of the group were finely flowered *Dendrobiums*, all of which had been grown and developed at St. Albans. There was great variety in the various classes and all were good, but the finest and most brightly coloured was the new *D. Enchantress* (*Sybil × nobile nobilium*) which some preferred to *D. Perfection*, which secured an award. A *Sophr.-Laelio-Cattleya*

from *C. Hardyana* × *S.-L.-C. Laconia* is a large and grandly coloured flower, the best of its class; and among the Cymbidiums which were shown in many and fine varieties, *C. Ceres* (*L'Ansonii* × *insigne*) was very good. Many good white Cattleyas and finely coloured Laelio-Cattleyas were also shown, and among species, the singular *Arachnanthe Clarkei*; the rare *Coelogyne Lawrenceana* and some curious smaller species were noticed.

Messrs. J. and A. McBEAN were awarded a Silver Flora Medal for an excellent group rich in specially good Odontoglossums, including home-raised *O. crispum* and the best form of *O. c. xanthotes*. *O. Dictione magnifica* is a finely coloured novelty; *O. Triumphosum*, a very elegant yellow ground *O. cirrhosum* hybrid, and others, with the fine form and shape of their noble *O. Everest*, twenty-six distinct hybrids being shown. Scarlet colour was given by the showy *Odontioda Diana* and others of its class, and among the Laelio-Cattleyas the forms of their *L.-C. Eunice* were attractive.

Messrs. STUART LOW AND CO., Bush Hill Park and Crowborough, were awarded a Silver Flora Medal for an interesting group containing great variety, Cattleyas, Laelio-Cattleyas and Sophronitis crosses being specially good. Among the many pretty novelties *Odontioda Ultor* (*Odm. Othello* × *Oda. Charlesworthii*) with rich chocolate-red sepals and petals and yellow lip with red markings; *Brasso-Cattleya Invicta* (*C. Octave Doin* × *B.-C. Digbyano Mossiae*), a charming mauve flower with yellow disc to the prettily fringed lip, and *Sophr.-Laelio-Cattleya Argonaut* (*L.-C. Tunis* × *S.-L. Orpetii*) a very distinct and pretty hybrid, were specially attractive.

H. T. PITT, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), secured a Silver Flora Medal for a group containing examples of most of the showy Orchids of the season. Among the Odontoglossums, *Odm. St. James* is a grand example and good in all respects. *Odm. Rossii majus* of the true type brought us back to the best days of the *Odm. species* era; *Odm. Wilckeanum Pittianum*, and others of Mr. Pitt's collection of this hybrid shows that nothing in hybrid Odontoglossums has quite passed them, although they have helped to make many superb hybrids. Mr. Pitt always shows an interesting selection of species, the *Chondrorhyncha Chestertonii* being almost perennial, and interesting species of Cymbidiums, now getting rare. Some good Miltonias and Cymbidiums were also shown.

Messrs. HASSALL AND CO., Southgate, received a Silver Flora Medal for a pretty group of specially good Cattleyas and allied hybrids. *C. Tityus* var. *The President* is a very good companion to Messrs. Sanders' *C. Tityus Wedding Bells* which worthily secured a First-Class Certificate; seven forms of the pure white *C. Douai*; the rare pure white *C. Luddemanniana* Empress and the pink-lipped *C. L. Stanley*, well represented the light section. Some good Cymbidiums and other hybrids were also shown.

Messrs. FLORY AND BLACK, Slough, were awarded a Silver Banksian Medal for an interesting group, consisting principally of novelties. *Odontoglossum Lydia* (*eximilium* × *waltonense*), a pale yellow ground with fine dark markings, and white front to the lip, was a specially good exhibit.

OTHER EXHIBITS.

PANTIA RALLI, Esq., Ashted Park, Epsom Surrey, sent *Odontioda Theresa* var. *Ione* (*Dora* × *Coronation*), a charming flower with strawberry-red inner parts to the segments and white margins.

Cattleya White Queen (*Douai* × *Luddemanniana* Empress), a good white variety, was shown by Messrs. FLORY AND BLACK.

Floral Committee.

Present: Messrs. H. B. MAY (in the chair), W. G. BAKER, W. B. CRANE, CHAS. E. PEARSON, CHAS. E. SHEA, H. J. JONES, ARTHUR TURNER, M. C. ALLWOOD, W. B. GINGELL, J. JENNINGS, C. R. FIELDER, W. HOWE, AMOS PERRY, W. B. CRANFIELD, H. V. WARRENDER, W. J. BEAN, E. A. BOWLES, R. C. NOTCUTT, CLARENCE ELLIOTT, REGINALD CORY, W. CUTHBERTSON, C. WILLIAMS, J. F. McLEOD, W. P. THOMSON, and J. W. BARR.

AWARDS OF MERIT.

Eupatorium Raffillii.—A valuable late winter-flowering plant. It has leaves about 3 inches broad and from 7 to 8 inches long, dark green above, pale green beneath. The leaf stalk, the branches and the undersides of the leaves are all clothed with dark red-brown hairs. The terminal flower head may be six or more inches across, and the colour of the flowers is bright purplish lilac. The origin of the plant is uncertain; it was first cultivated in the Birmingham Botanic Gardens as *E. ianthinum*, which it somewhat resembles, but is of bolder habit and has more spreading heads of bloom. The plant was illustrated in *Gard. Chron.*, January 1, 1910, Fig. 13. Shown by A. BARCLAY WALKER, Esq., Firfield, The Heath, Weybridge.

Saxifraga hybrida Gem.—This delightful encrusted Saxifraga closely resembles *S. Irvingii* (see Fig. 72), as its round flowers are a lovely shade of pink, and patches of the form of *S. burseriana*, which is evidently one of its parents. When in flower it is barely 1½ inch high and if, as stated, it flowers after *S. Irvingii*, then there is ample room for it in the Alpine garden. Shown by Mr. MAURICE PRICHARD, Christchurch.

Asparagus Lewisii.—A distinct ornamental Asparagus of light and graceful appearance, and one that promises to be a good pot plant. It is more or less intermediate between *A. plumosus* and *A. Sprengeri*, less broad in its foliar parts, but more dense than the latter, yet deeper in colour and somewhat less feathery than *A. plumosus*. Shown by Messrs. J. LEWIS AND SON, Newtown, near Malvern.

OTHER NOVELTIES.

Eupatorium macrophyllum, with paler flowers, and without the attractive dark stems of *E. Raffillii* was shown by Mr. A. BARCLAY WALKER. An attractive new rich, crimson-red, semi-double Rose named *H. C. Chandler*, said to be a perpetual-flowering, climbing, *H. T.* variety, was exhibited by Mr. GEORGE PRINCE; this the Committee desired to see again when grown out-of-doors.

GROUPS.

A magnificent exhibit of *Eupatorium Raffillii* and *E. macrophyllum* was made by A. BARCLAY WALKER, Esq. The many plants filled a corner of the hall, and each was splendidly grown (Silver Flora Medal). Forced Roses were particularly good in an exhibit by Mr. E. J. HICKS. Of the many sorts on view the large vase of *Madame Butterfly* was perhaps the most admired, though *Columbia*, deep pink, and *Premier*, a still deeper shade of the same colour, were also admirable, and these were deliciously fragrant (Silver Flora Medal).

Long sprays of the yellow Banksian Rose were again shown by Mr. GEORGE PRINCE, who also had a bright vase of climbing Richmond and of the beautiful *Fortune's Yellow* (Silver Banksian Medal). Carnations were splendidly shown by several growers. Mr. C. ENGELMANN exhibited Carnations. There were many fine blooms of the dark crimson *Nigger*, which was certificated at last week's show of the British Carnation Society. He also had fine vases of *Carola*, Tarzan and the deep flesh pink, *Mrs. Walter Hemus* (Silver Banksian Medal). Large vases of the rich yellow *Marion Willson* and *Jessie Allwood*, a good yellow perpetual-mal-maison, were staged by Messrs. ALLWOOD BROS., who also had many blooms of *Mrs. C. F. Raphael* variety and a large stand of mixed perpetual-mal-maison sorts, as well as a goodly assortment of the choicest perpetual varieties (Silver Flora Medal). Many Carnations were also shown by Messrs. STUART LOW AND CO., who featured their *White Pearl*, flanked by *British Triumph* and the vivid scarlet *Lord Lambourne*. They also showed an interesting selection of *Mimosas*, *Epacris* and *Azalea indica*, all being especially well-flowered plants (Silver Flora Medal).

A very large collection of excellent Cyclamen was contributed by the ST. GEORGE'S NURSERY COMPANY, who also had a smaller over-flow group in another part of the hall. The plants, which were in 5-inch pots, were all models of cultural skill and bore large quantities of flowers. Of the many sorts, *Queen Mary*, bright rose pink, *Salmon King*, *Mrs. L. M. Graves*, brilliant crimson, and *St. George's*, which also

has beautifully mottled leaves, were perhaps the most attractive in colouring (Silver-Gilt Banksian Medal). Many plants of *Frilled Cyclamen* were shown by Messrs. M. GLEESON AND CO. These were in several sorts, and attracted a deal of attention (Silver Banksian Medal).

Adjoining their exhibit of vegetables Messrs. SUTTON AND SONS set up an attractive group of *Cinerarias*, *Cyclamen* and *Freeseas*. The former included excellent plants of Sutton's *Perfect White*, *Light Blue* and very charming *Pink Shades*. Amongst the *Freeseas*, there was a goodly batch of the new rosy-purple flushed *Apotheose* and the rich yellow *Vulcan*. The *Cyclamen* illustrated a good strain of large-flowered sorts, and also included a couple of plants named Sutton's *Sweet Scented*. These nearly approximate to the old *C. persicum* in their perfect form, and they have a pleasing fragrance (Silver Banksian Medal).

A splendid selection of *Primula obconica* seedlings was shown by the CHALK HILL NURSERY COMPANY. The central mass of a ruby-red variety was especially noteworthy by reason of the extra size and good form of the blooms, as well as their exceptionally bright colour. Amongst the lighter-coloured sorts an occasional plant, bearing well-formed flowers with fringed edges, was also noteworthy (Bronze Flora Medal).

A magnificent plant of *Rhododendron Ernest Gill*, bearing many trusses of splendid blooms, was shown by Messrs. R. GILL AND SON. Many vases of *Erica codonodes*, *E. mediterranea* and *Andromeda japonica* were also included in this attractive exhibit (Bronze Flora Medal). Brilliantly coloured sprays of *Cydonia* (*Pyrus*) *japonica coccinea*, with *Wistaria sinensis*, were arranged by Messrs. WALLACE AND CO., who also showed good examples of such *Genistas* as *purpurea*, *præcox* and *kewensis* (Silver Banksian Medal). *Convolvulus Cneorum* and *Coroea virgata*, two silvery foliaged shrubs, were included in an exhibit by Messrs. PIPER AND SON, who also had good examples of *Veronica Hulkeana* (Bronze Flora Medal).

Forced shrubs of many kinds were shown by Messrs. L. R. RUSSELL, LTD., and these included floriferous *Wistarias*, *Laburnums* and many *Clematides* in small pots and bearing good blooms. Amongst the greenhouse plants there were useful examples of *Clivia* (*Imantophyllum*) and the fragrant *Boronia megastigma* (Silver Banksian Medal). A small collection of *Camelias* by Messrs. SANDER AND CO. included the bright single *Fred Sander*, which received an Award of Merit last year. There were also plants of *Mrs. Wm. Thompson*, a good single white sort, and *Kimberley*, a free-flowering single very like in colour a rich *Rosa Moyesii* (Bronze Banksian Medal).

A small rockery by Messrs. WM. CUTBUSH AND SONS was planted with *Daphne Cneorum* and other appropriate plants (Silver Banksian Medal). *Myosotis Ruth Fischer*, a dainty little variety, was included in an exhibit of Alpines by Messrs. WATERER, SONS, AND CRISP (Bronze Flora Medal). Amongst his uncommon plants Mr. G. REUTHE included *Vaccinium Nummularia* and *Polygala rhodoptera* (Silver Banksian Medal). A batch of excellent *Freesia Excelsior* was shown by F. C. STROOP, Esq. (gr. Mr. G. Carpenter), West Hall, Byfleet. These were of unusual size and very fragrant (Bronze Flora Medal).

Amongst many spring flowers shown by Mr. G. W. MILLER there were *Crown Imperials*, *Polyanthuses* and pans of double *Daisies*. Of the last the bright crimson *Rob Roy* and the smaller rosy-pink *Dresden China* were very bright and showy (Silver Banksian Medal). Fragrant *Violets* in several varieties were again shown by the REEDENS SCHOOL OF GARDENING (Bronze Banksian Medal). Messrs. REAMSBOTTOM AND CO. exhibited their *St. Prigid Anemones* (Bronze Banksian Medal). Messrs. J. CHEAL AND SONS included sprays of *Almonds*, *Rhododendron Jacksonii* and many *Conifers* with Alpines (Bronze Flora Medal). Small rock gardens and Alpines in pots were shown by Mr. F. C. WOOD (Bronze Banksian Medal). Messrs. SKELTON AND KIRBY (Bronze Banksian Medal), and the Misses HOPKINS also showed Alpines.

A quantity of *Azalea mollis* varieties of glowing colours was shown by Messrs. R. and G. CUTHBERT (Silver Banksian Medal). Many Saxifragas, including the attractive Russell Prichard, were shown by Mr. M. PRICHARD (Bronze Flora Medal). Messrs. MAXWELL and BEALE showed Violets and a rock garden (Bronze Flora Medal). Amongst the many Alpines shown by Messrs. R. TUCKER and SON there were Saxifraga Sundermannii, in quantity, *S. retusa*, a dainty rosy-purple variety, and *S. Stuartii* (Silver Banksian Medal).

Narcissus and Tulip Committee.

Present: Messrs. E. A. Bowles (in the chair), W. F. M. Copeland, C. W. Needham, H. V. Warrender, F. Herbert Chapman, G. Churcher, John W. Jones, George Monro, W. Poupart, Reginald Cory, W. B. Cranfield, Peter R. Barr, and Charles H. Curtis (Hon. Sec.).

Large Trumpet varieties were a prominent feature of an interesting collection of Narcissi by Messrs. BARR and SONS, and these were represented by a number of very promising seedlings, as well as named sorts. Of the latter, Adelgar, Alasnam, Mustapha, Princess Juliana and General Joffre were admirable. Along the front of the exhibit there were several vases of attractive Poetaz varieties, including Rembrandt and Triumph, and the tiny, free-flowering canaliculatus. Adjoining the Daffodils there were sprays of *Cydodias* and *Forsythias* (Silver Gilt Banksian Medal).

An extensive collection of spring bulbs growing in bowls of fibre was again arranged by Messrs. R. H. BATH, LTD. Darwin Tulips predominated, and these included La Tulipe Noire, Princess Elizabeth, King Harold and Prince of the Netherlands. Many excellent Narcissi, and particularly free-flowered *Chionodoxas* and *Scillas*, were also included (Silver Gilt Banksian Medal). The rich yellow Trumpet Daffodil King Alfred was shown in great quantity by Messrs. CARTER and CO., and these made a glorious display of colour, as well as illustrating skilful arrangement.

A small collection of choice seedling Daffodils was contributed by Messrs. F. H. CHAPMAN, LTD. Of the few named sorts the bicolor St. Bernard, which has an evenly fringed margin to the trumpet, was very attractive; Ettrick, a giant Leedsii, was also very fine (Silver Banksian Medal).

Fruit and Vegetable Committee.

Present: Messrs. C. G. A. Nix (chairman), J. Cheal, W. Poupart, Geo. F. Tinley, A. H. Pearson, O. Thomas, S. B. Dicks, W. F. Giles, F. Wilson, F. Jordan, G. Reynolds, E. Neal, W. Bates, Ed. Beckett, A. Bullock, W. H. Divers, G. Berry, and W. Wilks.

AWARD OF MERIT.

Apple John Standish.—This new dessert Apple was shown on several occasions in the autumn of 1921, including the R.H.S. meetings and the Empire Fruit Show at the Crystal Palace. The exhibits then included branches in bearing cut from the trees, and all who saw them were impressed with the prolific cropping of the variety. Because of this quality, the pretty appearance of the fruits, and the late season at which the variety is available, an Award of Merit was recommended as a market Apple. The fruits are of medium size and in appearance somewhat like Worcester Pearmain; they are rich red all over except the eye end, which is a mellow yellow. The eye is closed and set in an even, wide, shallow cavity; the stalk is about an inch long and set in a deep, conical depression. The fruits are solid, juicy and of good flavour for a March Apple—superior to Worcester Pearmain in October. Shown by Messrs. ISAAC HOUSE and SON, Westbury-on-Trym, Bristol.

GROUPS.

Messrs. SUTTON and SONS were awarded a Silver Knightian Medal for an excellent group of vegetables, arranged in the best exhibition style. The various dishes were all of remarkably high quality, and included baskets of Golden Ball Lettuces, Market Cucumbers, Superb Early White Broccoli, Witloof Chicory, Sea Kale, Harbinger Cabbages, Masterpiece Dwarf Beans,

Perpetual Spinach, Onions, Salsify, Kale, Radishes and Potatoes.

Sir MONTAGUE TURNER, Bedford, Havering, Romford (gr. Mr. Barrett), was awarded a Bronze Hogg Medal for twenty-eight varieties of Apples of such sorts as Scarlet Pearmain, Beauty of Kent, Duke of Devonshire, Annie Elizabeth, Newton Wonder, Hornmead Pearmain, and Bismark.

Obituary.

Professor W. B. Bottomley, Ph.D.—The death of this distinguished botanist occurred on the 24th ult., at Huddersfield, where he had resided since his resignation last year, through ill-health, of the Chair of Botany, King's College, London, which he had held since 1893. Prof. Bottomley will be known to many of our readers for his investigations in the nutrition of plants, and especially in connection with bacterised peat made by inoculating sterilised peat with nitrogen-fixing bacteria. The advantages the late Prof. Bottomley claimed for bacterised peat were: (1) It adds active nitrogen-fixing organisms to the soil under suitable conditions for nitrogen-fixation; (2) it stimulates the nitrogen-fixers already in the soil; (3) it adds direct plant food to the soil, a large amount of the organic vegetable matter of the peat being rendered soluble in the processes of treatment; (4) it directly promotes the root development of plants; and (5) it improves the mechanical condition of the soil. Prof. Bottomley carried out numerous pot trials of plants treated with bacterised peat, and independent trials were conducted at such places as Eton School Gardens, Kew Gardens and Chelsea Physic Garden. At Chelsea Physic Garden, Radishes watered once with an extract of bacterised peat gave an increase of 54 per cent. over plants untreated. But his work suffered from two drawbacks—he had no funds for proper experimental investigation, and his experiments were handicapped by bad seasons, so that the results were not often so successful as might otherwise have been the case. For some years Prof. Bottomley was science tutor and lecturer of biology at St. Mary's Hospital School, and later became Professor of Biology at the Royal Veterinary College, St. Pancras. He founded the South-Eastern Co-operative Agricultural Society, and was hon. secretary of the Agricultural Banks Association and of the English Land Colonisation Society. He leaves a widow and two sons, to whom we tender our deepest condolences.

ANSWERS TO CORRESPONDENTS.

ARRANGEMENT OF BORDER FLOWERS: R. I. H.

The suggested arrangement for your border A should answer very well, but some of the plants would be better if given a little more space. The Zinnias and White Ostrich-plume Asters should be planted one foot apart, while the Pentstemons, Ray Asters and Giant Comet Asters should stand fifteen inches apart. The Kniphofias (Red Hot Pokers), if strong plants, would do better if planted three feet apart, with the Gladioli grouped between them. Regarding border B, the Phacelia, Eutoca, Anchusa and Nigella should all be sown out of doors as you suggest, as they do not transplant successfully. All annuals, if given plenty of room, last a long time in flower. With most plants the height is a good guide to planting; if a plant is one foot in height, it should be planted about that distance apart from its neighbours; thin growing subjects should, of course, be left a little closer, while some spreading subjects will occupy more ground. If you wish to cover the ground quickly, the distances apart that you suggest should suffice.

GARDENING BOOKS, ADDRESS WANTED: Will Mr. George Berbeck please send his full postal address to *The Gardeners' Chronicle* office so that he may be put in touch with a possible purchaser?

PEACH FLOWERS FAILING TO DEVELOP: F. G. So far as can be determined from the dried specimens of your Peach shoots, you may rest assured the dressing of Gishurst Compound is not the cause of the flowers failing to develop. The trouble may have arisen from one or more of several causes, such as the tree being slightly overcropped, or allowed to become dry at the roots, but more possibly in your case from the early loss of leaves, as the shoots had much to contend with during the hot season of 1921. It often happens that healthy old trees set such a profusion of blossom buds that it is necessary to thin them severely long before the flowers open. If you had drawn your finger up the back and under-sides of the thickly studded shoots, to remove all the drooping buds, you would still have had a plentiful supply from those pointing upwards, and this removal would undoubtedly have strengthened the remaining flower buds.

MARKETS.

COVENT GARDEN, Tuesday, March 28, 1922.

Fruit: Average Wholesale Prices.

s. d. s. d.	s. d. s. d.
Australasian Apples.	
Alfriston .. 15 0-18 0	
Cox's .. 22 0-25 0	
Emp. Alexandra 14 0-15 0	
Ribston .. 16 0-18 0	
Californian New-	
town Pippin .. 14 0-17 0	
English.	
—Bramley's	
Seedling, bushel 14 0- - -	
Nova Scotian.	
—Baldwin .. 35 0-40 0	
—Ben Davis .. 25 0 32 6	
—Golden Russet 35 0-45 0	
Oregon, Newtown 15 0-17 0	
—Winesap .. 13 0-15 0	
Bananas, singles 15 0-25 0	
—doubles .. 20 0-30 0	
Dates, Tunis,	
doz. cartons 5 0- 6 0	
Grape Fruit .. 30 0-34 0	
Grapes.	
—Almeria, bar's 50 0-60 0	
—Belgian .. 4 0- 5 0	
Grapes.	
—Hannepot, .. 8 0-10 0	
—Colmar .. 15 0-25 0	
—Peaches .. 10 0-12 6	
—Pears .. 6 0- 9 0	
Plums, Wickson 6 0- 8 0	
—Apple Plum .. 6 0-10 0	
—Kelsey .. 6 0- 8 0	

Vegetables: Average Wholesale Prices.

s. d. s. d.	s. d. s. d.
Artichokes, green 4 0- 5 0	
Asparagus, forced,	
per bundle .. 3 9- 4 0	
—Cavillon .. 4 0- 8 0	
—Lauris .. 4 0- 8 0	
Beans.	
—Guernsey .. 2 6- 2 6	
—Worthing .. 2 0- 3 0	
—Broad Beans .. 8 0- 9 0	
Beets, per bus. 4 0- 5 0	
Cabbages, per doz. 3 0- 5 0	
Carrots, per cwt.	
—washed .. 35 0-38 0	
—new, doz. bus. 18 0- - -	
Cauliflower	
—French, crate 14 0- - -	
—Guernsey, crate 12 0-16 0	
Celery, washed fans 2 0- 3 0	
Chicory .. 0 10-1 0	
Cucumbers, per doz 7 0-12 0	
Endive .. 4 0- 5 0	
Garlic, per lb. 0 9-10 0	
Greens, per bag 12 0-18 0	
Lettuce, per doz.	
—cos .. 6 0- 8 0	
—cabbage .. 2 3- 2 6	
Mint, per doz. 6 0-12 0	
Mushrooms, per lb. 2 6- 3 6	
Onions.	
—English .. 30 0-35 0	
—Egyptian .. 25 0-30 0	
—Valencia, case 35 0-37 0	
Parsley, per bus. 4 0- - -	
Peas, per cwt. 15 0-20 0	
—French, per basket .. 8 0-10 0	
—Guernsey, per lb. 5 0- 6 0	
Potatoes.	
—Algerian, per lb. 0 5-0 6 6	
—Dunbar, per ton 11 0-12 0	
—English, white per ton .. £6 0- £8 0	
—King Edward, per ton .. £9-£12 0	
—Guernsey, New per lb. .. 1 0- 1 6	
—Tenerife, case 14 0-18 0	
Radishes, round	
per doz. .. 3 0-4 0	
—long .. 1 3-1 6	
Rhubarb.	
—Forced, doz. .. 3 0- 4 0	
—Outdoor .. 10 0-14 0	
Seakale, per lb. 0 8-0 10	
Spinach, bushel 7 6- 8 0	
Turnip Tops, bag 6 0-i- -	
Tomatoes.	
—Canary Island 15 0-22 6	
—English .. 3 6-4 0	
—Guernsey .. 7 0-10 6	

REMARKS.—The recent cold snap has not been favourable to the increased demand for fruit; but, taken all round, most fruits have been in good request. Arrivals of Cape fruit have been on a large scale during the past week, and have moved satisfactorily. The first shipment of Australasian Apples came to hand in good condition during the week, and sales have been effected at good prices. Fairly large stocks of Newtowns and Winesaps are still on offer, and are quoted lower. Oranges are slightly firmer in price. Lemons show little or no variation in values. Bananas continue a steady trade, with supplies just sufficient for requirements at present quotations. Choice vegetables, such as Asparagus, French Beans, Peas, and New Potatoes, are in moderate demand, any light increase in quantities having the effect of unduly lowering the prices. Canary Island New Potatoes are in better demand, and have hardened in price. Tomatoes from the same source are easier in value. All green vegetables are scarce and costly: Cauliflowers have also advanced in price, and Carrots are quoted at almost prohibitive rates. Onions remain firm. Potato supplies are steady, with no change in quotations.

THE

Gardeners' Chronicle

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 46.1.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, April 5, 10 a.m. Bar. 29.8; temp. 48°.—Weather—Cold and bright.

The retirement of Sir Isaac Bayley Balfour, F.R.S., the King's Botanist in Scotland, Regius Keeper of the Royal Botanic Garden, Edinburgh, and Professor of Botany, University of Edinburgh, marks the close of the official career of the most distinguished horticulturist of modern times. Sir Isaac, indeed, has achieved and deserved fame in many walks of life. He is a distinguished botanist and a great traveller, a remarkably capable administrator, but above all he is a great horticulturist. No one whom we have met understands plants as he does. He comprehends them as individuals, each with its peculiar idiosyncrasy, and he understands them as members of a vast community. Of him it may be said in truth, as in a larger way it was said with irony of Lord Bacon, that he took all plant knowledge as his province. Profundity without pedantry is the characteristic of his knowledge. His mind is a great store of the facts of biological science and of plant life, which it has always been his habit to put freely to the use of his colleagues.

Born in 1853, at a time when botany was under the influence of German inspiration, Sir Isaac pursued his studies both in Edinburgh and in Germany, and became successively Professor of Botany at Glasgow and at Oxford, in both of which places he left proof of his great organising capacity and devotion to botanical science. In 1888

he assumed the offices in Edinburgh which he has now relinquished. Before that date he had already travelled widely. When just of age he was appointed naturalist to the Transit of Venus Expedition to Rodriguez, and in 1880 he explored the Island of Socotra. Among the plants which he brought back from this latter expedition was *Begonia socotrana*, which has played its part in the formation of the now popular winter-flowering Begonias. After many years, his love of travel led him, not so very long ago, to visit China, that Eldorado of horticultural plants. In large measure through his influence, successive explorers have ventured into the innermost recesses of China and its hinterlands and have brought back almost numberless treasures for the enrichment of our gardens. Sir Isaac's wide and sure knowledge has contributed greatly to the description of the plants brought back by recent explorers, and his skill as a cultivator as well as his acumen as a judge of plant possibilities, have enabled him to prove at Edinburgh the garden worth of many of these recent introductions. Prof. Sir Isaac Bayley-Balfour's contributions to botany have been many and distinguished, and it is due to his energy and enterprise that many of the best German works on that science have been translated into English; he also acted for many years as editor of the *Annals of Botany*, which journal has done so much to establish botanical science and botanical research in this country. Few, if any, of his contemporaries have exercised as wide or as beneficent an influence on botanical science and horticulture. For many years he has been an unofficial and final referee in all matters affecting horticulture; the power which he possesses is great and has always been wisely used. His supreme quality is the possession of great resolution combined with the subtle understanding of human nature. Thanks to these gifts he was able easily to get his way, and thanks to the fine quality of his mind, his way was the right way. He touched nothing in botany which he did not adorn and he was able to make even Cabinet Ministers fond of, and generous to, horticulture. Among his many achievements, the formation of the rock garden at Edinburgh deserves special mention. It is a memento of his skill, knowledge, assiduity and judgment; but everyone who has come in contact with Bayley Balfour carries in his heart a yet more precious memento of a man whose whole life is devoted unsparingly and unselfishly to the advancement of knowledge and the helping of those who ensue it. His friends throughout the world will wish him every happiness in the well-earned rest which he is now to take, and will pray that he may long be spared to aid them with his counsel and to serve as an inspiration to them in their work.

—A correspondent sends us the following appreciation of Sir Isaac Bayley Balfour:—The retirement of Sir I. Bayley Balfour from active official life is an event in the course of botanical and horticultural progress which calls for more than mere passing comment. Sir Isaac, even during the earlier stages of his career, when he occupied the Sherardian chair of Botany at Oxford, was one of the central figures in that forward movement in British Botany which marked the closing decades of the last century, and was to prove so fruitful in scientific and economic directions in later years. His was the main moving spirit that led, amid head shaking of older men and scepticism on the part of some contemporary Gallios, to the founding of the *Annals of Botany*, which did much to quicken research in this country, and the periodical itself has from its first appearance occupied a pro-

minent position as one of the leading scientific journals of the world. At Oxford he had scope enough for the exercise of his vigorous energy and his inspiring enthusiasm. Botany in the University had fallen on evil times, and it is no exaggeration to say that, at the time he was appointed to the chair, in 1884, there was hardly anything in existence, but everything to make. He organised the teaching and remodelled the old garden (one of the oldest in Europe), though without destroying its old-world charm. When he resigned the chair in 1888 he had already founded a small, though promising school, infecting all his students with his keenness for his subject, and a recognition of its importance from the economic and scientific standpoints, an importance which escaped the notice of most people at that time. Called to Edinburgh as Professor of Botany in the University, and Regius Keeper of the Botanic Garden, he used the whole weight of his energy, experience and wisdom in grappling with the new problems that lay before him. It was towards the organisation of that great garden, the developing of the facilities it affords for study and research that his future efforts were to be largely directed. It is no exaggeration to say, and all who have followed his great work there will freely admit it, that he has really transformed the place. Gifted with strong artistic perception, coupled with a wide scientific outlook, the result of the many changes he had introduced has been to give to Edinburgh one of the great botanic gardens of the world. The rock garden is one of its famous attractions, the scientific value of which is enhanced by the artistic feeling under which it has been developed. The great collection of Rhododendrons and Primulas is well known, and Sir Isaac himself is the chief living authority on these glories of the vegetable kingdom. Most of the leading botanists of the world have at one time or another been drawn to visit Edinburgh, and none of them will fail to look back with delight on walks through the famous garden with the Professor, who ever had something of fresh interest to tell of every plant. For he adds to an extensive range of botanical knowledge a wonderful appreciation of the many scientific problems that spring from horticultural practice. Perhaps it is this apprehension of the plant in the field, the forest, the garden, the propagating pit, as well as the laboratory that helps to explain the remark of more than one eminent visitor, that a talk with him seemed to open up new views on the fundamental problems of plant life. Whilst his high attainments have deservedly earned for him a widespread admiration, those privileged to closer intimacy have most fully appreciated his real greatness. An acute intellect, coupled with a wide knowledge of men and affairs, is here associated with an individual personal charm that secures sincere and devoted affection, and Sir Isaac carries with him in his retirement from a strenuous scientific and official career the heartfelt good wishes of all his colleagues and friends.

Midland Daffodil Show.—Owing to the Easter holidays, the Birmingham Botanic Gardens, at Edgbaston, will be open to the public until late on Tuesday, April 18, consequently the committee of the Daffodil Society is unable to make the necessary preparations for the show originally fixed for Wednesday and Thursday of Easter week. It has, therefore, been decided to hold the exhibition on Thursday and Friday, April 20 and 21, when a fine display is anticipated.

Memorial to late Professor Trail, Aberdeen.—Under the presidency of Mr. P. J. Anderson, Aberdeen University Librarian, a meeting of the subscribers to the Trail Memorial Fund decided that the memorial to the late Professor James W. H. Trail, F.R.S., for nearly forty years Professor of Botany in Aberdeen University, should take the form of a portrait plaque, to be placed in the Botany Department of the university, and a memorial volume. The volume will include the late Professor Trail's *Flora of the City Parish of Aberdeen*, as well as certain autobiographical matter, and a complete bibliography of his works. His old students and all those interested in the natural history of

Aberdeen, as well as professional botanists, will appreciate the good fortune of the Memorial Committee in having obtained the permission of the Aberdeen National History and Antiquarian Society, for whom the *Flora of the City Parish* was written, to publish this work as a part of the memorial. The work represents the chief labour of Dr. Trail's later years, and is important not only as a study of the flora as it exists just now, but for its historical aspect, and as an example of the influence of man on his environment. The hope is expressed that publication of the volume may be arranged this year.

British Horticulture and Quarantine Order No. 37.—We learn that the Ministry of Agriculture has deputed Mr. W. G. Lobjoit, Controller of Horticulture, to attend a Conference of horticulturists, to be held at Washington on May 15, for the purpose of protesting against the possible extension of the American Quarantine Order No. 37, which, ostensibly set up for the purpose of preventing the importation of insects and other pests, has the effect of excluding horticultural products from Great Britain and other European countries, to the great disappointment of large numbers of garden lovers in the United States, who are anxious to obtain the best British and other plant novelties.

Ormskirk Potato Show.—The annual Potato Show, held at Ormskirk, will take place this year on Wednesday and Thursday, November 1 and 2.

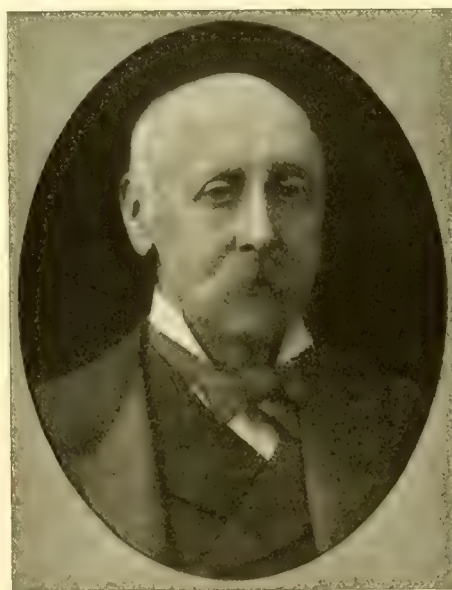
Royal Gardeners' Orphan Fund.—The annual festival dinner in aid of the Royal Gardeners' Orphan Fund will be held at the Connaught Rooms, Great Queen Street, on Tuesday, May 9, under the presidency of Lionel de Rothschild, Esq., O.B.E., M.P. The fund is fortunate in having secured as chairman of the dinner a member of a family noted for its generosity in assisting all kinds of deserving institutions, as well as being splendid patrons of horticulture. Previous dinners have been presided over by members of the Rothschild family—Baron Ferdinand de Rothschild in 1893 and by Leopold de Rothschild in 1902. We are sure that members of the gardening fraternity and lovers of horticulture generally will give Mr. Rothschild a full measure of support by contributing generously to his list, and thus make the occasion one of the most successful of its kind in aiding the orphans of gardeners.

Wakefield and Northern Tulip Society.—References in Sir Daniel Hall's article on the Florists' Tulip (pp. 128, 140, 155) have caused considerable interest in the north and led correspondents to send us a report of the Wakefield Northern Tulip Society for 1921 and a schedule of the classes arranged in connection with the Tulip show to be held on Saturday, May 27, and Monday and Tuesday, May 29 and 30, at the Brunswick Hotel, Wakefield. We understand that Tulip shows were held at Wakefield all through the war period. In November, 1919, a silver challenge cup, value £14 14s., was subscribed for, and this was offered for the best stand of nine Tulips in 1920, when it was won by Mr. Jesse Hardwick. Mr. Hardwick was an enthusiastic cultivator of the old Florists' Tulip, and for twenty-five years was secretary of the Wakefield Society. In November, 1907, he retired from the position of secretary and became chairman, a position he held for several years. A tailor by trade, he was a most regular attendant at the society's monthly meetings, making his last appearance on December 5, 1920; he passed away on December 15 of that year. Mr. C. W. Needham, a veteran Tulip fancier and vice-president of the society, won the challenge cup in 1921. The president of the society is another famous florist, Mr. J. W. Bentley, Stake Hill, Castleton.

Jubilee of the National Auricula Society.—The fiftieth annual exhibition of the National Auricula Society (Northern Section) will be held on Saturday, May 6, at the Coal Exchange, Market Place, Manchester. An interesting schedule has been arranged, with seventeen classes for show Auriculas, thirteen for alpine Auriculas, ten for gold-laced Polyanthus, and five for other Polyanthus, Primroses, and Auri-

culas. It is interesting to observe that this society has held its exhibitions every year for fifty years, and that its first show was held in the old Town Hall at Manchester on April 29, 1873, when the Rev. F. D. Horner was hon. secretary. The present secretary is Mr. J. Tonge, 22, Booth Street, Manchester.

Glasgow International Flower Show.—The schedule of the International Flower Show, to be held in the Kelvin Hall, Overnewton, Glasgow, on Wednesday, Thursday, Friday, and Saturday, August 30th, 31st, September 1st and 2nd has been issued. The show is promoted by the Corporation of the City of Glasgow, in conjunction with the Glasgow and West of Scotland Horticultural Society. A sum of over £1,500 is offered in prizes and trophies in the various classes, which number no fewer than 340. The schedule is divided into numerous sections and embraces classes for pot plants; cut flowers, including Roses, Sweet Peas, Carnations, hardy herbaceous flowers, Dahlias, Gladioli, Violas and Pansies; decorative classes and classes for fruits, vegetables and allotment holders' produce. The show is under the patronage of the Royal Horticultural Society, which is sending a deputation of its Council to the show, and will award R.H.S. medals in accordance with the merits of the various exhibits.



PROFESSOR SIR ISAAC BAYLEY BALFOUR, F.R.S.
(See p. 161.)

Displays of fruits are invited from foreign nations, States and Dependencies of Great Britain, and suitable trophies and certificates will be awarded to exhibitors of all meritorious displays in this section. In some of the classes the prizes are exceptionally liberal; thus for a group of miscellaneous stove and greenhouse plants arranged for effect the first prize includes the President's cup, together with £40; the second, third and fourth prizes being £40, £30 and £20 respectively. For a decorated table of fruit, comprising twenty-four dishes, the first prize is a silver cup or rose bowl, valued at £50, together with £25 in money, and the other prizes are £25, £20, £15 and £10 respectively. A sum of £28 is offered as prizes in a class for a collection of vegetables, divided into £10, £8, £6 and £4 for first, second, third and fourth prizes. Copies of the schedule may be obtained from the Secretary, Mr. H. M. Mackie, 124, St. Vincent Street, Glasgow.

North of England Horticultural Society.—This northern Society, which was founded in 1911, was compelled to suspend operations from 1915 to 1921, and five trustees were appointed on February 18, 1921. The trustees have been asked to resume the activities of the Society, and if sufficient support is forthcoming it is

proposed to hold an educational fruit show in the Winter Gardens at Harrogate in October, 1922. In September, 1913, the Society consisted of 520 fellows and members and twenty affiliated societies, and it has a small balance at the bank, two cups and valuable medal dies. An appeal is being made for a prize fund of £100 toward the expenses of the proposed show. The policy of the Society will be to work in co-operation with the Royal Horticultural Society and northern horticultural societies; at the same time preserving its independence and its definite North of England character. The President is Col. Sir Edward A. Brotherton, Bart., M.P., the chairman Mr. J. S. Brunton, and the secretary the Rev. J. Bernard Hall, B.A., Farnham Vicarage, Knaresborough.

Legacies to Gardeners.—The late Sir Thomas Sutherland, who died on January 1, 1922, leaving a large fortune to his lady secretary, Miss Marjory McKay, also bequeathed the sum of £1,000 to his head gardener at Coldharbour Wood, East Liss, Hants, Mr. J. Lintott. Mr. Lintott is still at Coldharbour, and is now in the service of Sir William Dingwall Mitchell Cotts, Bart. The late Mr. George Charles Parr, of Ballygunge, Kent Gardens, Ealing, solicitor, who died on January 15, left the sum of £250 to his gardener, Mr. Joseph Bryant.

Forestry at Aberdeen University.—The Aberdeen University Senatus has agreed, in order to bring the course of study for the degree of B.Sc. in Forestry into line with the scheme of study recommended by the Inter-Departmental Committee on Imperial Forest Education, that courses in Plant Physiology (one term), Forest Engineering (one term), and Forest Policy (one term) should be added to the curriculum.

Blinded Soldiers as Garden-net Makers.—The late Sir Arthur Pearson's proud boast that blinded soldiers and sailors who had been retrained for a life of usefulness at St. Dunstan's, Regent's Park, could hold their own, as regards the work they produced, with sighted workers, has many times been justified. The making of netting for all garden and other purposes, as organised at St. Dunstan's, is an industry which was initiated in 1915 with wonderful success. This handicraft now gives employment to over 500 blinded soldiers in their own homes. Every description of garden, farm and sports nets is made by the men. Particular attention is directed to the golf driving nets, made of heavy, tanned hemp of three-quarter inch mesh, and the durable tennis nets and tennis boundary netting. It is only fair to emphasise the fact that orders are not asked for *only* on the ground of sympathy and interest in the way these gallant fellows are "making good." That the work they produce commands attention on merit alone is proved by the fact that contracts are often secured in open competition.

Wart Disease of Potatoes.—The proposed new regulations for the control of wart disease in Potatoes, which were to have been brought into operation by the Ministry of Agriculture and Fisheries at the conclusion of the 1922 planting season, are still under consideration by the Minister's Advisory Committees. It is unlikely that any decision will be arrived at in time to issue fresh regulations which may affect the distribution of the 1922 crop, or, therefore, that any change in the 1921 regulations will be made. The Ministry does, however, inform Potato growers that no restrictions additional to those operating in 1921 will be imposed which will affect the distribution of the 1922 Potato crop, or of the entry into England and Wales of seed Potatoes produced during 1922 in Scotland or Ireland.

Iris Conference in Paris.—The organisers of the forthcoming Iris Conference in Paris are making an urgent appeal to the generosity of professional and amateur growers of irises in all countries for gifts of money or prizes to be awarded to the exhibitors of the best plants and the writers of the best papers, and contributions towards the cost of printing the prize papers. A full list of all prize-givers will be

published, and the principal prizes can, it desired, bear the names of their donors. Mrs. Edward Harding, the generous American lady who has already given several prizes (notably one of 500 francs for a new Iris, which was awarded to the new variety Mrs. Walter Brewster, raised by MM. Vilmorin, Andrieux and Cie.), has just placed another sum of 500 francs at the disposal of the committee. M. Jacques L. de Vilmorin has also offered 500 francs, and M. J. Denis, the raiser of many splendid new varieties, is giving 500 francs, of which 250 francs is to be awarded for the best new variety presented at the Conference.

Appointments for the Ensuing Week.

Monday, April 10: United Horticultural Benevolent and Provident Society's Com. meet.; Bath Gardeners' Society's meeting; Purley Horticultural Society's meeting; Reading and District Gardeners' Association's meeting and lecture by Mr. J. Wynn on "Practical Demonstrations in Floral Work." Tuesday, April 11: Royal Horticultural Society's Committees meet (2 days). Wednesday, April 12: East Anglian Horticultural Society's meeting; Sheffield Chrysanthemum Society's meeting. Thursday, April 13: Bristol and District Gardeners' Association's meeting.

"Gardeners' Chronicle" Seventy-Five Years Ago.

Vanda Lowii.—This very extraordinary plant has been found in Borneo by Mr. Hugh Low, jun., by whom it has been sent to England. I find the following account of it in a letter from this gentleman, dated Sarawak, January 12, 1846:—"At the time I formerly sent it to you I remember having said that I expected something very magnificent in its flower, and sure I am that when it produces its spikes of flowers in England it will be the admiration of all cultivators, probably beyond any Orchid that has ever yet appeared. As I saw it nothing could have exceeded it in beauty; about 200 of its branches were hanging horizontally from the main stem of a large tree, from each of which depended two, three or four chains of flowers, each ten feet in length, and sometimes twelve feet. The individual flowers are upwards of three inches in diameter. When they first open the ground colour is pale lemon yellow, barred and blotched with bands and spots of the richest cinnamon; as they become older the cinnamon colour gradually diminishes in size; the yellow becomes richer and more brilliant, and takes the place formerly occupied by the more dull, but not less rich tint; the stem and foot-stalks of the flower are covered with a rich, downy coating of moss, similar to that of the Rose; the labellum is shaded cinnamon and purple; the leaves are of a light green colour and leathery texture, similar in shape to those of *Aerides odoratum*, as far as I recollect, but more stiff and erect; the whole habit of the plant is as neat as the rest of those of the same tribe. The roots are large, but by no means so thick as in some of the Continental Indian Vandas. It delights in high trees on the banks of rivers, thick forests and other humid places." Mr. Low begged that it might be called *Vanda Lindleyana*, under which name it has already become known to a few persons, but as it has never been before described, Dr. Lindley takes this opportunity of transferring the name of its discoverer, who certainly ought, before all others, to be associated with one of the finest plants which he has discovered in that interesting, but dangerous island in which his researches have been so diligently prosecuted. We have a specimen of this plant now before us, preserved in spirits, and we are thus able to verify Mr. Low's dimensions. The flowers are more than three inches in diameter and spread quite flat, and the space from flower to flower is about five inches. The "rich, downy coating of moss," of which Mr. Low speaks, is formed by curious short hairs, whose sides are studded with irregular microscopical spines, and must add much to the beauty of this most singular plant. *Gard. Chron.*, April 10, 1847.

Publication Received.—*Lucerne Growing in the Nelson District*. By T. H. Easterfield, and T. Rigg. R. Lucas and Sons, "Evening Mail" Office, Nelson, N.Z. Price 1s.

NEW OR NOTEWORTHY PLANTS.

HEDYCHIMUM GREENII.

This is a handsome species of *Hedychium* (see Fig. 81), with flowers of a similar type to those of the well known *H. coronarium*, but smaller and quite different in colour.

H. Greenii, Smith, was described in the *Records of the Botanical Survey of India*, v. 4, p. 272, in August, 1911, and soon after introduced into cultivation in this country. It is stated to grow to a height of from two to six feet, and, among other characters, is well marked by the purple colour of its stems and the undersurface of its leaves. It produces

This species has been thought to be the same as *H. Elwesii*, Baker, which is a native of Assam. But apart from the improbability of these plants from two different regions being the same, *H. Greenii* is distinguishable at a glance from *H. Elwesii*, not only by its purple colouration, which is wanting in *H. Elwesii*, but also by the very much shorter ligule of its much shorter leaves (those of *H. Elwesii* being 16 to 17 inches long, with ligules one inch long), the denser and more floriferous spike, and the shorter corolla-tube, that of *H. Elwesii* being 2 to 2½ inches long and considerably overtopping the bracts. *N. E. Brown*.

[The photograph is from a specimen exhibited by Mr. Elwes.—Eds.]



FIG. 81.—HEDYCHIMUM GREENII.

bulbils freely. The leaves have the petiole sheathing almost up to the blade, with a short and very obtuse pubescent ligule about a quarter of an inch long; the blade is 8 to 11 inches long, and 2¼ to 3¼ inches broad, oblong, cuneately rounded at the base and tapers from above the middle into a long slender point at the apex. The spike is four to five inches long, dense, many-flowered, with broadly ovate acute bracts 1½ to 2 inches long. The corolla has a tube about 1½ inch long, that does not overtop the bracts, with segments 1¼ to 1½ inch long, the broad, obtusely two-lobed lip being 1½ to 2 inches broad, the two spatulate segments four to six lines broad, and the other three linear. In a wild state the flowers are dark red, but some of the plants in cultivation have yellow flowers. It is a native of western Bhutan, in India.

CORYDALIS SOLIDA.

DURING the past two or three weeks the young growths of many garden plants, particularly varieties of *Phlox decussata* and plants of *Antirrhinum*, have been severely damaged by cold winds. The stems and petioles of *Corydalis solida* have exhibited an interesting movement, bending over and lying closely adpressed to the soil, so escaping the severeness of the winds. I have not noticed this movement before the present occasion, neither have I observed it in any other plant. The winds have since changed to a more N.W. direction and already the plants have assumed a nearly erect position. I enclose a print (not suitable for reproduction.—Eds.) which shows the change of position. *James W. Bamber, Hoddesdon*.

The Week's Work.

KITCHEN GARDEN.

By JAMES E. HATHAWAY, Gardener to JOHN BRENNAND, Esq., Baldersby Park, Thirsk, Yorkshire.

Capsicums.—These plants are both useful and ornamental. The seeds should be sown in 6-inch pots and the seedlings grown in gentle heat. When of a suitable size prick them off singly into small pots, and continue to grow the plants in a warm house through the summer. A keen watch should be kept for green fly. Princess of Wales is one of the best varieties.

Cauliflowers.—Plants wintered in frames should be planted out in a sheltered position, and those sown in spring and grown in boxes hardened off. Peas and Beans grown in turves or in pots should be also hardened off and planted out as soon as they are ready.

Broccoli.—Sow Self-protecting Broccoli on a warm border. Michaelmas White and Veitch's Self-protecting Autumn are two of the best varieties for early sowing.

French Beans. Make a sowing of French Beans. Place four beans in each 3-inch pot and germinate them in gentle warmth. Harden the seedlings, and plant them in the open as soon as there is no fear of injury by frost, to obtain an early crop out-of-doors.

Potatoes.—The main crop of Potatoes should now be planted in well-manured land, choosing medium-sized sets. Strong-growing sorts should be planted 3 feet apart between the rows and 18 inches between the tubers in the rows. To prolong the season of new Potatoes seed tubers of early varieties should have the sprouts rubbed off and be kept in a cool place to be planted in batches every three weeks up to the beginning of July.

Seed Sowing.—Seeds of Brussel's Sprouts, Cauliflowers, Savoy, Turnips, Globe Beet and Radish should be sown in drills made 1 foot apart and 2 inches deep. Cucumbers, French Beans and Tomatos growing under glass require constant attention in watering, airing, and feeding. Water the plants on frequent occasions with liquid manure, and stimulate the roots with a concentrated fertiliser, such as Bentley's Vitaliser or Le Fruiterer.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Repotting Vandas.—*V. suavis*, *V. tricolor*, and other large plants of this interesting family are best grown in pots, whilst smaller plants and species may be grown suspended in pans or baskets. In repotting these plants it will be found that many roots have become attached to the sides of the pots. These may, in many cases, be detached by the aid of a knife, and sometimes it may be desirable to break the pot carefully, and place the roots with the broken pot attached to them inside the new receptacle. It is not necessary to repot the plants annually, but it is essential that the potting material should be sweet and in a condition to support healthy growth. In repotting those plants which have become leggy by the loss of their bottom leaves, it is advisable to cut away a portion of the stem at the base, so that the bottom pair of leaves rest just above the compost. A suitable compost is formed of equal parts *Osmunda* fibre and live *Sphagnum*-moss, thoroughly cleaned, and cut up according to the size of the plants; the larger the plants the rougher should the material be. Shade the plants from the bright rays of the sun, but remove the shading material in time to ensure a considerable rise in the temperature by the sun's warmth. Plants that do not need repotting may, if the drainage is perfect, and their pots are sufficiently large enough to carry them through the season, be resurfaced with fresh material. Although these old-world Orchids are

not grown to the same extent as formerly, there are few plants to compare with them when well grown. They vary in their requirements as regards heat, some requiring the hottest position, whilst others succeed in a warm Cattleya house. The beautiful *Vanda Sanderiana* delights in the warmest and most humid position possible whilst making its growth, and all like drier conditions whilst at rest. The same remarks apply to *Aerides* and *Saccolabiums*, which thrive under similar conditions. *Vanda tricolor* and *V. suavis* thrive well in a shady part of a warm Cattleya house or some similar structure.

HARDY FRUIT GARDEN.

By H. MARKEHAM, Gardener to the EARL OF STRAFFORD, Wrotham Park, Barnet.

Gooseberries.—The weather having been very favourable for ground operations, the work of manuring and digging lightly amongst the bushes will have been completed; but the hoe should be used freely whenever weeds are seen to be springing up and the land is in a suitable condition to work. Gooseberry bushes are fre-



FIG. 32. CROCUS SPECIOSUS AS NATURALISED (SEE P. 165).

quently allowed to get in a neglected condition, whereas to obtain the best results they need good treatment, and especially if the land is light and porous. This should be given heavy dressings of rich farmyard manure annually, and repeated soakings of liquid manure when carrying heavy crops, in dry weather.

Cuttings.—Cuttings of Gooseberries that were inserted last autumn should be examined, and if found to be loosened by the action of frosts pushed down and made firm again. The same remarks apply to cuttings of Black and Red Currants. Young plants rooted last year that need more room should be carefully lifted and transplanted 18 to 20 inches apart. The heads may need a little pruning to ensure a neat shape. Keep the different varieties correctly named, and, to be on the safe side, make a note of the different sorts where they are growing; it frequently happens that the labels get displaced when the work of hoeing and cleaning is being done. Warrington is one of our best late dessert varieties of Gooseberries at Wrotham.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir C. NALL-CAIN, Bart., The Node, Codicote, Welwyn, Hertfordshire.

Seedlings. Such plants as *Gloxinias*, *Streptocarpus*, and *Begonias* that were raised from seed sown early in February are ready for pricking off into shallow boxes or pans filled with a light, sandy compost. The pans should be prepared and the soil watered two or three days in advance of planting, and stood in a warm house. In removing the seedlings, great care must be taken not to injure them, and for a few days a little extra shade will be necessary to protect them from bright sunlight. The receptacles should be stood near the roof glass, and the seedlings sprayed overhead several times daily in bright weather.

Pelargonium. Cuttings of Zonal *Pelargoniums* should be inserted now to obtain plants for winter flowering. Select the best ripened growth as cuttings, and insert the latter several together in a 4½-inch pot. They should be rooted in a moderately warm house, and when ready potted off singly into 60-sized pots. The soil for this potting may consist of two parts turfy loam to one part leaf-mould, with silver sand added. These plants should never be allowed to become pot bound until in their final pots, as the *Pelargonium* resents its roots being restricted in its young stage. Keep the plants in a close atmosphere for a few days after potting, but when they are established in the soil admit air on all possible occasions. Pinch the shoots during the growing season to promote a bushy habit.

Perpetual Carnations.—The young plants comprising the various batches of perpetual-flowering Carnations should be potted on as they require more root room; it is a great error in cultivation to allow these plants to become pot-bound and starved in their young stage. The soil of plants growing in small pots quickly dries up when the receptacles are filled with roots, and to avoid a too frequent use of the watering-can attention should be given to repotting of the plants. Before this is done the grower should decide what sized receptacles the plants will be flowered in, and use pots of various sizes accordingly. Some growers advocate the use of 7-inch pots for the final shift. I find receptacles of 6-inch diameter quite large enough for most varieties. Carnations resent overpotting, and the small grower would be well advised to keep to the smaller size, and assist the plants with soot water and a suitable Carnation manure, when the pots are well filled with roots. The compost for this potting may consist of good fibrous loam with manure from a spent Mushroom bed, after it has been rubbed through a fine sieve, with a liberal dash of silver sand and fine mortar rubble added. At all stages care should be taken not to pot too deeply, and always see that the receptacles are clean and dry before using them.

THE FLOWER GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

Water Gardening.—At Aldenham we grow a considerable number and variety of waterside plants and aquatics in association with the streams, ponds, etc. At this time of the year the plants are given every attention necessary whereby they may be grown at their best, and form beautiful additions to the garden. Too frequently the banks and edges of ornamental waters are left in a poor, bare condition, whereas much that is beautiful and interesting might be grown on them. Dealing first with the true aquatics, the most important are the many glorious *Nymphaeas*, or Water Lilies, which are most easily grown, but regarded by many as difficult subjects. Some are strong growers and require a good depth of water, and of these *N. alba* and varieties of *N. Laydekeri* and *N. Marliacea*, should be allowed up to 6 feet depth of water, but others do not require so much, being of smaller growth, and are suitable for planting in shallow pools and ornamental basins. Care should be taken with their planting, and the best way to do this is to

AWARDS TO CROCUSES.

At the meeting of the Royal Horticultural Society on February 28, 1922, the Council gave the newly instituted Award of Garden Merit to *Crocus Tommasianus* and to *C. speciosus* (Fig. 82).

Both plants are good doers and will, with ordinary care, increase rapidly in any well-drained British garden. Their only enemies are field mice and pheasants. Both plants produce seed freely and multiply by the formation of so many small corms that so long as their foliage is allowed to remain until it becomes brown (about the end of April) permanence and increase are assured. The only attention they require is an occasional replanting when they become too thick. The one brightens the garden in the early spring, the other tones the browns, reds, and yellows of the dying year.

Crocus Tommasianus flowers, as a rule, just before most forms of *C. vernus* (Fig. 83), and

lavender-violet, which will not interfere in the least with the flowers that are to follow after. It should be planted in August or September, and seed should be sown as soon as ripe in the open to germinate with the growth of the corms in the spring.

Crocus speciosus flowers in September and October, and is the most reliable and showy of all the autumn-flowering species, unless it be *C. nudiflorus*, great drifts of which form one of the beautiful autumn features of Wisley, and which, though so abundant in its easily accessible native home, is scarcely known in the nurserymen's catalogues. *C. speciosus* should be planted in July. It will grow in short grass where, as at Wisley, it may be left alone for years, and every year will give stretches of blue among the green of the grass and the brown of the falling leaves without any further care. It will grow under light shade and in the open, and is suitable for the herbaceous border and the lighter shrubbery, the grassy bank, the rock garden, the edge of



FIG. 83.—CROCUS VERNUS, A BEAUTIFUL EARLY-FLOWERING SPECIES. FLOWERS VIOLET, LILAC, WHITE, OR STREAKED WITH WHITE AND VIOLET.

about the time of the old Dutch yellow *Crocus*. It has a slender grace that most of the Dutch forms of *C. vernus* lack, and is, when open, of a clear and delicate colour described by Maw as sapphire-lavender and by Bowles as amethystine-violet. No Dutch *Crocus*, except the one I hold the most beautiful of all, *Margot*, is so tender and pleasing in shade. When closed the flowers of most forms are of various shades of grey.

Crocus Tommasianus is a variable plant, especially perhaps in the colour of the buds, but there is a deep purple variety, a pure white and a particularly pleasing one called "pictus" with flowers marked at the tips with a darker blotch, below an apical white spot.

This beautiful species does well in many places at Wisley, in the open, and in the light shade of shrubs and trees, but does not prove quite so happy as many in the grass. Its best place is on the higher parts of the rock garden, where it may seed down and gladden the early days of dull February with drifts of

the wild woodland walk and the field garden. A strong and vigorous flower, it is calculated to withstand all reasonable buffetings of autumn. In its typical form it is beautifully pencilled with blue on a pale lilac ground, but varies much in colour and size, and numbers of names have been given to more or less distinct forms, the most remarkable of which are the var. *Atchisonii*, the giant of the species, and flowering later than the type, collected by Mr. H. J. Elwes in the east; for while *C. Tommasianus* is more western in its distribution, *C. speciosus* stretches away into Armenia and perhaps into Persia. Van Tubergen's var. *Artabur*, intermediate in colour and season between var. *Atchisonii* and the type; var. *globoseus*, a bluer, later-flowering variety; and some white and grey forms which Mr. Bowles has raised which are still rare, but beautiful in their blue pencilling on a white ground, and therefore preferable to the better known pure white form, which is rather starry in shape. *P. J. Chatterden*

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER CLAY M.P., Ford Manor, Lingfield, Surrey.

Pot Vines.—The bunches on the earliest pot vines will soon be over the stoning process and the berries commencing to swell freely. The advantage of moderate cropping is seen in the persistent production of laterals; pot vines with roots restricted to a cubic foot of soil may appear weak, yet if the foliage is healthy the berries will finish well. It is too late after stoning to cut off superfluous bunches, but a few berries may be removed where they show signs of crowding. As every new leaf assists the roots, and black Grapes colour best under the shade of healthy foliage, the laterals should still be allowed to grow so long as space can be found for them. Top-dressing should be applied with care for some time to come, and the fertilising properties of the materials well washed down to the roots with warm guano water and root water on alternate occasions, but when the Grapes get further advanced these stimulants must give place to pure water. At that stage the amount of atmospheric moisture should be reduced and more fresh air admitted. When the Grapes are ripe water should be given the roots less frequently, but on no account should the foliage be allowed to suffer. Reduce the temperature gradually by an increased circulation of dry, warm air. Guard against the roots of *Madreselva* Court variety having a deficiency of water before the berries have attained their full size, as a check from drought, followed by a copious application of water, is almost sure to result in the loss of some of the finest berries.

Young Vines.—Vines that were cut back and started in gentle warmth as recommended last month should be ready for their final shift into 11-inch or 12-inch pots. As the healthy roots are essential until the Grapes are ripe, too much care cannot be devoted to this operation. The pots and crocks should be clean and dry when used. The compost should consist of rough, turfy loam, bones, and old lime rubble, and it should be fairly dry, as it will require firm ramming. If mixed a fortnight in advance so much the better. No animal manure should be used, but bone-meal may be employed rather freely.

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Editors and Publisher.—Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the **PUBLISHER**; and that all communications intended for publication or referring to the Literary department, and all plants to be named, should be directed to the **EDITORS**. The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.

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MR. KINGDON WARD'S SIXTH EXPEDITION IN ASIA.*

No. 12.—MORE PRIMULAS.

IN my last notes I referred to the great success we had in finding nine *Primulas* in two days. However, next day, when we set out to cross the range, all previous records were put in the shade. *Primula sonchifolia*, that universal but elusive species of Yunnan and the North-East Frontier, turned up at about 11,000 feet; and then, in the narrow valley leading up to the pass, shut in by frowning cliffs, we suddenly came upon such a mob of *Primulas* as I would scarcely have thought possible, and certainly had never seen before, either on the Mekong-Salween divide or anywhere else. We simply trampled on *Primula pseudo-sikkimensis*, *P. brevifolia*, and *P. secundiflora*. (I call them by the names of familiar species which they superficially most resemble; they are not necessarily identical.) *P. vincaeflora*, a glorious violet, dotted the slopes, and the sweetly fragrant *P. Giraladiana* was coming into flower in the woods lining the stream, on the drier slopes beneath the *Rhododendrons*. So much for known species—if they are known. And no sooner did I see what we had unexpectedly trotted into than I called a halt and there and then had the tents pitched. By the time this operation was completed I had found two more *Primulas* by no means familiar. The first of this pair was a meal-less bog *Primula*, sharing the ground with *P. secundiflora*, but selecting even wetter places. It has fine large flowers for its size. It is only 8 or 10 inches high, 6 to 8 in the umbel, purple, lilac, or almost mauve, with white eye, and delightfully fragrant. It was as abundant as the others, some of the boggy ground being coloured with it. With some hesitation I place it in section *Farinosa*—or is it *Auriculata*?

The second was clearly a *sikkimensis*, but such a *sikkimensis* as I, at least, had never seen before. The leaves were glaucous green, with the white veins showing curiously through; the flowers lemon-yellow in nodding umbels. But the unique feature of the plant is that the oblong petals are completely reflexed on the tube and closely adpressed on it, almost touching the calyx teeth. It is a tall, handsome plant, on the shady, wooded slopes beneath the *Rhododendrons*, where it flourished in considerable numbers. I even secured ancient seed of it, as I did of several of the other species. The roots were bright crimson—apparently it was bent on differing

in every particular from its nearest relations. The only fault I could find with it was the flowers, owing to this doubling up of the petals, being rather small, it ought to have grown in masses; whereas it was quite scattered. But, in fact, it was only just in flower, and a month hence would present quite a different appearance.

We had found eight species of *Primula* in the course of the morning. The afternoon's exploration yielded three more, including the most magnificent of all; and the following day yielded a twelfth.

Of the three found in the course of the afternoon, one was a dear little *Soldanelloides*, with modest drooping, purple bells frilled round the edge. A plant of 2 inches or so, the slender stems rose from a rosette of toothed



FIG. 84.—*FORSYTHIA SUSPENS*A VAR. *ATROCAULIS*.
(See p. 167.)

leaves on steep, shady, moss-clad cliffs beneath the *Rhododendrons*.

Another was a wee plant of the crags, with remarkably large purplish mauve flowers, almost flush with the cliff, the tiny leaves being jammed almost into the crevice. These plants were scattered, one flower at a time, over the vast, empty area of the limestone walls. Could it be the lost—or, rather, un-found, for I do not know that anyone has looked for it since it was first discovered—*P. sertulum*? But *P. sertulum* comes from Tatsientu, a good distance north. More likely it is a new species. The solitary flowers and bleached, dead leaves are characteristic.

One might write pages about the glorious *Nivalid* I came across that afternoon. The

colour of the flowers alone—and they are an inch and a half across, no mean size—would send even the most prosaic into ecstasies. The most refined shades of plum-purple, lilac, violet, and strawberry tint, softened with rouge powder, convey but a faint idea of its glory. The velvety surface of the corolla was shot like silk with two different shades, with a central chalice of pure white silver where the meal is concentrated. The flowers, six or eight in the umbel, are nodding, and the upper petals, being slightly reflexed, the corolla is curiously pushed forward, giving an appearance of zygomorphy as in *P. vincaeflora*. Sometimes a second umbel is produced, the stem growing through the first. This splendid plant, which grows 18 inches high, was abundant on the high, wooded ridges between 12,000 and 14,000 feet, and I secured a little of last year's seed for a start. It is easily the finest *Primula* I have ever seen, but I am sure that, however well it is grown in England, it will never look so fine as it did under the *Rhododendrons* on the limestone crags above Mu-li.

Lastly came another small *Nivalid*, not unlike *P. minor* or *P. pulchella* in fruit and habit. The flowers were practically over, and I could only make a guess at their colour and appearance. It grew in steep gullies between the limestone towers, or rather in a gulley, for I found it in one place only.

Thus on the Litang River divide we found twenty-one *Primulas* in three days, and have high hopes of others yet, as soon as we succeed in finding some higher peaks which can be climbed by inexperts, such as we are. For where are the *Bellas*, the *Dryadifolias*, the *Suffruticosas*? Surely there must be some at 15,000 feet and over. But as yet we have only reached 14,000 feet sporadically.

Of the other flowers on this range I must write in my next letter. *F. Kingdon Ward.*

FORESTRY.

NATURAL REPRODUCTION OF PLANTATIONS.

RARELY is full advantage taken of Nature's method of re-stocking denuded woodlands, a fact that has been forcibly brought home to me of late when examining some of the grounds from which timber for war purposes was removed, and which are now in the process of natural regeneration. An interesting exception to the rule is that of a plantation of Scotch Pines on Lord Derby's Coworth Park estate, near Sunningdale, in Berkshire, the trees from which were felled and cleared during the war, the site to-day being thickly covered with a healthy crop of self-sown Pines and hardwoods, which have sprung up from seeds of the previous crop. The latter, which mainly included Birch, has appeared in such numbers and grown so rapidly that almost immediate attention will be required in order to prevent the Scotch, Corsican and Weymouth Pines and Larch from being ousted out by their faster-growing and more spreading neighbours. Though the original crop of trees was only felled some five years ago, yet many of the self-sown Birches are fully 5 ft. high and proportionately spreading, the Pines ranging in height up to 30 in., all being remarkably stout and sturdy. The soil all over the plantation is of an unusually kindly nature and peculiarly suited for regeneration purposes, being of a sandy texture with a top surface of rich, black loam, which has produced some of the finest specimens of the Weymouth Pine that are to be found anywhere in this country. In addition to the trees mentioned the undergrowth consists of Gorse, Broom, Heather, and occasional patches of at least two species of *St. John's Wort*, whilst within the damper ground are Willow and Alder. In this particular instance nothing was done to the soil after it was cleared of timber, the original intention being to replant the ground later. However, after a careful examination of the site it was found that seedlings of the Scotch, Austrian, Corsican, and Weymouth Pines, common Larch and several specimens of hardwood, the Birch and sweet Chestnut in particular, were springing up in all

* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 23, August 20, September 3, October 8, October 29, 1921; January 7, January 21, March 11, and March 25, 1922.

directions over the depleted area, so that replanting was unnecessary, the only positions where Nature might be assisted being along the hard roadways where timber haulage had been engaged in. By timely and careful thinning, a valuable crop of trees, whether for ornament or utility, will be obtained at no cost whatever, save that of weeding out undesirables in order to allow the permanent trees to become fully developed, and the rapidity of growth and freedom from disease in Nature-planted trees are too well known to require comment. In another almost similar case with which I have had to deal on the Holwood property, in Kent, a plantation of Larch and Weymouth Pine was felled owing to the diseased condition of a large number of the trees, which had been brought about by the unsuitable quality of the soil in which they were growing. The whole crop was ultimately cut down in order to make room for self-grown Sycamores that were springing up freely all over the ground, evidently the produce of seeds that had been wafted from old trees of the same kind on the margin of the plantation. The last of the diseased trees were felled five years ago, and to-day many of the seedling Sycamores measure over 10 ft. in height and have completely stocked the cut-over area.

Owing to the excessive cost of labour, scarcity and high price of young trees, and exorbitant land taxes every owner is not prepared to go to the expense of restocking tracts of woodlands that have been cut over for war purposes, the present cost of tree planting being about three times what it was in pre-war days, while the twenty-five or thirty years that must elapse before there is any return for money expended is another deterrent factor. In such cases every advantage should be taken of the natural regeneration of plantations, and assistance given in cases where the ground is not fully stocked, either by the sowing of seeds or insertion of young trees. In some cases little will require to be done to assist in restocking the area, but in others fencing against rabbits and farm stock may be imperative. In the case of rabbits wire netting is to be recommended, while as a fence against sheep or cattle wattle hurdles will prove a cheap protection till the trees are out of danger. Of course, it is not in every position that natural regeneration of woods and plantations can take place, but as a comparatively large amount of timber felled for war purposes was the produce of low-lying, sheltered woodlands that adjoined others in which the trees were of a seed-bearing age, the conditions were in every way favourable for such a method of restocking. One of the few drawbacks to restocking ground with the same species of tree is the liability of the young stock to be attacked by insect pests, as the Pine beetle in the case of the Scotch Fir, which pest has, unfortunately, been greatly on the increase of late years, owing largely to the accumulations of dead and dying wood and branches that have been left in our woodlands as a relic of war times. These, and old tree stumps, form the best of all breeding grounds for the insects that prey on our Coniferous and hardwooded plantations. A. D. Webster.

TREES AND SHRUBS.

TWO INTERESTING FORSYTHIAS.

FORSYTHIA SUSPENS VAR. *ATROCAULIS*. Mr. E. H. Wilson discovered this distinct variety of *Forsythia suspensa* in Western Hupeh, China, in 1907, where it grows in thickets on moors and cliffs. From the old *F. suspensa*, so long known and valued in gardens, this variety is chiefly distinguished by the dark purple, almost black, young shoots—as indicated by the varietal name. It differs also in the flowers, the four lobes of the corolla being distinctly broader and somewhat shorter than in the typical form; they are also of a paler, more Primrose yellow. Of its free-flowering character our illustration (Fig. 84) gives sufficient testimony, and it makes a pleasing addition to a very valuable group of hardy flowering shrubs.

F. INTERMEDIA VAR. *SPECTABILIS*. *Forsythia intermedia* itself is a hybrid between *F. sus-*

pensa and *F. viridissima*; its variety *spectabilis* (Fig. 85), was raised in Spath's nursery, near Berlin, and put into commerce about 1906. It is no doubt a seedling from *F. intermedia*. On the whole, it is probably the most beautiful of all *Forsythias*. The flowers are produced in wonderful profusion, and are of a rich, golden-yellow. In habit, too, it is picturesque, being

relied on to give a glowing mass of colour over so long a period. Like the other *Forsythias*, it needs a good loamy soil and should be planted in a sunny spot. It is easily propagated from leafy cuttings struck in gentle heat in July or August. The Floral Committee of the Royal Horticultural Society gave this shrub an Award of Merit on March 30, 1915.



FIG. 85.—*FORSYTHIA INTERMEDIA* VAR. *SPECTABILIS*.

of erect, uneven growth and, when planted in a group, sends up pyramidal clusters of branches that stand well out from the main mass. A large group in one of the shrubberies at Kew has made a beautiful display for several weeks past, in spite of cold winds, frost and occasional snow. In its ability to withstand inclement weather, it offers a marked contrast to other things that came into flower when it did, such as *Rhododendrons* and *Prunuses*. It may safely be said that no shrub flowering in March is better worth planting or can be more surely

CARYOPTERIS MASTACANTHUS.

ALTHOUGH this plant was introduced from China in 1844, it is not common in gardens. It is generally supposed to be not very hardy; but my experience, at least on warm, dry soils, is that it is hardy over a great part of the country. In any case, it is so beautiful that it is worth a position at the foot of a warm wall; its violet blue flowers are borne in profusion in September. It is best pruned hard back every spring, just when it is starting into growth. J. C.

EARLY FLOWERING CHRYSANTHEMUMS FOR GARDEN DECORATION.

EARLY-FLOWERING Chrysanthemums for beautifying the garden and borders are not grown nearly as freely as they should be, therefore a few words concerning the best methods of obtaining a good display in the autumn should be of interest to those who have not yet paid much attention to the cultivation of this desirable class of flowers.

The best way to keep the stock during the winter months is to lift the stools about the end of October, or as soon as the plants have finished blooming, and place them in a cold frame, setting the stools closely together, and putting a little mould about their roots. Afford plenty of air on all favourable occasions, and cover the glass with mats during severe wintry weather. There are two methods of propagation. I prefer to take cuttings about the end of January or early in February, and place them in boxes about 15 inches long, 10 inches wide, and 3 inches deep; each box should hold about fifty to sixty cuttings. Fill the boxes with a mixture of loam, leaf-mould and sand, with a little finely sifted coke ashes. Dibble in the cuttings, make them firm, and give a good watering to settle them in. Then place the cuttings in a temperature of 50°, spray them overhead occasionally, and shade them during bright sunshine.

In about five or six weeks the cuttings should be well rooted, and should then be potted off singly into 60-sized pots. Return them to the frame or greenhouse until the roots have taken hold of the new compost, which should consist of loam, leaf-mould and sand, with a little Clay's fertiliser added. Set the plants in a cold frame, and keep them fairly close for a few days until they are established in their new quarters. If kept well syringed on all bright days they will not require much water at the roots. A great deal of damage is done at this time of the year by over watering. Pinch out the points of growth as soon as the plants are established in the pots. At the end of April the Chrysanthemums should be ready for planting out about 2 feet apart, where they are intended to flower.

The ground for early-flowering Chrysanthemums should be well prepared beforehand, adding some well rotted manure, as all Chrysanthemums respond to liberal treatment.

A simple method of propagation is to select the strongest growths from the old stools, with a few roots attached, and plant them in their permanent quarters not quite so far apart, but by this method they always appear to be a long time before getting a good start. When they are planted out they should be given every encouragement to grow, not left alone to take their chance. By keeping them well sprinkled by means of a fine rose in morning and afternoon, and allowing time for the foliage to dry before night, and also by using the hoe freely to keep them clean from weeds and staking them as soon as they require it, they will grow freely.

A few of the more recent introductions include Goldfinder, an intensely rich golden yellow, height 2 feet, flowering in September; Lichfield Pink, a charming shade, 2½ feet, September; September Glory, brilliant orange-bronze colour, if disbudded gives a very large, well-formed flower; September White, very free flowering, 2½ feet; Golden Goacher, a sport from Goacher's Crimson, 2 feet, September; and Bronze Provence, a light bronze sport of Provence, 2 feet.

Of the older varieties the following is a good selection:—Almirante, orange-bronze, very fine for cutting, 2½ feet, September; Betty Spark, rosy pink, good sprays on long stems, 3 feet, September; Bronze Betty Spark, a sport from Betty Spark, same habit; Bronze Goacher, 2 ft., September; Bronze Normandie, 2 feet; Cranford Yellow, a very fine yellow, if disbudded, 3 feet, October; Crimson Marie Masse, 2 ft., September; Dick Barnes, crimson, fine as a border plant, stiff bushy habit, September; Dolores, terra-cotta, 3 feet, early October; El Draco, orange amber, very good for cutting, 2½ feet, Octo-

ber; Elsenham White, the best early white if disbudded, 3 feet, September; Etoile d'Or, golden-yellow, 3½ feet, October; Fée Parisienne, rosy mauve, very fine, 3 feet, September; Framfield White, 3 feet, September; George Bowness, crushed strawberry colour, August; Goacher's Crimson, fine for bedding, 2 feet, August; Goldfinch, buff-amber, August, 2 feet; Horace Martin, very fine golden yellow, 3 feet, August and September; J. Bannister, lemon-yellow, with reddish-copper, 4 feet, September; Le Pactole, bronzy-yellow, 2½ feet, October; Lichfield Purple, a very fine, showy garden plant, also fine for cutting, 3 feet, September; Madame Marie Masse, lilac-mauve, 2½ feet, September; Miss K. G. Thorpe, white, faint blush tinge, 2½ feet; Nina Blick, bright scarlet, finishing golden-bronze, 2 feet, August; Normandie, bluish pink, 2 feet, September; Perle Châtillonnaise, creamy white, 4 feet, September; Perle Rose, 2 feet, September; Pink Profusion, this is a lovely pink variety of fine habit: when disbudded it will give a dozen fine blooms, also does well in pots, end of September; Polly, deep orange, flowers large and of fine form, 2 feet, September; Provence, bright rose pink, tipped with gold, 2 feet, September; Ralph Curtis, creamy white, 2½ feet, August; Red Almirante, very fine, 2 feet, September; Roi des Blancs, pure white, graceful sprays, 2½ feet, August; R. Pemberton, clear amaranth, 2½ feet, October; Sanctity, one of the best whites, 2 feet, August; Southover Yellow, 3 feet, September; and Verona, bright terra-cotta, fine for cutting, 2 feet, September.

A dozen good sorts for the border are: Goldfinder, Crimson Polly, Polly, Madame Marie Masse, Horace Martin, Sanctity, Pink Profusion, Dick Barnes, Goacher's Crimson, Almirante, Bronze Goacher, and Framfield Early White. *Wm. Holden, Woburn Place Gardens.*

NOTES FROM WISLEY.

A VERY striking object in the gardens at present is a scarlet flowered specimen of *Camellia japonica*, about 12 ft. high, and a mass of blossom. Though this shrub bears a large number of flower-buds each year, they often fail to open, and drop off if the roots are flooded or too dry. There is also a very pretty pink-flowered *Camellia* in the same part of the wood.

In the rock garden some of the dwarfed *Rhododendrons*, such as *R. dauricum* and *R. racemosum* are flowering, and large spaces are covered with *Saxifraga apiculata*, *S. a. alba*, and the bright yellow *S. sancta*.

A fine patch of colour is afforded by the flowers of *Pulmonaria Mawsonii*, the leaves of which are devoid of the spots characterising the common Lungwort; other attractive blue flowers are those of *Anemone Hepatica*, which are springing up under the shelter of a silvery *Eleagnus*.

By the side of one of the rock pools is a very beautiful form of a common wild plant, the Lesser Celandine. The plant in question was collected on Epsom Common, and possesses large cream-coloured petals, which are glossy on the upper surface, and very prettily tinged with green beneath. The leaves are also handsomely marked. By the side of this is the double yellow-flowered form, *Ranunculus Ficaria* fl. pl.

The Alpine house now presents a gay appearance. The eye is at once drawn to a pan of *Ranunculus asiaticus*, the blackish-brown centre of which intensifies the brilliancy of its orange petals. This plant should do better still next year, as it has only been grown from the dried roots recently sent to the gardens.

Among the *Saxifragas* in the Alpine house the *Engleria* section is well represented. This embraces *S. Griesbachii*, which is curious and attractive, with its grey rosette, from which rises the flowering stem covered with crimson hairs and culminating in a red head of flowers.

The Carnation trial, which has been in progress at Wisley, has now been judged, and awards have been made. The number of flowers picked each month since October from the

plants sent in was put before the judges before they made their awards.

Although a large part of the Orchid collection has been disposed of, numbers of Orchids are in flower. A curious plant blooming in the Orchid house is *Crassula arborescens*, which has a small, pinkish white flower, fleshy leaves, and remarkably thick, woody stems, which are 3 to 4 inches thick at the base. The plant itself is only about 3 feet high. *J. E. G. White.*

ON EDGING WALKS.

At this season the grass edges of walks need attention, and if this is given now there will be economy of labour during summer, apart from the fact that the appearance of a neatly-edged path or road is attractive. All walks have a tendency to get out of line, more so in light soils than in those of a tenacious character. Should the edges be cut year after year so as to bring parts worn away into line, then there inevitably follows a widened path, usually only observed when some architectural feature such as steps or ends of a wall are obviously out of line with them. To obviate such a state of affairs, the original line must be retained when re-cutting the edges in spring. This means that the worn parts must be brought into line instead of removing the other parts to regain the contour or straight edge, as the case may be. This is effected quickly by simply pressing a spade under the turf in these parts, cutting it with an edging iron in a line with the walk and six or eight inches back from it. The turf is then easily pushed forward by means of either a spade or the edging iron, the vacant space left being filled with pieces of turf removed from other parts of the edging.

There are two methods by which a too wide path may be straightened to the original width. One by introducing a line of turves to the proper width, which, unless the space to be filled is at least nine inches in width, is not to be recommended, being less neat than the other method. The latter consists in bringing forward a piece of turf in width about eight inches and filling the space left vacant by its transposition by imported turves. The principle is exactly the same as recommended for worn patches only on a large scale.

The method is to stretch a line to the breadth of turf required to be moved. Cut along the edge of the line with an edging tool. Press a spade or turfing iron under the turf thus cut to a depth of two inches, after which remove the line to a little beyond the required new edge of the walk, and push the prepared turf forward to the line of its new position. Then pat the sod gently down to level it, cut the edge to the right width, and a perfect piece of turf is provided all along the side of the walk, the cut turves being less conspicuous out of the eye-line.

Young gardeners who may have paths to edge should accustom themselves to taking contours with a line only, using no pegs or sticks. It is perhaps a little difficult at first to obtain just the correct run of the walk, but once the eye is trained to distinguish between the true run of curves and those displeasing to the eye, the method is vastly superior to that of running the line round a series of sticks not always easy to place in position. If a line is slightly out of the true contour several yards away, it is easy to bring it into position without moving off the spot, and indeed, so rapid and true is this method that I am certain a clever workman would have the edge of a long stretch of walk finished before he could have sticks set and line arranged.

There is just one other important point to be mentioned. Some, indeed many, workmen, in using the edging iron, push the cut turf over the walk; a practice that should not be permitted. Useless material should be lifted and removed without allowing any of it to touch the path. *R. P. Brotherton, Tynninghame Gardens, Prestonkirke.*

THE FLORISTS' TULIP.*

(Continued from page 155.)

THE Tulip is an amateur's flower; it is not so much that it is difficult to grow or exacting as to soil or climate, but it needs personal care, and it has one exasperating habit which puts off the man who gardens vicariously. The marking is inconstant; a bulb may throw a perfect flower one year, and by all rights should come exactly the same in future years. All too often it does not, but the bloom shows some irregularity or some glaring splash of colour which renders it useless on the show bench. It is possible to grow a score of one variety, and not have one flower fit for exhibition. This disgusts the man who has paid a high price for a particular bulb. He thinks he has been badly treated; indeed, as all bulbs are alike at planting time, an unscrupulous seller may put him off with a poor strain of the same variety. If a new Daffodil is bought, there can be no doubt about its being true, and given proper cultivation the flowers will be just as good as those of other people. Still, among florists' Tulips some varieties are steadier than others, and can be counted on to come fine. The newer seedlings are great improvements in this respect upon the older ones, and without doubt we shall breed out this inconstancy like the other faults of the flower.

But some folk may be wondering why bother

like the English, are both breeders and broken, and are divided according to their colour into bizarres (yellow ground), roses (red shades on

freely, much to the disgust of their owners, because the markings possess no quality. One or two of them can be shown among English



FIG. 87. FLORISTS' TULIPS: SIR JOSEPH PAXTON, FLAMED LIZARRE.

white grounds), and l'Esclame (purple shades on white ground). Some thirty years ago Krelage, of Haarlem, introduced into commerce a new race of Tulips, which he called Darwin Tulips. They are the outcome of the old stock

breeders, and one or two men have experimented in crossing them with English florists' Tulips, in order to impart their vigour and strength into the more refined race. Undoubtedly the Darwins are among the best garden Tulips, for they will stand up unharmed to hail storms and rough winds.

There is another race of May-flowering Tulips which the catalogues call "Cottage Tulips." This heterogeneous class really embraces all the chance seedlings which have been cast out by the florist, but which, from some excellence of colour or style, have been preserved for garden decoration. The class owes its name to the fact that many of the varieties have been picked up in old cottage gardens, unknown beyond then until some of the great bulb firms multiplied them and gave them a wide circulation. They embrace pre-eminently a number of lovely pure yellow Tulips, and certain delightful varieties, where a yellow or pink flush struggles with the more dominant colour of the flower.

Then there are double Tulips, which are an abomination; and Parrot Tulips, odd creatures of great interest and lovely colour, but rather dependent on a good climate.

I cannot pretend to have touched more than the fringe of my subject; there are still scores of points connected with this fascinating flower that call for elucidation, but I hope I have said enough to introduce some garden lovers to the great tradition that surrounds this lovely flower. For more than six centuries now it has been a labour of love to gardeners in divers countries to elucidate its beauties. I think with rever-



FIG. 86. FLORISTS' TULIPS: FLAMED FLOWERS SHOWING THE CLEAR BASE. LEFT, TALISMAN; RIGHT, MABEL.

about all these points in the flower—form, purity, marking, and so forth; why not admire the Tulip as a flower which may be beautiful even with pointed petals? Why have artificial rules of excellence at all? This opens an age-long dispute, but it is not merely a question of taste. The so-called artificial rules are the outcome of the tradition and judgment of successive generations of men who have best known and loved the flower; they represent what in their judgment best displays the essential features of the flower.

Premising that we are concerned with a marked Tulip, then it follows that it must open into a cup and must have broad, round-topped petals, for thereby only are the markings properly displayed. Again, the pure base enormously enhances the effect of the markings, which again must be as symmetrical, definite, and finely pencilled as possible. Of course, a long petal or an impure based Tulip may be beautiful in itself, but it is not on its way to the best. It is not making for perfection, and the true florist will have none of it. Some photographs of florists' Tulips, reproduced in Figs. 86, 87, and 88, will assist me in pointing out wherein excellence and defect lies.

Of course, there is a great realm of Tulips other than the florists' flowers, many of them of extraordinary beauty and growing in favour among gardeners every year. I have mentioned the early Tulips and the Dutch florists' flowers, some of which are still in cultivation. They,

which must have been carefully selected for generations, it is rumoured in some old Flemish monastery. Their characteristics are great vigour and size, and tough leathery petals.



FIG. 88. FLORISTS' TULIPS: FEATHERED FLOWERS. LEFT, SIR JOSEPH PAXTON; RIGHT, MASTERPIECE.

though their shape is somewhat square and ungainly. Among Darwins proper there are no tizzars or yellow grounds, only pink and purple shades, sometimes with white, though generally with blue bases. Typically, they are all breeders, though, like other Tulips, they break

ences, almost with tears, of many forgotten men in all these generations who have found, perhaps, their purest pleasure in watching its blooms unfold, and whose achievement in life was to make one step towards the perfect flower of which they dreamed.

* A lecture delivered by Sir Daniel Hall at a recent meeting of the London School Gardening Association.

DIETETIC AND MEDICINAL VALUE OF NETTLES.

At this period of the year green vegetables are scarce in many gardens, and especially is this so in southern areas after a season like the one experienced in 1921. It may, therefore, interest certain readers not already acquainted with the fact, to know that the young Nettle tops are good to eat, and that Nettles have also a medicinal value of no mean order.

There is no nicer vegetable, at any season, than boiled Nettle tops, though, generally, spring is the best season when the growths are young, but by cutting down the plants a new crop is soon available at any season, thus making it valuable when Spinach is not easily obtained. Nettles are very like Spinach when boiled, but have more valuable medicinal properties.

Nettles may be used to make a soup, which, properly flavoured, is very agreeable. With Leeks, Broccoli, and Rice, Nettles are used in Scotland to make Nettle pudding, a delicious blending of natural vegetables, the excellence of which is obvious.

No doubt the reason why Nettles are so beneficial, whilst being at the same time so palatable, is the fact that they contain formic acid, a large proportion of phosphates, and a small percentage of iron. Indeed, they have been used in the treatment of consumption, the young tops being mashed, made into a pulp, and mixed with thick cream, pepper and salt.

As a homeopathic remedy Nettles are highly recommended, as, besides being astringent, they serve as a useful tonic. They are used as an infusion of the dried plant, or, when made into a tincture, to stop bleeding from the nose or internally, the juice itself having been used for this purpose. With its astringent properties the Nettle is also valuable as a gargle. For burns, moreover, Nettles may be used in tincture form, with damp cloths.

Nettle tea is perhaps better known than other preparations. For rheumatic complaints, as I can personally testify, the tea is very valuable, and is by no means disagreeable to drink; it may be flavoured and sweetened if desired, though it is quite pleasant without any addition. Other uses to which the tea is put are as cures for Nettle rash and gouty gravel.

Nettle beer is used for gouty complaints and for rheumatism. To make it pluck a quantity of young Nettle tops, wash them well, place in two gallons of water, and add some Dandelion, Cleavers or Goosegrass (also used for beer), and 2 oz. of bruised whole Ginger. The whole should be boiled for three-quarters of an hour over a steady fire. The liquid should be strained, and two cupfuls of brown sugar stirred in. As soon as the liquor is lukewarm, place on the top a slice of toasted bread, with an ounce of compressed yeast spread on it, after being stirred till liquid with a teaspoonful of sugar added. If kept warm for six or seven hours, skimmed, and a teaspoonful of cream of tartar is stirred in, it is then ready for bottling and forms a good substitute for ginger beer.

Nettle juice is used as rennet to curdle milk, the Nettles being boiled; the juice may also be used to make tubs waterproof. Nettles may be used in dyeing, producing a yellow dye, for yarn, and a green dye for wool. It is also a good substitute for Flax, the stems being very fibrous, and in this connection it has been used largely in Scotland for coarse household cloths. It was used in Germany during the war in place of Flax, on a large scale, and the company formed to exploit it is, I believe, still in existence.

In indicating many of the good properties of so common and despised a plant as the Nettle, I have only given one example of how valuable herbs are, not only as an article of food in so many unexpected cases, but for so great a variety of other purposes, besides their medicinal properties. *A. R. Horwood, Leicester.*

CYANIDING VINES WHEN IN GROWTH.

HAVING failed to exterminate mealy bug in a vineyard when the vines were dormant, after serious consideration I decided to cyanide the house just as the vines commenced to grow. I had intended to do this before the buds had made more than a quarter of an inch of growth, but, owing to the weather being unsuitable, the cyaniding was deferred until a fortnight after this, and a few of the shoots were an inch long. I am happy to say that the result justified the experiment, for beyond a few of the shoots that were extra advanced being damaged, the rest did not suffer, and all the mealy bugs were destroyed. Of about 2,000 other plants in pots in the vineyard, comprising some thirty-five varieties in all stages of growth and flower, a few tips of the young growths of Chrysanthemums and Pelargoniums were damaged, but neither the mature leaves nor the blooms suffered any ill effect. Young Tomatos in the seedling pots with their second leaves were, however, nearly all killed. I used $2\frac{1}{2}$ ounces of sodium cyanide, which is half an ounce less than is recommended for dormant vines. At the time of the vine leaves falling I have used as much as $3\frac{1}{2}$ ounces, but that quantity of cyanide damages many kinds of plants, and is no more effective than 3 ounces, which is a safe quantity to use for the majority of plants with mature foliage.

A Muscat house was cyanided just as the leaves commenced to fall, and the bunches all gathered; better results were obtained than when the vines were quite dormant, and with the result that it hastened the falling of the leaves. Some growers maintain that vines thrive better after they have been subjected to cyaniding, and the vines I have referred to have certainly improved in four years from very poor quality to first-class; but that I attribute to change of treatment rather than to cyaniding. Where vines are grown solely in a house by themselves it is an easy matter to keep them free from mealy bug, but when numerous other plants are brought into the house, it is very difficult to keep this pest in check. Ants are active agents in spreading mealy bug in houses, acting as distributors, and I would recommend all growers to see that ants are not allowed to exist in plant houses. With regard to the ants, even cyaniding at the $3\frac{1}{2}$ ounces strength will not kill them, neither will it kill wood-lice or the larvæ of leaf-mining insects, but it kills the adult form of the leaf miner. The risk of injury to the vines with cyanide of potassium is certainly less than with gas tar; I know of some vines that have been badly damaged by the latter material; in fact, nearly killed, and yet the mealy bug was not exterminated.

In *Gard. Chron.*, December 24, 1921, it was stated that $\frac{1}{2}$ ounce of cyanide was sufficient to kill white fly. I put it to the test at once, with complete success, and I also tried its effect on red spider, but it was useless for this pest; indeed, the spider was more lively. Besides being a great pest of Tomatos, white fly seems to threaten disaster to all the members of the Brassica family. It seems to be very abundant in gardens, and I know of no means of checking it on crops in the open. White fly has been prevalent in this locality for some time. *G. Abbey, Stonerwood Park Gardens.*

CULTURAL MEMORANDA.

THE TRAINING OF PEACH TREES.

IN some gardens the manner in which Peach trees are trained is most deplorable; many gardeners do not appear to have the time or the desire to train their trees in an intelligent manner.

I do not say that an ill-trained tree will not produce fruits equally as good as one with its branches regularly spread and straightly trained. It is not that crooked shoots will not bear good fruit, but appearance should certainly be studied. Under certain conditions—such as crowding of the branches—faulty training is responsible for unsatisfactory crops.

Of all fruit trees none is more adversely

influenced by crowding of the branches than the Peach and Nectarine. Maturity of the current season's growth from whence the subsequent fruit crop is obtained is an absolute essential to success, and in no way is the ripening process affected more than by depriving each shoot of its due share of light and air. Trees in the open are, perhaps, more affected by overcrowding than those growing under glass, especially during a wet and cold season.

Trees under glass have the advantage of being shielded from incessant moisture, and under glass the air is warmer, more buoyant, and more helpful to maturity than the outside atmosphere during wet, cold weather.

Old-time gardeners were wont to say that the leaves of a Peach shoot should not overlap those of its neighbour, and I am inclined to agree with them, as it is a safe practice to adhere to. Many present-day gardeners are so exacting in their crop expectations that they train the branches of their trees much more thickly than did the older practitioners.

I cannot see the advantage of this method, because a heavy crop of fruit may be obtained with a greater certainty from trees more thinly trained, for the reason that the wood has a better chance of ripening. Trees with ill-ripened shoots never produce fruits of high quality, and, if the thickly trained trees give a greater number, they are not so good in size, colour, or flavour.

Nowadays there is too great a tendency for growers to fill the available wall space in the shortest possible time, and pruning to produce shapely trees is not studied. It is the practice of some gardeners to secure the whole of the shoots to the trellis or wall, the first and subsequent years after planting, in order that the space may be quickly covered and much fruit gathered in a short time. It is in such trees as these that faultily trained branches are common as the years go by. I am strongly in favour of a rather close system of pruning the first and second year after planting, to ensure a well-balanced tree, which is easy to train afterwards. Trees that are not well furnished about the base with branches cannot ever become perfect specimens. Even the merest novice in fruit growing knows that the sap flows direct to the extreme point of each shoot and accelerates the growth in that portion of the tree more than in another, and it is in consequence of this that the lower or basal buds remain dormant, and, if they do so the first season, they seldom start into growth afterwards, unless a severe method of pruning is practised the following and subsequent years.

How much better a tree is in appearance when the branches are trained quite straight—necessarily in a slanting direction when fan-shaped—than where they have bends and abrupt crooks, as is too commonly seen. The extreme point of a branch, no matter how long it is, should be in a straight line from the base of the tree, or where the branch or branchlet starts from. In my younger days we were taught to use a line in laying out all the main branches. It is a simple matter to train the smaller branches and shoots from the main branches on the same principle; not one should show a curve, but should run quite straight from its base; if it cannot be made quite straight, then remove it. The crossing of two shoots was never allowed under any circumstances in the garden I refer to, but at the present day it is all too common. The training of a shoot on a bare branch to hide the latter is not bad practice if the shoots are kept quite straight, but it is only in extreme cases that I would advise even that.

It is difficult to say how far apart the branches should be trained, as so much depends on circumstances, such as size of tree, individual shoots, and requirement; but as a guide, four inches may be regarded as sufficient in a general sense. If the shoots are extra stout, allow more space, as it is far better to err on the side of liberality for the benefit of the tree and its future crop than to overcrowd the growths. *M.*

FRUIT REGISTER.

RUSSET APPLES (See pp. 46, 94).

It surely matters little whether that most excellent Apple St. Edmund's be called pippin or russet, though the latter is preferable as being descriptive, whilst pippin has no such attribute. Better still, perhaps, would it be to follow the American system of abbreviation and simply call it St. Edmund's. Rosemary Russet has rather puzzled me, as the character of russetting has been slight or even absent in the specimens I have received and grown; for those who like a somewhat sharp Apple in the late season it is worthy of trial. This evidently makes it clear that its origin is not the *Romarin rouge*, for Leroy distinctly says that this is likely to be appreciated by those who do not like acidulous fruit. With regard to selling power, I was much impressed some years ago by the purchasers at a street barrow, which was laden with a smallish, "dirty" russet (? Golden Knob) and a bright red Apple (? Baumann's Red Reinette). I watched for some minutes and many purchasers bought bags full of russets, but I saw none of the taking red ones sold. Given the chance I think that people will get the better flavoured sorts, but the salesman likes to try and attract with bright coloured ones, however poor or "boxy" the flavour. Lately a very large fruit grower said to me: "May heaven put off the evil day when the public acquires a palate! We shall be ruined!" But Duke of Devonshire variety will hardly save the situation: specimens from the Midlands and from Kent seemed to me to be not higher than third class. Lodgemore Nonpareil seems to me to be one of the best, but I have no experience as to its cropping.

In the recent appreciation in these pages of Messrs. Bunyard's Nurseries, the point about them which has struck me much and to which no reference was given, is the wonderful collection of varieties of all sorts of fruits, extending, indeed, to the original wild stocks.

APPLE COURT-PENDU-PLAT.

SOMEHOW a curious error has crept into my note (on p. 94) and a circumflex accent is placed over the u; none of the half-dozen French authors I have consulted accentuate the letter. The abbreviation Capendu, with several variants, seems to be used indefinitely for several varieties. Lecoœur (*Pomone Nouvelle*, 1914) gives the "rouge" as the sole synonym; Truelle curiously puts down *pas de synonymes*; the former gives it both as a table and vintage fruit. I gather from Leroy (*Dic. de Pomol.*) that Lindley more or less introduced the terminology in this country identifying the *rouge* with the *plat*; Mas also follows this. The Apple called *plat* in this country must evidently be the *rouge*. Of the two modern authoritative works *Les Meilleurs Fruits*, 1907, of the Soc. Nat. d'Hort. de France, gives only the Court-pendu-gris as the accepted title, with C.-p. plat as synonym; the flesh character being *cassante* and *assez juteuse*, neither of which could be applied to the red variety called plat here. The *Catalogue descriptif* (1906) of the Soc. Pomol. de France, however, lists both the gris and the rouge, and makes the latter synonymous with plat, so that the confusion between the two still exists. When writing before I had relied on Leroy and the *Meilleurs Fruits*, and it is noteworthy that the latter does not admit the red variety grown here under the name "plat" amongst the "best fruits." The cross, Cox's Orange Pippin × Court-pendu-plat (W. Watson), of Messrs. Laxton Bros., has a very marked improvement on flesh texture over the latter parent, though it still retains the peculiar musky flavour to some extent. In regard to history, I may add that Sir J. Cotterell, Bt., and Mr. Wootton have kindly given me evidence of one importation of the Court-pendu (*Journal of Pomology*, Vol. II., p. 128), the original name of which—was it rouge or plat?—was lost, and the Apple was renamed Garnon's Pipping. H. E. Durham.

VEGETABLES.

A GOOD CROP OF SPRING CABBAGES.

OWING to the abnormal drought last year winter Green crops have been almost a failure in the south, and in most gardens even the Spring Cabbage crop is none too promising. It is with great pleasure therefore that we publish an illustration (see Fig. 89) of a successful plot of 3,600 plants of Cabbage Flower of Spring on a small holding at Taplow, Buckinghamshire. The photograph has been sent us by Mr. Edward H. Pike with the following note: "I thought the enclosed photograph might interest you and your readers, especially coming from an amateur, an employee of the Great Western Railway Company. I think you will agree, having regard to the difficulties experienced last summer and autumn, owing to the drought, that to obtain such results is very gratifying. The seeds were sown at the extreme end of July, and the photograph taken on Wednesday,

grown by this method as under the old, and certainly at a greatly reduced cost as regards labour and also with the added advantage of immunity from damage and disfigurement of the Celery by slugs—an important consideration. The only question remaining in doubt appears to me to be whether the quality of the Celery is not better, when blanched with earth, than when blanched with paper. Quality should after all be the crucial test, so far as private and home consumption is concerned. Some growers contend that the Celery is sweeter, more crisp, brittle and toothsome, when blanched in the old way than when blanched with paper?" Owen Thomas, F.M.H.

HORSERADISH.

How often one sees this useful plant relegated to an odd, out-of-the-way corner in the garden and left to take care of itself, with the result that the root grows small, ill-shapen, and with often a black streak in the middle! I have known gardens where a plantation of Horseradish has existed for years, and the ground re-



FIG. 89.—CABBAGE FLOWER OF SPRING AT TAPLOW; PORTION OF A CROP OF 3,600 PLANTS.

March 22." Mr. Pike is to be congratulated on his excellent results which many professional gardeners may well envy. Flower of Spring Cabbage is usually very early in hearting and not prone to bolting, so that it is a popular variety for planting.

ECONOMY IN THE GROWTH OF CELERY.

SOME little time ago, when visiting a notable old kitchen garden, I espied in the distance an unfamiliar and a rather weird-looking crop. On nearer approach, it turned out to be a fine crop of Celery, blanched with paper collars, but not earthed up, grown in an open quarter, the same as a crop of Brussel Sprouts or any other ordinary vegetable might be grown. There is nothing new about this method of growing and blanching Celery, as it has been practised for considerably more than twenty years to my knowledge; but generally on a limited scale. Now, the method is practised on a larger scale evidently.

Provided the ground has the same depth of tillage, the same generous application of manure applied at planting time, and liquid manure given the roots during the season of growth—as would have been applied under the old system, there is no reason why as heavy crops cannot be

planted with small pieces of roots where the plants have been dug up for use. Horseradish repays for good cultivation, and should be planted in rich, light soil, selecting stout thongs, or sets, about fifteen to eighteen inches long and from one and half to two inches in circumference. Before planting all rootlets should be rubbed off by drawing the root through the hand covered with a piece of sacking taking care not to injure the skin of the thong, or there will be a large cankered area when the root is lifted. The best way to plant Horseradish is to dig a trench or, if on a large scale, to use a plough, and lay the sets on the slant so that the top part is covered about two inches deep. Planting with a plough is done very quickly, and with children to place the sets in position at one foot apart, a large area of ground is soon planted. In the late summer it pays to scrape the soil from each plant and rub the hands, covered with an old glove or a piece of sacking, up and down and around the roots, so that when they are dug up they will, if well grown, be seven or eight inches round and fifteen inches or more long. James Page, Atvidaberg, Sweden.

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Drought Effects.—A noteworthy feature of this season about here is the appalling state of the winter and spring Brassicas. A small percentage of Cabbage has escaped, but Broccoli of all sorts have succumbed; at most we shall not have half a dozen of the latter; even the Purple-sprouting, which one regards as fairly hardy, have nearly all gone. The shoots from Brussels Sprouts and Savoy stumps seem to be the only source of spring greens available for the table. It looks as if the drought delayed growth so long that, when it did take place, the tissues were too immature to withstand the slight frosts we have had. Old-established plants of Simpson's Nine Star have gone as well as the more recent sowings of other sorts. It would be interesting to have records from other parts of the country. Gardens and allotments about Hereford all tell the same tale so far as I have seen. *H. E. D.*

Raising Seedling Rhododendrons on Moss.—Having a quantity of Rhododendron seedlings grown by a method which has thus far proved very successful, I think perhaps a few notes relating to the method may be of interest to the readers of the *Gard. Chron.* Having often noticed Rhododendrons self-sown on mossy banks in the woods growing in profusion, it occurred to me that the close growing moss which grows in the woods here would make a good medium for seed sowing. This moss grows in cushion-like tufts, and is made up of stems closely packed together, which draw up moisture from below by capillary action. Mr. G. Webster, of York, gives me the name of the moss, *Leucobryum glaucum*. I collected some of these tufts and fitted them into 5-inch feeders, after knocking a hole in the bottom of each, and sowed the seed on the surface, using a fine sprayer to settle the seeds in the moss. The feeders were then dropped into a 6-inch pot, over which a square of glass was laid. The pots were then put into a larger feeder, which was kept filled with water, and all were placed in a warm house, with a temperature of about 50°-55°. The seeds soon germinated, and in every case came up as thick as the proverbial Mustard and Cress, as the enclosed photograph (Fig. 90) shows. They were sprayed overhead occasionally, and if the moss showed signs of being at all dry, water was poured round the edge of the feeders. When dry this moss takes on a glaucous hue, hence its name, but when kept moist it is a beautiful green. By sowing the seeds on this moss, I find uniform moisture is maintained. As soon as the seedlings were well through the glass was removed, and they were gradually hardened and taken to cooler quarters. When the first leaf developed I pricked out the seedlings into small pans in a mixture of loam, peat, and sand. When the small seedlings are removed from this mossy seed-bed, the moss may be pulled in pieces, stem by stem, thus enabling one to get out all the fine silky roots intact, which is almost an impossibility when lifting seedlings from a seed-bed of soil. Those pricked out about a month ago are making very satisfactory progress. The seedlings shown in the photograph were raised from seed sown on January 6th. *G. Taylor, Bulstrode Gardens, Gerrards Cross.*

Paeonia Mlokosewitschi.—(On page 149 Mr. Arnott questions my statement that this is the best yellow Paeony and wonders if I had compared it with *P. Whitmanniana*. I have grown the latter for a great many years, yet I have found no difficulty in its culture, and though I think it a very pretty plant, its flowers are more fugacious than those of any other I know, and so pale in colour that there is no question in my mind which is the best. I have a white Paeony, also from the Caucasus, which is very closely allied to, if yet not a variety of it, but this again has very short-lived flowers and is not so floriferous or robust as the golden *P. Mlokosewitschi*. The only fault I find with the latter is its name. *H. J. Elwes Colesborne.*

R.H.S. Daffodil Show.—This morning (April 1) I thought I would see what chance I had to make an entry for the London Daffodil Show on the 11th inst., so took a stroll round my beds, and then came in to fill up the entry form, but found that I was out of time, as Regulation 1 provides: "All entries must be made on the prescribed forms, which may be obtained from the Secretary, Vincent Square, Westminster, S.W., and which must be returned to him not later than Friday (*sic*) April 1." The success of a well organised show depends on the strict adherence to regulations, which have been carefully drawn up. This, I am told, is the secret of the success of the National Sweet Pea Society. A show schedule without an entry form must be unique. I noticed in your issue of the 18th ult. a report of a meeting to consider the desirability of forming a National Daffodil Society. The schedule for this year's Daffodil Show is a strong argument in favour of such a proposal—or a British Bulb Society. I understand Capt. Hawker, at the meeting, described the alterations made in the R.H.S. schedule this year as too drastic, the increase in the number of vases and stems should have been notified last year, prior to planting time, and the cutting out of all the single classes he considered a mistake. Mr. Dykes, I am told, gave the point of view of his Council, which was against single-bloom exhibits, and cited, in support, his experience with seed-



FIG. 90.—RHODODENDRON SEEDLINGS RAISED IN MOSS.

ling Irises. Yet immediately following the Daffodil schedule in *Notices and Arrangements for the Year 1922*, p. 45, I read, in connection with the Special Iris Show, there will be three separate competitions:—(1) For three spikes of one seedling. (2) For one spike each of three seedlings. (3) For one single spike. I suppose *Punch* would make something humorous out of the situation, but I content myself by setting out the facts, and wondering how many more were caught on All Fools' Day, 1922. *C. B.*

Do Plants Know Time (see pp. 31, 47, 95, 118, 158).—I have been very interested in the correspondence on "Do plants know time." Mr. Lynch infers that an introduced plant follows its season or time and period of flowering and growing when introduced elsewhere. *J. F.*, on p. 158, would have us to believe that anthocyanin and the rays of the sun are the causes of flowers opening, but is this true in all cases? When I flowered *Dracaena Goldiana* in the hothouse, it was completely and heavily shaded from the sun's rays, and I am wondering if 3.55 p.m., when the flower opened, would be the same period of the day in its own natural habitat in West tropical Africa; according to Mr. Lynch, it would be so. Again, our native *Tragopogon pratensis*, Yellow Goats-Beard, commonly known as John-go-to-bed-at-noon, closes its flower soon after 12 o'clock noon to 1 o'clock. Would *J. F.* claim that the same agencies govern the closing of the blooms of this plant? *Mark Mills, Coombe House Gardens, Croydon.*

SOCIETIES.

ROYAL HORTICULTURAL.

Trial of Winter-Flowering Carnations at Wisley.

THE following awards have been made to Carnations at Wisley by a joint committee of the Royal Horticultural Society and the British Carnation Society.

The judging was solely on the productiveness of the plants during the winter, and upon their habit, and the colour and form of the flowers.

AWARDS OF MERIT.

Nos. 1 and 2, *Wivelsfield White*, sent by Messrs. ALLWOOD BROS. and Mr. C. ENGELMANN; No. 10, *White Pearl* (see Fig. 69, p. 141), sent by Messrs. S. LOW and Co.; Nos. 21 and 22, *Maine Sunshine*, sent by Messrs. ALLWOOD BROS. and Mr. C. ENGELMANN; No. 132, *The Herald*, sent by Mr. C. ENGELMANN; No. 141, *General Joffre*, sent by Mr. C. ENGELMANN; No. 154, *Aviator*, sent by Mr. C. ENGELMANN; No. 221, *Toreador*, sent by Messrs. ALLWOOD BROS.; No. 228, *Jazz*, sent by Mr. C. ENGELMANN.

HIGHLY COMMENDED.

No. 12, *Whiteall*, sent by Mr. STOKES; Nos. 35 and 36, *Mrs. Walter Hemus*, sent by Mr. C. ENGELMANN and Messrs. ALLWOOD BROS.; No. 84, *Cupid*, sent by Mr. C. ENGELMANN; Nos. 86 and 87, *Enchantress Supreme*, sent by Messrs. ALLWOOD BROS. and Mr. C. ENGELMANN; No. 88, *Lady Northcliffe*, sent by Mr. C. ENGELMANN; No. 107, *Lady Inverforth*, sent by Messrs. STUART LOW and Co.; No. 121, *Mary Allwood*, sent by Mr. C. ENGELMANN; No. 149, *West Hall Scarlet*, sent by Mr. G. CARPENTER; Nos. 158 and 159, *Triumph*, sent by Messrs. ALLWOOD BROS. and Mr. C. ENGELMANN; No. 164, *Pocahontas*, sent by Mr. C. ENGELMANN; No. 183, *Mrs. Hamilton Fellowes*, sent by Mr. C. ENGELMANN; Nos. 194 and 195, *Countess of Wilton*, sent by Mr. C. ENGELMANN and Messrs. STUART LOW and Co.; Nos. 211 and 212, *Wivelsfield Beauty*, sent by Messrs. ALLWOOD BROS. and Mr. C. ENGELMANN; No. 236, *Iowa*, sent by Mr. C. ENGELMANN.

COMMENDED.

Nos. 3 and 4, *White Wonder*, sent by Messrs. ALLWOOD BROS. and Mr. C. ENGELMANN; No. 115, *Boadicea*, sent by Mr. C. ENGELMANN; No. 145, *Nebraska*, sent by Mr. C. ENGELMANN; Nos. 205 and 206, *Benora*, sent by Mr. C. ENGELMANN and Messrs. ALLWOOD BROS.; No. 223, *Fancy Carola*, sent by Mr. C. ENGELMANN; No. 229, *Marion Willson*, sent by Mr. C. ENGELMANN.

BRITISH MYCOLOGICAL.

A MEETING of the British Mycological Society was held at the Botany School, Cambridge, on Saturday, March 18. Before the meeting members were taken through the building by Mr. F. T. Brooks, President of the Society, and Professor A. C. Seward.

The first paper was by Mrs. M. N. Kidd, who gave an account of some work that is being done at Cambridge under the Food Investigation Board on the diseases of Apples in storage.

A survey has been made during the last two seasons of the moulds attacking Apples in storage and of the amount of loss caused by each. The result shows a definite sequence of mould attack, the moulds which attack Apples early in the season being different from those which appear later.

Physiological diseases of Apples are of considerable importance in Apple storage. A disease which Americans have named Apple Scald causes considerable loss under certain conditions in this country. Newton Wonder is particularly susceptible to it. It can, however, be completely controlled by wrapping the fruit in specially prepared paper. Evidence was also given that the spotting of Apples, so prevalent last season, was probably of physiological origin, and also capable of control.

The next paper was by Mr. J. Line on *Nectria cinnabarina* as a parasite.

Mr. K. C. Mehta followed with an account of his observations on the occurrence of Wheat rusts near Cambridge. Black rust (*Puccinia graminis*) cannot overwinter either through the uredospores or the mycelium inside host plants, which may get infected early in autumn and before the winter cold sets in. There was no black rust observed on Wheat last season, but it was noticed on Barley and Couch Grass within a few yards from the infected bushes of Barberry, which showed complete aecidia about three weeks earlier. The recurrence of this rust can be explained only through fresh infection by aecidiospores produced on Barberry. In orange (*Puccinia triticina*) and yellow (*P. glumarum*) rusts it is not very difficult to find viable uredospores during the greater part of winter. There is conclusive experimental evidence that both these rusts can overwinter also by means of mycelium inside the host plants. This recurrence can therefore be most satisfactorily explained through infection of young seedlings of winter Wheat by the uredospores found in plenty on self-sown plants by autumn time. Following the infection there is a comparatively long incubation period, the exact duration of which is determined by weather conditions, particularly those of temperature. Fresh outbreak of yellow rust on winter-sown crop of Wheat was observed as early as January 20 in 1921. The orange rust appeared a few weeks later.

The President finally gave an account of his work, in connection with Mr. C. G. Hansford, on "Mould Growths on Cold-store Meat."

During the latter part of the war meat coming from the southern hemisphere was not infrequently affected by mould fungi. At the request of the Department of Scientific and Industrial Research an investigation into the causes of this contamination was carried out. The results show that some of these fungi, particularly *Cladosporium herbarum*, the cause of meat "Black Spot," can develop at — 6 deg. C., so that the abnormally long periods of storage during the war largely accounted for the undue prevalence of this trouble. Other moulds grow readily at temperatures round about freezing point, hence if the refrigerating plant breaks down at any time during storage opportunity is given for the development of mould spores lurking on the surface of the meat. At several degrees above 0 deg. C. bacterial growth is so active as to suppress the moulds. These fungi are only superficial, and unless accompanied by putrefactive bacteria do not render the meat unfit for food. During the course of the investigation two new species, *Sporotrichum carnis* and *Torula botryoides*, and one new genus, *Wardomyces anomala*, have been discovered. Other fungi which commonly occur on cold-store meat are *Thamnidium chaetocladioides*, *T. elegans*, *Mucor* spp., *Penicillium* spp., and *Saccharomyces* spp.

In the course of this work it has been shown that many so-called species of *Cladosporium* are merely strains of *C. herbarum*, and that *Hormodendron cladosporioides* is also one of the spore forms of this fungus produced at low as well as at high temperatures.

The very common occurrence of the Coral Spot fungus on the dead portions of Red Currant bushes has led to an investigation into the exact cause of the die-back observed.

A characteristic die-back of apparently healthy branches was found to be associated with the presence of a brownish-green region in the stem, the wood of this portion being choked up with fungal hyphae. This fungus was shown to be *Nectria cinnabarina*, which is found to appear on the whole stem affected during the following autumn. It was observed that the fungus had apparently originated in a small dead side branch or at a wound, and this view of the method of infection was borne out by experiments. Pure cultures of the fungus were found to be incapable of establishing the fungus in living wood or cortex, but when the experiments were repeated on portions killed artificially when still attached to the main stem it was found that the fungus made headway, and was finally able to pass over into the healthy wood.

There was a magnificent series of exhibits, illustrating points in the papers, and a large collection of interesting specimens was arranged in one of the laboratories.

After lunch the party visited the new Moltano Laboratory of Parasitology, where Professor G. F. H. Nuttall explained the points of the well appointed building; Mr. F. R. Petherbridge then showed the party round the Agricultural School. Many places of non-scientific interest were then visited. The President entertained the members to tea in the Botany School, after which Miss E. R. Saunders took the party over Newnham, and Dr. F. Kidd showed the John's Combination Room.

All the members who read papers are Cambridge workers. It is pleasant to find that the school founded by the late Professor Marshall Ward is in such a flourishing condition, and Mr. F. T. Brooks is to be congratulated on the many-sided mycological activities displayed.

READING AND DISTRICT GARDENERS.

At the meeting held on the 20th ult. Mr. H. H. Cook presiding, the subject for discussion was "Sweet Pea Culture," and this was introduced by Mr. H. Wynn, The Gardens, Quern's House, Goring Heath, who read an excellent practical paper on this popular flower. He gave full details on the preparation of the soil, seed-sowing in T.P. Raisers and in the open ground, planting, feeding, staking, training, thinning, shading, and in conclusion dealt with diseases and pests, such as mildew, rust, streak, greenfly, slugs, mice, and sparrows.

There is certainly a diversity of opinion as to the best methods of cultivating the Sweet Pea, and a lengthy and animated discussion followed, sustained by Messrs. Cook, Blackwell, Waite, Martin, Fulker, Townsend, Young, M. Goddard, Butcher, Cox, Dore, Woolford, and Carter.

In a competition for one vase of Violets, not more than fifty blooms, the first prize was awarded to Mr. F. H. Bratten, The Oaks, Shinfield Road, and the second to Mr. G. Sired, The Grove, Shinfield. In the non-competitive section Mr. W. Broomfield, The Gardens, Cliffe House, Mapledurham, staged six magnificent plants of Cyclamen, carrying numerous blooms of splendid quality. The judges unanimously awarded the association's First-class Certificate of Cultural Merit to this exhibit. Mr. D. Turner, The Gardens, Coley Park, showed five dishes of well-kept Apples, Annie Elizabeth, Lane's Prince Albert, Bramley's Seedling, and Sturmer Pippen, being exceedingly fine for so late in the season. Mr. Pratten, in addition to his prize blooms, showed excellent flowers of Princess of Wales (picked from the open) and the double Marie Louise Violets.

CARDIFF GARDENERS.

The annual general meeting of this Association was held March 28 at the Queen's Hotel, St. Mary Street, Cardiff. The Patrons, President and Vice-Presidents were re-elected *en bloc*. Mr. P. Meyers was elected chairman, and Mr. H. Wilkins vice-chairman. The committee was also elected. Mr. Toy, the retiring chairman, gave an inspiring address on the year's working of the Association. Mr. R. Mayne, who has held the offices of hon. secretary and treasurer for 14 years, did not seek re-election, but subsequently consented to hold these offices again. The balance-sheet showed a balance in hand. A honorarium of three guineas was voted to Mr. Mayne. It was decided to hold an annual outing as in former years, to take the form of a char-à-banc trip to some garden to be decided on by the committee.

ANSWERS TO CORRESPONDENTS.

APHELANDRA AND EXACUM: *A. R. D.*. Regarding your inquiry for *Aphelandra tetragona*, you might try Messrs. L. R. Russell, Sheen Road, Richmond; also Mr. Louis Van Houtte, Gentbrugge, Ghent, Belgium. Since Messrs Veitch and Sons gave up business *Exacum macranthum* has not been offered in any home or Continental catalogue. You

might obtain seeds from the Supt. of the Botanic Gardens, Peradeniya, Ceylon. It is indeed a pity that so many choice stove and greenhouse plants excite so little attention at the present day.

BURNT BONES AS MANURE: *H. E.* The highest grades of superphosphate of lime are prepared from burnt bones. By burning them, however, you drive out the small remaining quantity of nitrogen boiled bones contain, as well as most of the carbonate of lime. The nitrogen would be valuable, if the bones were reduced to bone-meal by grinding. Under the circumstances, that is impossible for you. What remains consists almost entirely of phosphate of lime, which cannot be destroyed nor driven into the air by burning. If large bones can be kept at a red heat for some hours in the rubbish fire, you can pick them out when sufficiently cool, and they can be pounded to a fairly fine powder by means of a hammer on a stone or piece of iron, laid in a box to keep the ashes from flying about. The finer you can crush them the more valuable the manure will be, because the sooner the ingredients will be available as plant food. They contain phosphorus and calcium (lime) and can be used instead of phosphate of lime, or basic slag, at the rate of one to two ounces to the square yard. This is not a complete manure, but contains only the two elements of food named. You can spread it over the ground where Sweet Peas are to be grown, and scratch it in lightly with a hoe or hand fork. There is no need to bury it deeply.

ESTABLISHING MISTLETO: *C. R.* Mistleto grows parasitically on various trees, and so cannot be successfully grafted. It must be established by seed. All that is necessary is to squeeze a few berries on to the moderately young bark of the selected host trees, when the sticky nature of the fruit will cause it to adhere. Sometimes an incision is made in the bark and the seed is pressed into it; but this procedure is not necessary. From fairly recent extensive correspondence in our columns it is abundantly clear that Mistleto will grow on a great variety of trees in this country, though the commonest hosts are probably the Apple and the Lime. The seed may be "sown" at any time during the winter.

FRAMES AND NURSERY BEDS: *J. P.* Regarding positions for frames and nursery beds, we imagine there would be very little difference in the temperature, and, if any, it would possibly be only about 2°. But, as you suggest, you could easily test it by taking the night temperatures of both positions, for a period of a few weeks. For meteorological records for shade readings the thermometers are placed in a special screen, at about 3 ft. from the ground. For what is known as a grass temperature, a special registering minimum thermometer is used; this is not mounted on a frame, but generally laid on two forked sticks about three inches above the ground level, and in an open position. This is the type of thermometer you could use, but for your purpose any self-registering thermometer would do; it is, of course, important to ascertain that both glasses read alike under the same conditions. For meteorological purposes the readings are usually taken at nine o'clock in the morning, when the thermometer should be set for the next twenty-four hours.

MUSHROOM MALFORMED: *A. R.* The malformation of the stem of the Mushroom is due to parasitic mould, *Mycogone perniciosa* major. The insects present between the gills are *Achorutes purpureus*, which is not infrequently found on the larger fungi, but apparently does not cause any damage. As a preventive against *Mycogone* the house should be fumigated with formaldehyde gas; bearing beds should be sprayed with a 2½ per cent. solution of Lysol.

NAMES OF FRUIT: *E. S. W.* A and B. decayed; C. Radford Beauty.

NAMES OF PLANTS: *A. J. H.* *Cephalotaxus drupacea*, Nat. Order, Taxaceae.—*W. M.* 1. *Pinus Coulteri*; 2. *P. austriaca*; 3. *Abies*

nobilis; 4, Pinus Pinaster; 5, P. Strobus; 6, Abies Nordmanniana; 7, A. grandis; 8, Cunninghamia sinensis; 9, Libocedrus decurrens; 10, Picea excelsa; 11, Abies lasiocarpa; 12, A. brachyphylla; 13, A. Veitchii. —L. H. Picea orientalis.

PLANTS FOR LOGGIA: H. B. The most suitable Ferns for the shady loggia would include the Hart's Tongue and any of its interesting varieties, Blechnum spicatum plumosum, Adiantum Capillus-Veneris, Polypodium vulgare and varieties, any of the three British Polystichums, Woodwardia radicans, and Lomaria magellanica. For the corners we suggest a pair of Arundinaria nitida, Ceanothus Veitchianus or Fatsia japonica.

SAND TENNIS COURT: W. M. M. Full particulars with regard to the construction of sand tennis courts were given in our issue of August 8, 1914, p. 124.

TENURE OF ALLOTMENTS: W. M. A departmental committee has made certain recommendations with regard to allotments, and these are being embodied in a Bill to be brought before Parliament. You will find reference to this matter in our issue of March 4, 1922, page 97.

Communications Received.—L. H.—W. M. M.—Pomona—E. B.—M. Z.—R. S.—G. C.—G. E. M.—Quex—H. E.—G. L.—J. P.—A. R.—D. E. B.—W. H.—F. C. T.—G. T.—F. C.—A. S.

NEW HORTICULTURAL INVENTIONS.

LATEST PATENT APPLICATIONS.

7249.—Harvey, J. N.—Plant container.

March 11.

7182.—Peter, J.—Apparatus for sorting seeds, etc., according to length. March 10.

7071.—Southall, J.—Garden rollers. March 10.

6466.—Du Vallon, H. C. de J.—Fertilisers, insecticides, etc. March 4.

6097.—Templeman, G.—Traps for slugs, snails, etc. March 1.

5905.—West, C. E.—Plant labels, etc. February 28.

SPECIFICATIONS PUBLISHED LAST MONTH.

175,757.—Potter, H. S.—Tool for binding or tightening wire or wire clips on rubber hose or other flexible tubing for securing same on the spigot end of a hose union or other connection.

175,933.—Hopkins, M.—Handle for scythe tree.

175,338.—McDougall, L., and Howles, F.—Apparatus for spreading or distributing powder insecticides upon trees, plants, and the like.

175,345.—Alver, O. P.—Instrument for determining the sex in plant life and incubative matters.

175,521.—Jardine, C. A.—Pruning shears.

175,550.—Knight, S. C.—Garden rule or spacing device for plants.

ABSTRACT PUBLISHED LAST MONTH.

Hand hoes. Patent No. 174,246.—A new type of blade-holder for a hoe having a reversible and interchangeable blade has been patented by Mr. D. Shepherd, of Stracathro, Brechin, Forfarshire. It comprises a transverse bar curved and slotted longitudinally to receive the blade. A bar has downwardly extending ends, and is connected to the handle by means of a socketed shank, which is cranked or bent into proper shape for a push hoe. The blade consists of a flat plate sharpened on both edges. It is fixed by being driven tightly into the slot, or by pressing the sides of the holder together after inserting it.

Messrs. Rayner and Co., will obtain printed copies of the published specifications and forward them, post free, for the official price of 1s. each.

This list is specially compiled for *The Gardeners' Chronicle* by Messrs. Rayner and Co., registered patent agents, of 5, Chancery Lane, London, from whom all information relating to patents, trade marks, and designs can be obtained gratuitously.

Obituary.

Luke Collins.—The American horticultural Press records the death of Mr. Luke Collins, florist, of Chicago. Mr. Collins was a native of Salisbury, and settled in the United States when he was about twenty years of age. He had been some fifteen years in private gardens in that country when he took up the commercial side of horticulture and eventually established a successful retail flower business at Chicago.

TRADE NOTE.

The Commercial Flower Growers of Chicago have adopted co-operative advertising with a view to increasing the sales of their products. The Society's scheme of advertising, on a basis of one half per cent. of the amount of the gross sales of each grower, was altered to one per cent. at the last monthly meeting of the Society, the proposition, receiving the support of every grower who was present.

MARKETS.

COVENT GARDEN, Tuesday, April 4, 1922.

Fruit: Average Wholesale Prices.

s. d. s. d.	s. d. s. d.
Australasian Apples.	Oranges.
Alfriston .. 15 0-18 0	—Blood .. 14 0-25 0
Cox's .. 17 0-22 0	—Jaffa .. 20 0-25 0
Emp. Alexandra 14 0-15 0	—Seville .. 14 0-15 0
Ribston .. 16 0-18 0	—Murcia .. 15 0-35 0
California New-	—Denia .. 15 0-25 0
town Pippin .. 15 0-18 0	—Bitter .. 8 0-10 6
Nova Scotian .. 2 0-4 6	Pineapples .. 2 0-4 6
—Baldwin .. 35 0-40 0	Plums, Wickson 6 0-8 0
Oregon, Newtown 16 0-18 0	—Apple Plum .. 7 0-8 0
—Winesap .. 13 0-15 0	—Kelsey .. 7 0-8 0
Bananas, singles 10 0-25 0	—Tasmanian .. 20 0-—
—doubles .. 20 0-30 0	South African
Dates, Tunis, .. 5 0-6 0	—Grapes
doz. cartons .. 25 0-30 0	Hannepoet, .. 8 0-13 0
Grape Fruit .. 25 0-30 0	Heritage .. 6 0-9 0
Grapes, .. 12 6-20 0	Colmar, .. 12 6-20 0
—Almeria, barls 50 0-60 0	—Peaches .. 10 0-12 6
—Belgian .. 3 6-5 0	—Pears .. 6 0-9 0
Lemons, Murcia 12 0-15 0	Doyenne .. 10 0-12 0
—Messina, cases 13 0-15 0	du Comice .. 10 0-12 0
Nuts, .. 8 0-9 0	Strawberries
—Brazil, cwt. .. 55 0-60 0	English forced
—Cobs, per lb. .. 0 8-9 0	per lb. .. 20 0-30 0

Vegetables: Average Wholesale Prices.

s. d. s. d.	s. d. s. d.
Artichokes, green 4 0-5 0	Parasprigs, per cwt. 14 0-18 0
Asparagus, forced, .. 3 6-4 0	Peas
—per bundle .. 3 6-4 0	—French, per
—Cavillon .. 3 6-4 0	—basket .. 0 0-10 0
—Lauris .. 3 6-4 0	—Guernsey, per lb. 5 0-6 0
Beans, .. 2 0-2 3	Potatoes
—Guernsey .. 2 0-2 3	—Algarian, per lb. 5 0-6 0
—Worthing .. 1 9-2 6	—Banbar, per ton 11 0-12 0
—Broad Beans .. 9 0-10 0	—English, white,
Beets, per bus. 4 0-5 0	per ton .. 15 10-17 10
Cabbages, per doz. 3 0-5 0	—King Edward,
Carrots, per cwt. .. 26 0-34 0	per ton .. 19-21 0
—washed .. 26 0-34 0	—Guernsey, New
—new, doz. bun. 18 0-20 0	per lb. .. 1 0-1 3
Canalifer .. 10 0-14 0	—Tenerife, case 18 0-20 0
—French crate 10 0-14 0	Radishes, round,
—Guernsey, crate 12 0-16 0	per doz. .. 3 0-4 0
Celery, washed tons 2 0-3 0	—long .. 1 3-1 6
Chicory .. 0 10-1 0	Rhubarb
Cucumbers, per doz 7 0-9 0	—Forced, doz. .. 3 0-4 0
Endive .. 4 0-5 0	—Outdoor .. 10 0-14 0
Garlic, per lb. .. 0 8-9 0	Seakale, per lb. .. 1 0-1 6
Greens, per bag 15 0-20 0	Spinach, bushel .. 7 6-8 0
Lettuce, per doz. .. 6 0-8 0	Turnip Tops, bag 4 0-6 0
—cabbage .. 2 0-2 6	Tomatoes
Mint, per doz. .. 4 0-10 0	—Canary Island 12 0-18 0
Mushrooms, per lb. 2 0-3 6	—English and
Onions, .. 30 0-36 0	—Guernsey .. 2 6-3 6
—English .. 30 0-36 0	Turnips, per cwt. 8 0-12 0
—Valencia, case 40 0-45 0	New Turnips, doz 18 0-21 0
Parsley, per bus. 4 0-—	

REMARKS.—The severe weather has adversely affected the demand in several departments, as well as curtailed supplies. South African fruits have been available in larger quantities lately, a good inquiry being encouraged by the moderate prices. Forward shipments are lighter, and values will probably harden for the Easter trade. The first shipment of Australasian Apples is cleared. Two loads are due at the time of writing carrying approximately 37,000 cases of Apples and a few of Pears. English Apples are now practically finished, the last of some excellent Bramley's Seedling from cold storage having come to an end. Fair stocks of North American Apples are still held, and prices have an easier tendency. Oranges are inclined to advance in price, but there is only a poor demand for Lemons. Bananas are a better trade, and have advanced in price. Canary Island Tomatoes are cheaper, but Potatoes from the same source are firmer in value. Asparagus is in good demand. Forced Beans are slightly cheaper, due to increasing quantities. Forced Marrows are available, but there has been little

demand for them so far. Salads are a fairly good trade. Forced Mushrooms advanced slightly in price, due to colder weather restricting quantity. Forced Rhubarb has slackened in supply. All green vegetables are scarce and costly. Potatoes have eased in quotation with ample supplies on offer.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48" except where otherwise stated.)	s. d. s. d.	s. d. s. d.
Adiantum	Erica	
cuneatum, .. 13 0-15 0	—melanthera .. 36 0-48 0	
—elegant .. 15 0-18 0	Genistas, .. 18 0-24 0	
Aralia Sieboldii 13 0-12 0	per doz. .. 15 0-21 0	
Araucarias .. 30 0-48 0	Marguerites, .. 15 0-21 0	
Asparagus plu-	per doz. .. 15 0-21 0	
mosus .. 12 0-15 0	Nephrolepis, in	
—Sprengerli .. 12 0-18 0	variety .. 12 0-18 0	
Aspidistra, green 48 0-72 0	—32's .. 24 0-36 0	
Asplenium, .. 12 0-18 0	Palms, Kentia .. 24 0-30 0	
per doz. .. 22 0-30 0	—60's .. 15 0-18 0	
—22's .. 12 0-15 0	—Cocos .. 24 0-36 0	
—nidus .. 3 0-5 0	Pteris, in variety 12 0-21 0	
Azaleas, each .. 24 0-30 0	—large 60's .. 5 0-6 0	
Boronia, .. 24 0-30 0	—small .. 4 0-4 6	
per doz. .. 24 0-30 0	—72's, per tray	
Cacti, per tray, .. 5 0-6 0	of 15's .. 8 6-4 0	
12's, 15's .. 5 0-6 0	Tulip on bulbs	
Cinerarias, .. 15 0-21 0	per doz. .. 3 0-4 0	
per doz. .. 30 0-42 0	—Scarlet .. 3 0-4 0	
Cyrtomium .. 10 0-15 0	—White .. 3 6-4 0	
Daffodils, .. 10 0-15 0	—Pink .. 3 0-4 0	
per doz. .. 10 0-15 0	—Yellow .. 3 0-4 0	

Cut Flowers, etc.: Average Wholesale Prices.

s. d. s. d.	s. d. s. d.
Acacia, (Mimosa), .. 1 0-1 6	Lily of the Valley, .. 24 0-36 0
Adiantum deco-	per doz. bun. .. 4 0-6 0
rum, doz bun. 12 0-15 0	Marguerites, yellow, .. 4 0-6 0
Anemone, .. 4 0-4 6	per doz. bun. .. 3 6-6 0
—fulgens per doz. 4 0-4 6	Narcissus, per doz. .. 3 6-6 0
—St. Bridg .. 4 0-6 0	—Grand Primo .. 3 6-6 0
Asparagus plu-	—obvalaris, .. 3 0-5 0
mosus, per bun. .. 4 0-5 0	—Barrii .. 4 0-5 0
long trails, 6's 4 0-5 0	—ornatus .. 8 0-10 0
med. sprays, .. 2 6-3 6	Orchids, per doz.,
—short .. 1 0-1 6	—Cattleyas .. 12 0-18 0
—Sprengerli, per bun. .. 2 6-3 6	—Cypripedium .. 6 0-9 6
long sprays, .. 2 6-3 6	Peargionium, .. 15 0-18 0
med. .. 1 3-1 6	per doz. bunch,
—short .. 0 9-1 0	—double scarlet 15 0-18 0
Azalea, doz. bun. 6 0-8 0	Primroses, per
Camellias, per box 3 0-3 6	doz. bun. .. 1 6-2 6
Caranations, per .. 3 0-3 6	Ranunculus, .. 1 6-2 6
—various, per bun 2 6-4 0	French, doz. bun.
Daffodils, single .. 12 0-15 0	—white .. 6 0-8 0
—per bun. .. 12 0-15 0	—red .. 6 0-8 0
—Empero, per .. 10 0-12 0	Richardias, (Arums),
doz. bun. .. 10 0-12 0	per doz. .. 9 0-12 0
—Golden Spur, .. 4 0-6 0	Roses, per doz.
—Horsfieldi .. 5 0-8 0	—blossom—
—Watkins, .. 6 0-12 0	General Jacqueminot
—Princes, .. 3 0-4 0	per doz. .. 2 6-3 6
—Guernsey, .. 4 0-6 0	—Madame A. .. 6 0-8 0
—Victoria, per .. 10 0-15 0	—Chatenay .. 6 0-8 0
Fern, French .. 1 0-1 3	—Melody .. 6 0-10 0
per doz. bun. 1 0-1 3	—Opheia .. 6 0-10 0
Forget-me-Not, .. 8 0-12 0	—Liberty .. 4 0-8 0
per doz. bun. 8 0-12 0	—Richmond .. 4 0-8 0
Freelias, doz. bun. 2 6-12 0	Smilax, per
Hyacinths, .. 2 0-2 6	doz. trails, .. 3 6-4 0
—Dutch, spikes, .. 2 0-2 6	Sweet Peas,
Heather, white, .. 8 0-10 0	—Coloured .. 6 0-12 0
Iris, blue, per doz. 4 0-6 0	—White, doz. bun. 4 0-12 0
Lilac .. 4 0-6 0	Tulips, per bun.
—white doz sprays 4 0-8 0	—white .. 2 0-3 0
Lilium .. 15 0-18 0	—scarlet .. 2 0-2 6
longiflorum, .. 15 0-18 0	—yellow .. 2 0-2 6
Lilium speciosum .. 7 6-9 0	—Couronne d'Or
—long, per bun. 7 6-9 0	—Darwin, mauve
—rubrum, short, .. 5 0-6 0	per bun. .. 2 6-3 0
per doz. bunch 5 0-6 0	—Darwin, pink
	per bun. .. 2 6-3 0
	—Wm. Copeland 2 6-3 6
	Violets, doz. bun. 2 0-6 0
	—Parma, per bun. 6 6-7 6

REMARKS.—Supplies from all sources appear to be getting shorter, and prices generally are rising, especially for white blooms; a further advance in value is anticipated during the next fortnight. A large quantity of cut blooms will be required for the Palm Sunday festival in Wales this week-end. Richardias (Arums), Stocks, Allium (Star) and white and yellow Roses being the chief subjects in demand. Cut blooms will be required in quantity for the Easter festival in the following week-end: supplies are already affected by the severe weather, and consignments promise to be very short, which may cause a rapid rise in prices during the next fortnight, for flowers of all grades.

GARDENING APPOINTMENT

Mr. F. W. Wise, for the past fourteen years Gardener to Mrs. F. C. LONGGOREN, Loseley Park, Guildford, as Gardener to Col. H. SOTHERBY, Ecton Hall, Northampton.

SCHEDULE RECEIVED.

Welsh National Agricultural Society.—Horticultural show to be held on the Racecourse, Wrexham, on July 26, 27, and 28, 1922.—Secretary, Thomas Welshy, 14, Charles Street, Wrexham.

THE

Gardeners' Chronicle

No. 1842.—SATURDAY, APRIL 15, 1922.

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SUPPLEMENTARY ILLUSTRATION: Claremont, Esher.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 46.1.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Tuesday, April 11. 10 a.m. Bar, 29.6; temp, 51°.—Weather—Sunny.

Do Plants Know Time?

The question asked by Mr. R. Irwin Lynch in his interesting article on p. 31 is one which in the present state of knowledge does not admit of confident answer. Before anyone could even attempt to answer the question—Do plants know time?—he would have to spend no inconsiderable amount of time in preliminary considerations. These would of necessity be somewhat tedious, and that is probably the reason why, as observed by Mr. W. H. Divers, this and other similar problems of plant life often find but scant mention in text books of botany. At the risk, however, of tediousness an attempt may be made at all events to state the problem and to enumerate some of the considerations which have to be taken into account before an answer to the question can be enunciated. It may be conceded at once that rhythmic change is common and probably universal in plants. The broad facts of Nature proclaim it and detailed investigations confirm general experience. Broadly speaking, each plant brings forth its fruit in due season, and as illustrated by the remarkable example cited by Mr. Mark Mills, of *Dracaena Goldieana* opening its flowers punctually by the clock at 3.55 p.m. each day, the rhythmic behaviour of plants may be and often is amazingly constant. That such rhythmic behaviour should occur in plants is perhaps not surprising when the periodic changes of environment to which they are subject—of day and night, of summer and winter—are remembered. Among ex-

amples of periodic rhythm, that is, of a change of behaviour attuned in time to an external condition, those of the Runner Bean and of *Convolvula* may be mentioned. As everyone knows, the leaves of the Runner Bean exhibit well-marked movements. During the day they are spread out, and at night they are folded together. Even though the plant be kept in darkness the diurnal and nocturnal movements continue for some time as though the plant had some internal monitor of the sequence of day and night. The case of *Convolvula Roscoffensis* is no less wonderful. This animal is a minute green worm which lives in vast colonies on the sea shore between tide marks. It sinks below the surface as the rising tide inundates the zone of the beach in which it lives and ascends again as soon as the waning tide has receded from that zone. If a patch of *Convolvula* with sand and sea water be scooped up into a saucer and brought away from the shore the *Convolvula* continues to ascend to the surface of the sand punctually as each making tide reaches the zone from which it was taken and as punctually descends below the surface as each waning tide falls away from that zone. These movements up and down continue at their proper times for some eight days and then become irregular. There are many other examples of such periodic movements; particularly among the floating plant population (plankton) of the seas, which may ascend to the surface at one period of the day and descend at another. It is possible that the following considerations may throw some little light on these facts of periodic movement. Every plant process is governed by many factors—the opening of a flower, for example, depends on temperature, degree of illumination, water supply, supply of oxygen and also on internal factors bound up with the structure and internal state of the plant. It is a well-established fact, and one which requires only to be stated to be accepted, that any one of the several factors on which a process depends may become a limiting factor, and in that case no change in the rate of the process will be produced by making the other non-limiting factors more favourable. A classical example of the operation of limiting factors is provided by two sets of experiments made, one in Ceylon and the other in Japan, by two different observers on the rate of growth of Bamboos. In one set of observations it was concluded that the rate of growth of Bamboos is determined by temperature, and with each increase of temperature the rate of growth was found to increase by a definite amount. In the other set of observations, it was as certainly proved that the rate of growth of Bamboos is determined by water supply; in this case fluctuations of temperature made no difference to rate of growth, but on the other hand each increase in amount of water supplied to the plant was followed by a proportionate increase of growth. The reconciliation of these apparently contradictory results is easy when the doctrine of limiting factors is applied. In the first experiment examination of the data showed that the supply of water was ample for all the growth which a Bamboo growing its fastest could accomplish. Temperature, on the other hand, was limiting; that is, not enough for a maximal growth, and therefore whenever it increased, growth increased. In the second experiment the conditions were reversed. The temperature throughout the experiment was high enough for more growth than was actually accomplished, but the water supply was limiting. If, therefore, it fell off so did growth, and if water supply increased growth also increased. This question of periodicity is of such great interest that we propose to pursue it further in our next issue.

Sale of Claremont (see Supplementary Illustration).—The announcement that Claremont, Esher, which has been for many years the residence of the Duchess of Albany, is to be sold by Messrs. Knight, Frank and Rutley, marks another stage in the history of this fine old property, the gardens of which are celebrated for their extent and beauty. Claremont will always have a special interest to horticulturists, owing to the fact that McIntosh, of Dalkeith, at one time had the management of the gardens. The mansion, which is seen in the upper part of our supplementary illustration, was built by Lord Clive and has been the home of other distinguished personages, including the Duke of Newcastle, Princess Charlotte, daughter of George IV., and her husband, Prince Leopold; Queen Victoria, Louis Philippe and his Queen; Princess Louise, and in recent years the Duchess of Albany. The bottom picture shows the imposing herbaceous borders with the sundial where the paths intersect, a nearer view of which was given in Fig. 74 in our issue for October 14, 1916, when illustrations of the long border of Pentstemons and the Lily basin draped with Dorothy Perkins Roses were also given.

A Tasmanian Visitor.—Mr. F. Walker, who has a nursery and seed and florist's business in Launceston, Tasmania, arrived in England a few days ago and called at our office to "get his copy of *The Gardeners' Chronicle*." So hale and hearty is Mr. Walker it is difficult to understand that nearly fifty years have passed since he left England to engage in business in Tasmania, after serving at home in such famous gardens as those of Abbots Wood and Melchet Court. In addition to being a nurseryman and seedsman, Mr. Walker is also an extensive cultivator of fruits and has about 65 acres under Apples, Pears and Plums in the Tamar Valley. It is especially in connection with the distribution of Tasmanian fruits that Mr. Walker is visiting England. He is an enthusiast and speaks very highly of the value of selected areas in Tasmania for the cultivation of fruits for export, and especially for Sturmer Pippin, Cox's Orange Pippin and Jonathan Apples.

Gifts of Douglas Fir Seeds to France and Great Britain.—The President of the American Forestry Association, Mr. C. L. Pack, is presenting the French Government with 700 lb. of Douglas Fir seeds for the reforestation of the area devastated during the war. This gentleman is also sending 300 lb. of Douglas Fir seeds to this country to assist in replanting the forests that were felled to supply the pressing need for timber during the war period.

Centenarian Widow of a Gardener.—Mrs. Isabel Watson, wife of the late Mr. Peter Watson, who was for over forty years gardener at Dell Lodge, Nethybridge, Inverness-shire, has attained the age of one hundred years. Her husband was also a centenarian and his death is recorded in *Gard. Chron.*, October 8, 1921, his age being 103 years. That both husband and wife should live to be more than one hundred years old is indeed remarkable, and it is more so in the case of Mr. Watson, who, in his early manhood was extremely delicate and advised by his doctor to choose an outdoor occupation. Mr. Watson lived to celebrate his 70th wedding anniversary.

Royal Society of Arts.—The Royal Society of Arts, which has been in existence for over a century and a half, has purchased the freehold of its house in John Street, Adelphi. An anonymous donor has contributed £50,000 to the fund of £50,000 required, and others have subscribed £12,000, so that it is hoped that the whole of the amount will soon be forthcoming. The Society of Arts, like most other institutions of its kind, has grown from a modest beginning. Its first meetings were held in a coffee house in Henrietta Street, Covent Garden, and subsequently the meetings took place in Crane Court, Fleet Street, and Harcourt Buildings, Strand. The brothers Adam, who were members of the Society, built the premises in John Street, Adelphi, but up to now the Society has only been tenants. The interest on a trust fund of about £20,000 is devoted to the provision of lectures. The society's examinations in con-

mercial subjects and in modern languages are very popular, and 50,000 candidates sat for these examinations last year. As the Society will become the proprietor of the property, it will be possible to make alterations that have long been desired and to reseat the lecture hall. The membership is between three and four thousand.

Agricultural Problems.—The Stackyard field at Woburn, which was held by the Royal Agricultural Society of England for many years, has been taken over by the Rothamsted Experimental Station, which will continue the experiments on Wheat and Barley in close association with the work at Rothamsted. The Agricultural Society will in future carry out its experiments on the farms of the members, and has set up a research fund and formed a committee to initiate or receive schemes for investigation. The Society will, in the first instance, concern itself with the investigation of four problems: (1) The value of ground mineral phosphates, more particularly in the improvement of pasture; (2) the use of various forms of lime on grass and tillage crops; (3) the use of wild White Clover, wild Red Clover, Bird's Foot Trefoil, etc., in laying down grassland; (4) the profitable utilisation of Whey.

Retirement of Mr. J. G. Wilson.—After serving as head gardener to Sir Thomas and Lady Pilkington for twenty years, Mr. J. G. Wilson is retiring from the charge of the gardens at Chevet Park, Wakefield. Mr. Wilson is taking up the position of sub-postmaster at New-millerdam, Wakefield, but hopes before long to engage in commercial horticulture.

Legion of Honour.—Among recent nominations in this order we notice the names of Mme. Philippe de Vilmorin, widow of the late M. Philippe de Vilmorin, who was well known and who had many friends on this side of the Channel; and M. Leloup-Grimoux, the Comis-sary-General of the International Horticultural Show at Le Mans—both being appointed to the rank of Chevalier. M. Pinguet-Guindon, the well-known nurseryman of Tours, has been promoted to the rank of officer.

Golden Wedding of Mr. and Mrs. J. B. Stevenson.—On Tuesday, the 4th inst., Mr. and Mrs. J. B. Stevenson celebrated their golden wedding at New Milton, Hampshire. Our readers will remember that Mr. J. B. Stevenson spent the greater part of his life at Bournemouth, where he had charge of the parks and gardens, many of which he laid out and planted. It is due chiefly to Mr. Stevenson's zeal and skill that Bournemouth enjoys such a high reputation for its beautiful public gardens and open spaces. We hope there are many more years of happy and well-earned retirement for Mr. and Mrs. Stevenson.

Motor-car for Aberdeen Parks Superintendent.—The City Corporation of Aberdeen has provided Mr. Clark, superintendent of the city parks, with a motor-car in order to enable him more expeditiously and more comfortably to visit the parks under his charge.

Silver Leaf Disease.—According to the *Journal of the Ministry of Agriculture*, Silver Leaf Disease is attacking Apple trees in this country, particularly the varieties Early Victoria, Lord Grosvenor, Lord Suffield and Newton Wonder. Mr. E. T. Brooks, who has been conducting investigations, states that he has found the disease on Pear trees, which have hitherto been considered to be immune from attack. Mr. Brooks, in conjunction with Mr. Hatton, Director of the East Malling Research Station, has undertaken experiments to determine the relative susceptibility of the Plum when worked on different stocks. In one orchard, Victoria Plums worked on the Myrobalan stock were considerably infected, whereas the remaining trees, grafted probably on the common Plum, appeared to be highly resistant. It has also been found that while the Pershore Plum can be readily infected with the disease by inoculation, there is a high percentage of natural recovery. Mr. Brooks draws the attention of growers to the importance of cutting out and burning all infected wood and covering the wounds with grafting wax, tar or similar material. The fungus

attacks other trees beside fruit trees, and where Poplars are planted as a wind screen to orchards their dead stumps often constitute centres of infection.

Mr. Clarence Elliott.—Few among those who specialise in alpine plants have so wide and intimate an acquaintance with their subject as Mr. Clarence Elliott, of Six Hills, Stevenage. Moreover, Mr. Elliott knows many of his plants in their native habitats, hence he converses about them in a most entertaining manner and writes about them with the enthusiasm of a collector and the restraint of an experienced cultivator. When at school at Giggleswick, in the Craven Highlands, Mr. Elliott admits he preferred rambles to studies; but, fortunately, Dr. Marshall Watts, the science master, and author of a School Flora, took young Elliott under his care out of school time, and with the help of the fine local flora, assisted him in his botanical studies. Mr. Elliott is ever ready to acknowledge his indebtedness to his old teacher. After leaving school and spending a short period with Messrs. T. S. Rivers and Son, Sawbridge-worth, Mr. Elliott entered the service of Messrs. J. Backhouse and Son, of York, where for several years he was employed in the alpine and herbaceous department. The roaming instinct



MR. CLARENCE ELLIOTT.

would not be denied, however, and so three years were spent in fruit growing in South Africa, where Mr. Elliott was almost persuaded to settle down for life. Returning home, he was invited by Messrs. George Routledge and Sons to edit John's *Flowers of the Field*, and by the time this work was accomplished he had "taken root" again. About fifteen years ago he went to Stevenage, purchased land there, and commenced business as a specialist in alpine and herbaceous plants, and in the designing, construction and planting of rock gardens. On one occasion he paid a visit to Corsica to collect *Morisia hypogaea*, and there he found the Caraway-scented Thyme (*Thymus Herba-barona*), which was new to cultivation. He undertook a special expedition to the Falkland Islands to obtain *Oxalis enneaphylla*, and was able to introduce to cultivation the pink-flowered form of this charming plant. On this occasion he also brought home plants of *Sisyrinchium filifolium*, which had also gone out of cultivation in this country, but is now fairly widely distributed in British gardens. *Azorella caespitosa* was found during this visit, and two other Falkland Islands plants introduced were *Myrtus nummularia* and *Veronica elliptica*, as well as the rare and handsome *Senecio canescens*. Other collecting trips have been made by Mr. Elliott to Switzerland, the Maritime Alps, Savoy Alps, the Dolomites,

the Pyrenees and Bavaria, including a long expedition with the late Mr. Reginald Farrer. Mr. Elliott's introductions include plants of his own raising, and among his hybrids, *Pumila Zuleika* Dobson is one of the best known; and he has obtained no fewer than fifteen Awards of Merit from the Royal Horticultural Society for hardy plants and a First-Class Certificate for *Lilium centifolium*, one of Mr. Farrer's Kansu plants, which first flowered at Stevenage.

American Roof Gardens.—*The Florists' Exchange* for March 25 publishes an illustration of a remarkable roof garden on the Union Club building at 54th Street and Fifth Avenue, New York. The garden covers an area of 150 feet by 50 feet, and is entirely surrounded by trellis work. It includes a large summer-house with additional seats under a pergola leading to it. The plants are grown in boxes varying in width from one foot to three feet, the depth being about one foot. Annuals are largely employed and such subjects as Cosmos, Stocks, Portulaca and Asters are freely planted, while *Convolvulus* and *Tropaeolums* are used as climbers. The roof garden also contains a greenhouse forty feet long. The illustration of the roof garden in *The Florists' Exchange* presents a pretty picture with a great wealth of flowers.

Chamber of Horticulture Annual Meeting and Dinner.—The annual meeting of the Chamber of Horticulture will be held at 18, Bedford Square, on Wednesday, May 3rd, at 3 p.m. The meeting will be followed by a dinner, which will be held in the Richelieu Room, Hotel Cecil, at 6.30 p.m. Advantage will be taken of this occasion to present Mr. George Monro, the first president of the Chamber, with his portrait in oils. The Minister of Agriculture, Sir Arthur Griffith-Boscawen, has signified his intention of being present. Applications for tickets should be made at once to the Secretary.

Entertainment Tax at Flower Shows.—Mr. Hilton Young stated in the House of Commons on Wednesday, April 5, that Section 7 of the Finance Act, 1921, authorises the Commissioners of Customs and Excise to grant exemption from entertainment duty in respect of allotment flower shows, which are shown to their satisfaction to be provided by a society established solely for the purpose of promoting the interests of horticulture, and not conducted for profit, and to consist solely of an exhibition of the products of horticulture. A member pointed out that local hands often played free at shows held for the purpose of encouraging allotment holders, and many such shows have been stopped owing to the imposition of the tax. Mr. Young stated that under the existing law, a show must consist solely of an exhibition of the products of horticulture if the tax is to be remitted, and that a band is not one of the products of horticulture.

The Flowering of the Almond.—Mr. H. Teatherton writes to inform us that the Almond tree on Wandsworth Common, the date of flowering of which the late Mr. R. Hooper Pearson recorded for many years in these pages, opened its first blossoms this spring, on March 6, as compared with February 22 last year, February 13, 1920, and March 14, 1919. Although it has been a comparatively mild winter in the Wandsworth district, the tree is thus fifteen days later in flowering this year than last.

American Gooseberry Mildew.—At this time of year Gooseberry-growers should be taking all possible precautions against American Gooseberry Mildew. The disease attacks shoots, leaves and berries, and renders the latter of less value commercially. It first shows itself in glistening, white patches on the bush which, later, turn brown. The Ministry of Agriculture recommends that as a preventive measure the bushes be sprayed with lime-sulphur, of which the first application should be made in the early part of April, and two further applications at intervals of three to four weeks. The spray should be mixed in the proportion of one gallon of lime-sulphur to 29 gallons of water. The lime-sulphur should be of 1.3 specific gravity; and a spraying machine having copper parts should not be used. In spraying, the object should be to wet the inside of the bush,

to cover both sides of the leaves with the spray, and to coat the berries where these have appeared. The solution recommended is suitable for most commercial varieties of Gooseberry, but in the case of the more delicate Gooseberries, Berry's Early (Keepsake), Cousin's Seedling, Lancashire Lad, and Crown Bob, a wash of one-half of the strength named should be used. In the case of the Golden Drop (Yellow Rough) and other berries of the Sulphur varieties, lime-sulphur cannot safely be used at all. It is difficult to suggest a satisfactory fungicidal wash for varieties which have very tender foliage. It is, however, quite safe to use a pure lime wash, and it may be applied just as the buds are bursting. The proportions are as follows:—10-15 lb. good lime (90 per cent. CaO = quick lime) in ten gallons of water. The lime should be strained through a piece of rough sacking. It should be noted that the American Gooseberry Mildew Order, of 1919, requires persons who raise Gooseberries or Currant bushes for sale, to notify the Ministry of the presence of this disease upon their premises.

Appointments for the Ensuing Week.—Wednesday, April 19: Hertford Horticultural Society's meeting. Thursday, April 20: Manchester and North of England Orchid Society's meeting; Midland Daffodil Society's exhibition (two days). Friday, April 21: Paisley Florists' Society's meeting; Eastbourne Horticultural Society's meeting; National Rose Society's spring show at London Scottish Drill Hall.

"Gardeners' Chronicle" Seventy-Five Years Ago.—*Calceolarias*.—As the *Calceolaria*, when well managed, forms one of our finest ornaments for the drawing-room, conservatory, and greenhouse through May, June, and July, its culture should by no means be neglected. When the flower stems begin to fade in May or June, cut them off, place the plants in a cool shady greenhouse and be very careful in watering, for if they are allowed to become too wet the evil will probably be insurmountable. In about a month's time they will have made young shoots, which must be taken off as soon as possible, and propagated in sand under hand-glasses in a cold pit or frame. If attended to they will be well rooted in a month, when they should be potted off into 3-inch pots in a compost of three-parts turfy loam, and one of leaf-mould and sand; place them in a cold frame for a few weeks, until they fill the pots with roots, when you may give them another shift into 6-inch pots, in a rather stronger compost, but still keep them in the frame, of course shading regularly in sunny weather. Should they require another shift before winter (which some of them will do), you may pot with a very porous compost, and not quite so strong as for the second shift. In these pots, say, 8-inch pots, they may stand all the winter in the pit or frame if the weather should not be too severe; if severe, put them into a cool, well ventilated greenhouse, and let them stand in this state until the middle of January, when you may keep the house closer and moister; and keep on in this way until the middle of February, when you may give them their final shift, say, into 11-inch pots. Still keep the house moist and rather close until the end of March, when you may put them into cold pits or frames, where they grow very rapidly until they begin to send up flower stems, when they must be removed into a cool greenhouse, shaded and aired when required. After this time tying up and watering will be all that will be required. *Alfred Moore, Henderson's Nursery, Pineapple Place, April 13. Gard. Chron., April 17, 1847.*

Publications Received.—*Tomato Cultivation Under Glass and Outdoors*. By R. V. Giffard Woolley; *Potatoes: How to get the Finest Crops*. By Edwin Beckett. "Country Life" Booklets, 20, Tavistock Street, Covent Garden, W.C.2. Price 9d. net each. *Some Important Insect Pests of Strawberries*. By Herbert W. Miles. Reprinted from the "Journal of the Bath and West and Southern Counties Society." The Herald Press, Bath; *The Rose Encyclopaedia*. By T. Geoffrey W. Henslow. Vickery, Kyrle and Co., Ltd., 4, Great Marlborough Street, W.1. Price 13s. 6d., post free.

HARDY FLOWER BORDER.

LYSIMACHIA.

THE genus *Lysimachia* includes several valuable garden plants. One great point in their favour is that they do not call for a great deal of attention on the part of the cultivator. They do not, it is true, rank as among the choicest of garden plants, but they have a character of their own and a value which are distinct assets in the garden. They are easily increased by division and form capital border or wild garden plants, their flowers, mostly on spikes, looking well among the other blooms of their season. *L. barystachys* is a useful border plant, and produces good spikes of Veronica-like white flowers in June and July. It grows about 18 inches high. *L. clethroides* is a bigger-flowered species, also with white flowers, but with rather curling spikes, and blooms about the same time as *L. barystachys*. A species of some worth, not at all well known,

half-shaded situations. The bright yellow blooms are developed in summer.

All these plants may be increased readily by division and some are easily raised from seeds sown in the spring. *S. Arnott*

NICOTIANA

THERE are several useful species of Tobacco which should be sown now. *N. sylvestris* and *N. colossea* are large, handsome plants, suitable for furnishing large lawn beds, or utilising in mixed bedding, where a sub-tropical effect is desired. *N. colossea* var. *variegata* is a very beautiful plant for a large bed, but this plant needs to be propagated by means of cuttings. *N. affinis* is always popular, on account of its delicious fragrance during the evening; on this account, where suitable situations can be found, it should be planted near the dwelling-house, remembering that it should not be used in any conspicuous way, as its flowers remain closed during the day. *J. Coutts.*



FIG. 91.—*GEUM REPTANS* IN ITS NATURAL HABITAT AT 7,000-8,000 FT. ALT.

is *L. dahurica*, which has good spikes of sulphur or light yellow flowers in close spikes. The plant grows about 2 feet high. From China we have *L. Henryi*, which is about nine inches high and has clusters of golden flowers each about the size of a sixpence, and rather hard foliage. A useful August and September flowering Loosestrife, also from China, is *L. Fortunei*, which has drooping spikes of white flowers about two feet high. It is rendered more valuable by the scarlet autumn tints which the leaves assume late in the season. *L. Nummularia*, the Golden Moneywort, or Creeping Jenny, is too well known to call for much description. Its trailing branches are clad with roundish leaves and set with pretty yellow flowers. There is a variety named *minor*, which is much smaller in size than the type, and *aurea*, with brilliant golden foliage, all these plants being valuable for carpeting.

L. thyrsoiflora, which blooms in May and June, is not so pleasing as some of the Loosestrifes. It has small spikes of yellow flowers borne in the axils of the leaves, and grows about two feet high. A species not commonly grown, *L. velutina*, grows fully two feet high in moist,

THE ALPINE GARDEN.

GEUM REPTANS.

IN *Gard. Chron.*, February 11, 1922, p. 66, Mr. Clarence Elliott gave some interesting particulars of this plant as it grows in the Alps, and the methods he adopted to collect specimens, which is no easy matter, owing to the depth to which the thick, woody root stock grows. Fig. 91 shows a plant growing in its native habitat in the Alps at some 8,000 feet altitude. The late Mr. Reginald Farrer, in his interesting work on Alpines, entitled, *The English Rock Garden*, describes *Geum reptans* as the special glory of the highest moraines and shingles on non-calcareous Alps, where it grows in plummy masses 9 inches high and several feet across, often spreading into colonies several yards wide. His description of the flower is in his usual enthusiastic style when writing of plants that appealed to him, "they are borne singly on stems that may be as much as 6 inches high, and are enormous golden suns that would make two of mountain's, to be succeeded by a similarly reduplicated splendour of silkier, fluffier, more wild and catherine-wheelish whirls of silver."



THE KITCHEN GARDEN.

By JAMES E. HUTHAWAY, Gardener to JOHN BRENNAND, Esq., Baldersby Park, Thirsk, Yorkshire.

Marrows.—The main crop of Marrows should now be sown to have plants ready for putting out-of-doors next month. The seed should be sown in 3-in. pots, placing two seeds in each pot. Where a frame is available, a slight hot-bed should be made, and a frame placed on it, putting soil about 6 in. deep in the frame. Plant three plants in each light, and by the time the plants have filled the frame, the latter may be removed altogether, and the plants allowed to run. Where frames are not available, bell glasses may be used for protecting the plants, removing them during the day in very sunny weather. A good method, where there is no glass, is to make a trench four feet wide and three feet deep, and three parts fill it with litter, leaves, and similar materials. Place some good soil on the top of the litter in which to plant the Marrows, and by placing laths across the trench, the plants may be protected from frosts with mats. Long White and Long Green are the best varieties for show purposes.

Endive.—If a constant supply of Endive is required, small sowings should be made every fortnight. Sow the seeds in drills made 15 in. to 18 in. apart. As soon as the seedlings are large enough, thin them from 12 inches to 15 inches apart. Batavian Endive requires more space than the curled type.

Seakale.—Cuttings of Seakale inserted as advised on p. 53 are ready for planting out in rows made three feet six inches apart, allowing two feet between the plants in the rows and setting them in threes, about six inches apart, to form a triangle. Crowding is often the cause of poor results with this crop. The tips of the crowns should just be seen after planting and, to prevent slugs damaging them, they should be protected by a covering of sifted ashes, and a dressing of lime. No attempt should be made to force Seakale in the first year of planting.

Celeriac.—A sowing of Celeriac should be made in pans, and the seedlings treated similarly to Celery.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Vanda.—Plants of *Vanda teres* and *V. Hookeriana*, also their hybrids, *Miss Joachim* and *Marguerite Maron*, will soon commence to grow again. These plants, having been resting under comparatively dry conditions for some considerable time, should now be placed in the warmer end of the hottest house. It is advisable to place them in a position where they may receive uninterrupted sunlight, shading them only during the hottest days of summer, or whenever scorching of their terete leaves is to be feared. From the present time syringe the plants overhead on all bright days at least once, and keep their surroundings moist at all times. If the growths are strong enough they should, under these conditions, produce large spikes of good flowers.

Vanda coerulea.—The lovely blue *Vanda coerulea*, which to many is a source of trouble, should be grown where it may receive liberal supplies of fresh air at all seasons. The repotting of this species should be done at this season. A light spraying overhead on fine days will be of great assistance to the plants in recovering from root disturbance, and prevent the loss of the lower leaves. Whilst in full growth the house in which this plant is growing should be shut up sufficiently early, so that the temperature rises considerably, afterwards opening it again later to allow the atmosphere to become sweetened. In the admission of air at all times, night or day, cold draughts must be prevented.

Odontoglossum.—The *Odontoglossum* house will now be gay for some time. Many of these plants suffer considerably during the flowering season when the spikes are allowed to remain on them too long. A strong, large-bulbed and thoroughly rooted specimen may be permitted to carry its spike for a long season, but it is a different matter with weak or poorly rooted plants. When the pseudo-bulbs show signs of distress before the flowers begin to expand, the spike should be cut off as soon as it is partially open. The present is a suitable time to afford more root-room to such plants as are not flowering, but none should be disturbed unless repotting is absolutely necessary.

HARDY FRUIT GARDEN.

By H. MARSHAM, Gardener to the EARL OF STRAFFORD, Wrotham Park, Barnet.

Strawberry Beds.—The soil should be kept well hoed between newly-planted Strawberries to eradicate weeds and prevent the soil from cracking in dry weather. The hoeing should be followed by the application of a good mulching of manure on light land, to encourage the plants to grow freely; but on deep, fertile soil suitable for the growth of these plants mulchings are not so much needed. See that the roots are made firm in the ground where they have been loosened by frosts, and this is best done when the soil is moderately dry.

Peaches and Nectarines. The cold weather has been very trying to these fruit trees, and has had a retarding influence on their growth. With a change to more genial weather, growth will be rapid and disbudding will need prompt attention. It is advisable not to disbud them too severely on the first occasion, but to reduce the number of small growths gradually at intervals, till only just those needed for filling the space and for fruiting next year are left. Disbudding is one of the most important details in connection with the building up of evenly balanced trees, and should not be left to an inexperienced person. An effort should be made from the commencement to have every portion of the walls devoted to fruit culture covered with fruit-bearing wood from the bottom to the top, and not crowded with a quantity of small, weakly shoots. It is a good practice when disbudding to retain at least one good shoot as near the base of last year's wood as possible, and on the upper side. Others may be left at intervals alternately, and a good leader also, if there is room for further extension of the tree, but if not, pinch out the points at the third or fourth joint. Guard at all times against wholesale thinning, but thin freely where the shoots are crowded, so that by the time the fruits are almost full sized the shoots will have been reduced to the number that is required for fruiting next year.

Orchard and Bush Trees.—Sparrows sometimes destroy many of the flower buds on Apple and Pear trees, ruining the crop. A thorough syringing overhead with a mixture of Quassia Extract, or soapuds, followed with a good dusting of soot and wood ash, will sometimes keep the birds in check. Pear and other trees on walls are best protected against damage by placing netting over them. In some gardens voles are very troublesome and destructive, by eating the buds of Pears and other fruits.

American Blight.—Trees that were badly infested with this pest last season, and which have not yet been thoroughly cleansed, should have all the infested parts well dressed with nicotine, sufficiently strong to be effective. Paraffin emulsion is another capital remedy for this pest, and should be well brushed into the parts affected. I use an ordinary painter's brush for the purpose.

Fruiting Plants.—Strawberry plants that were put out last year and those older in bearing are not strong, especially certain varieties. The crowns are small and the foliage weak. If not done already a good mulching of straw manure may be placed amongst the plants. This will be washed quite clean by the time the fruits are ripe.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir C. NALL-CAIN, Bart., The Node, Codicote, Welwyn, Hertfordshire.

Stopping Carnations.—Perhaps the best time to stop the plants is when the roots are getting well established in large 60-sized pots. The tips may then be pinched out at the fifth or sixth pair of leaves. The object of this is to induce the plants to make side growths and to increase their size. After stopping pay careful attention to watering until growth is active again.

Cyclamen.—Young plants of greenhouse *Cyclamen* should be ready for transference to 54-sized pots. The soil should be of a light, rich, open nature, and contain a liberal sprinkling of old mortar rubble after it has been passed through a fine sieve. After potting, stand the plants near the roof-glass to prevent them becoming drawn. *Cyclamen* at this stage may be given a much cooler treatment. Water the roots carefully at all times, and spray the foliage on frequent occasions when the weather is bright.

Chrysanthemums. The latest batch of *Chrysanthemum* cuttings may be inserted. The plants will make fine decorative specimens if grown on in 6-inch pots. The cuttings will root readily in a cold, airy, light frame.

Lilium.—Pot Lilies plunged in ashes or leaf mould should be examined occasionally, and those found to be making growth should be removed to a cold frame, afterwards introducing them into gentle warmth as required. If space was left in the pots to admit of top dressing, the material should be applied immediately the young roots form at the base of the young growth. Good fibrous loam, enriched with manure from a spent Mushroom bed and lightened with sand, forms a suitable compost for use as top dressings.

Asparagus plumosus.—Seedlings of this decorative foliage plant and also of *Asparagus Sprengeri*, raised from seed sown as previously advised, are ready for transferring singly to small pots. Rich open loam, with a little peat and sand added, forms a suitable rooting medium for these plants. After potting them, the young plants may be grown in a Cucumber house or other house in which a warm moist atmosphere is maintained. Older plants requiring larger receptacles should be repotted, using good fibrous loam with broken charcoal and sand added. The stock may be increased by dividing the plants, but in my opinion they are best when raised from seed. Old-established plants will be improved by stimulating the roots with a reliable *Asparagus* fertiliser.

THE FLOWER GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

Herbaceous Borders.—From now onwards careful attention should be devoted to the borders, and occasional hoeing will be of benefit in assisting the growth of the plants. Caution should, however, be observed not to damage the young growths, as a Dutch hoe very easily causes harm in this way, unless properly used. A watch should be kept for plants requiring support in the shape of stakes or brushy twigs, in order to keep them in good shape. Oftentimes an otherwise fine border has a spoiled appearance owing to the growths falling all ways, and not being restrained by proper staking.

Bamboos.—Where ponds and streams exist Bamboos look fine by the water side. These graceful plants may also be employed to great advantage around shrubberies, and, where space permits, they form a most interesting plantation by themselves. Where it is desired to make a plantation the very best way in which this can be done is to lift, or obtain, medium-sized plants now, and place them in receptacles of sufficient size, using a rich compost. They should be grown on in a house having a moist atmosphere, such as a late vinery, where the temperature is about 60° to 65°, with a view to planting out in their new quarters in May. By this method growth becomes very active, and the plants, after a careful hardening off, are thus planted out in their full vigour.

which permits of them growing away freely with a minimum of check from the onset. The situation for a plantation of Bamboos should, if possible, be where it is possible to flood the land during dry, hot weather. Where this is not feasible much may be accomplished towards retaining moisture at the roots, by thoroughly mulching the plants with long stable litter or similar material. Established clumps of Bamboos should be carefully attended to each season; the three-year old canes should be cut out and the plants trimmed to shape if required. We have at Aldenham such a plantation as this, and the contrast between the fifty odd species and varieties makes this feature of the garden a most interesting one.

Summer Bedding Plants.—These should now be carefully looked to as many require cooler quarters preparatory to hardening them off. Any that are already in cold frames, such as hardy annuals, should be stood out in the open where they can be protected if required, and other plants may take their places in the frames. Plants in boxes should have the soil stirred frequently around them, and the plants in frames freely aired on all fine, bright days. Such plants as Pelargoniums and Fuchsias should be pinched or pruned to obtain well-shaped, bushy specimens.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER (Capt. M.P. Ford Manor, Lingfield, Surrey.

Potting Young Vines.—If a close, warm potting shed is not available, the work of potting should be done in the pit, and the vines plunged in bottom-heat to give them a good start. But little water will be needed for a time, especially if the plunging bed is moist and the young vines syringed lightly once or twice daily. Shading should only be used when absolutely necessary after the roots are established in the fresh soil, in order to obtain short-jointed shoots quickly. As growth proceeds, each lateral should be pinched at the first joint, but guard against the main lead being injured until it is some 6 feet to 8 feet in length, when it should be stopped to throw strength into the lower parts and plump up the buds. Feed the roots with weak guano water and clear soot water occasionally, when the roots have taken a good hold of the soil, and syringe the vines once or twice a week with soot water, removing the plunging material by degrees.

Peaches.—The fruits of pot Peaches in the early houses are stoning, if they have not already passed that stage, and the fruits to all appearances are making very little progress. It is impossible to say how many Peaches a pot tree should be allowed to ripen, but of two evils it is better to crop lightly. Disbudding having been done conjointly with thinning of the fruits, superfluous shoots should now be few. Vigorous trees will require constant attention in pinching the first shoots and laterals, to obtain perfect pyramid or bush specimens well set with triple buds for next season's crop. Excessively cropped trees will make only weak or medium growths, many of them with not more than two wood buds, the removal of which will render the shoot useless as a fruit producer next year. To throw strength into these shoots, others inclined to draw an undue share of the sap should be pinched when about 10 inches long, the laterals and sub-laterals at the first or second leaf. By adopting this method and cropping moderately, the same set of trees may be forced successfully for a great number of years; provided their potting, watering and feeding receive careful attention. A top dressing should be applied as soon as the fruits are set, and fresh material applied as often as the roots appear on the surface, until the fruits are nearly ripe. Rough loam, bone-meal and a little vine manure will supply all the food that the wood, foliage and fruit require, whilst weak manure water, guano and soot water are invaluable for washing the fertilising properties down to the roots. Damning the house and trees little and often, and watering the roots abundantly should be done, as dry conditions are fatal to pot fruit trees.

CHINESE SHRUBS AT ALDENHAM.

(Continued from p. 137.)

LIGUSTRUM.—The new Chinese Privets include two fine evergreen species, *Ligustrum acutissimum* and *L. Delavayanum* (see Fig. 92), and both have made splendid specimens of rounded habit: 8 feet high, and as much in diameter. The dark, glossy green foliage of both species persists during the winter, and I anticipate that these two species will prove of much value for hedge planting. In *Plantae Wilsonianae*, in connection with *L. Delavayanum*, another species, *L. ionandrum*, is referred to as having been discovered by Diels in Yunnan, and the authors suggest that it is possibly only a form of *L. Delavayanum* with stunted flowering branchlets and short, dense panicles. Having seen both the plants growing near each other at Aldenham, I am inclined to

is of special interest on account of its chocolate-coloured stems. It has white flowers that are succeeded by orange-scarlet coloured fruits.

RUBUS.—Of the numerous Brambles introduced by Wilson, some of which have only a botanical interest, and take up too much room to be worth their place in any moderately-sized shrubbery, *R. Giraldianus* and *R. lasiostylus* *dizygus* are noteworthy additions to those shrubs which are at their best during the winter months. Though quite distinct in foliage and fruit, they both make stout canes from six feet to eight feet in height, clothed with a conspicuous white covering or tomentum. They are seen to the best advantage when planted in masses in company with such bright stemmed shrubs as the scarlet Dogwood and golden Willow.

Rubus Irenaes is quite distinct from, and has none of the faults of, those scrambling, weedy Brambles which are unfitted for a small and trim garden. It is quite dwarf, has the



FIG. 92. *LIGUSTRUM DELAVAYANUM* AT ALDENHAM HOUSE.

doubt strongly this assumption. To my mind *L. ionandrum*, which has been introduced to cultivation by Mr. George Forrest, is probably the most refined and smallest-leaved Privet known, and its healthy, dainty habit of growth appears to be quite distinct, even though related to the other species, and may be confidently recommended for any rock-garden.

ROSES. One of the best of the numerous Chinese species of *Rosa* is the fine, single-flowered *Rosa Moyesii*. It is a most attractive garden plant, and one of the showiest of shrubs in fruit. It grows freely and makes a fine, spreading bush ten feet high, and when clothed with its dark red, single flowers, or its remarkable fruits, has few superiors in beauty. Though *R. Moyesii* stands undoubtedly first among the recently introduced Chinese Briar Roses, yet *R. Wilmutiae*, with its freely-produced, delicate blooms, is a good second, and where the plant is allowed a free run for its straggling growths, as in the woods at Aldenham, it is very charming. There are many other Chinese Roses of great charm, both in flower and fruit, including the white-flowered *R. Helenae*, which has a wonderful fragrance and develops large bunches of red fruits; *R. Gentiana*, a strong grower with single white flowers made more conspicuous by the golden anthers; and *R. longicaulis*, which

merit of enjoying dense shade, and its large, nearly circular leaves have a lovely bronzy metallic colour in their young state. This Bramble should prove of value as a carpet under trees where turf will not grow satisfactorily. The fruits are described by Mr. Bean in *Trees and Shrubs Hardy in the British Isles* as large and red; at Aldenham it has been found that they are by no means freely produced.

SALIX.—No Willow can approach *Salix magnifica* in beauty, indeed, it is one of the finest shrubs introduced from China. At Aldenham it has proved perfectly hardy, and of free growth. In addition to those grown in bush form, a standard tree with a clean stem of twelve feet is of more than usual interest, it being found only in a wild state as a bush. The handsome foliage, often from eight to ten inches long, and fully half as broad, is pale green above and glaucous beneath. The female catkins are remarkable, being almost a foot long. In winter the red buds and young stems are conspicuous. The tree succeeds at Aldenham planted close to water. As this Willow gets older and tends to assume a tree form, the striking character of the foliage disappears, as the leaves lessen in size. *A. E. Thatcher.*

(To be continued.)

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AN ITALIAN BROADSIDE, 1612.

A CURIOUS as well as an interesting botanical and horticultural problem, which has baffled many botanists in London, has arisen over an Italian broadside (12½ in. by 8½ in.), which came into my possession some little time since. Both the name of the plant, Maranto, and the plant itself, in spite of the elaborate descriptive text and its accompanying illustration on the broadside, constitute a puzzle which some reader may be able to solve. The name, Maranto, has not been found in any Italian dictionary, botanical or general. It, of course, suggests a commemoration of Bartolommeo Maranti (sometimes written Maranta or Marantha), an Italian doctor and botanist, a contemporary and correspondent of the more distinguished P. A. Mathioli (1500-77). Maranti wrote several treatises, which were published in Italy from 1559 to 1572, whilst one, *Lucullianus Questiones*, appeared at Basel in 1564; he died in March, 1571, and the first adequate memoir of him to appear, with a number of his letters, was contributed by Prof. G. B. de Toni to the *Proceedings of the Reale Istituto Veneto* 1911-12 (pp. 1505-1564). He is commemorated in the genus *Maranta* by Plumier in his *Nova Plantarum Americanum* Geneva, Paris, 1703; from one of the species, *M. arundinaceum*, we get the arrowroot, whilst many of the species and varieties are familiar in British gardens. But the Maranto of 1612, and the Maranta of about a century later, are not the same.

Whilst the figure of *La Nobil Pianta chiamata Maranto* is clearly conventional (Fig 93), yet it bears no sort of resemblance to the Maranta. The broadside is dated 1612, and the plant is expressly described as *Nouamente portata dall' Indie*, a somewhat vague geographical expression in those days, which might have meant the East Indies or the West Indies, possibly the latter. The broadside was evidently an advertisement of this "*cosa inestimabile*," until then unknown in Italy, although nothing is stated as to where or from whom it could be obtained. The seed is described as a little larger than that of the Melon, with a harder husk, blackish in colour and with a bitter taste. The plant is stated to grow to the height of two yards, and in the manner of the Canna ("*agroppata a modo della Canna*"), which was a well-known plant in Italian gardens at the time. The smooth leaves are described as beautiful and as streaked with red, whilst the flower is like that of the Lily—"il suo fiore assomiglia a quello del Giglio, delli maggiori, che se ritrovi in Italia," and in colour, "*giallo, verde, rosso e bianco*." Not only is the Maranto a beautiful plant, but it has also wonderful medicinal virtues, such as blood-staunching and as a purgative!

It will be noticed that the writer of the broadside refers to the plant as having a habit like the Canna and a flower like the Lily. Dr. B. Daydon Jackson suggests that a species of *Lilium*—perhaps a form of *L. Martagon*—may possibly have inspired this broadside. The Maranto, as will be seen from the reproduction, on a very much reduced scale, is crowned

may be seen from Professor R. G. Hatton's perennially delightful *Craftsman's Plant Book*—the varied interest of which is obscured by its unhappy title—the *L. Martagon* was figured by Fuchs in 1542, and some years later by Lobel, so that that plant could not have been new in 1612.

Strangely enough, after an oblivion of over three centuries, the problem of the Maranto has cropped up from two totally different and independent quarters within a few weeks of one another. Among the papers of John Goodyer (1592-1664), at Magdalen College, Oxford, now being edited for immediate publication by Mr. R. T. Gunther, is a drawing by Lobel of this same Maranto plant. A photograph of this was sent to Dr. B. Daydon Jackson at the Linnean Society quite recently for identification. Evidently Lobel saw this broadside and sent or gave a drawing of it to Goodyer, and it has remained undisturbed at Magdalen until now. My copy of the broadside came from an Italian library of many thousands of pamphlets and books which my friend, Mr. W. M. Voynich, purchased in Italy some years ago; Mr. Voynich sold it with other books to Messrs. Dulau, through whom it came to me.

The broadside has a typographical as well as a botanical interest. The imprint reads: "*In Barcelona, in l'entia & poi in Ferrara. Per Vittorio Baldini*," from which it might be assumed that Baldini printed it successively at Barcelona, Venice and Ferrara. But I can find no record that Baldini ever had a printing press either in Barcelona or Venice. It may mean that the plant was first brought from overseas by the Spaniards on one of their expeditions to the West Indies, and that it may have been first grown at Barcelona, finding its way thence to Venice and then to Ferrara. For many years Vittorio Baldini, who variously describes himself as "*stampatore ducale*" and "*stampatore camerale*," was the leading printer of books and pamphlets at Ferrara; my notes of his activities show that in 1587 he printed an *Orazione* of Leonardo Salviata, an eight-leaf affair, and in 1616 a substantial book of 248 pages by G. Fuligatti, the Jesuit mathematician, with numerous diagrams, not to mention a long list of publications which appeared in the intervening twenty-nine years. He died in 1618, was himself a man of letters, writing at least one historical work, which he also printed, had a neat hand at turning a sonnet, as well as engraving on wood; so we may reasonably suspect that he may have had a share in both the text and in the illustration on our broadside. Most of the books he printed were illustrated with woodcuts.

But his only claim on our notice to-day in these columns is this disquieting broadside concerning an unidentified plant with a name which seems to have escaped Italian lexicographers. W. Roberts.

PRIMULA SINENSIS.

WHERE it is desired to have these plants, including the *Stellata* type, in bloom during the early autumn and winter, the seed should be sown now. The seed pans should be clean and dry before filling them with prepared soil, which should be of an open nature, and thoroughly moistened an hour or two before the seed is sown, so that very little, if any more water will be needed until germination takes place. Do not cover the seeds deeply, and shade them from bright sunshine. P.

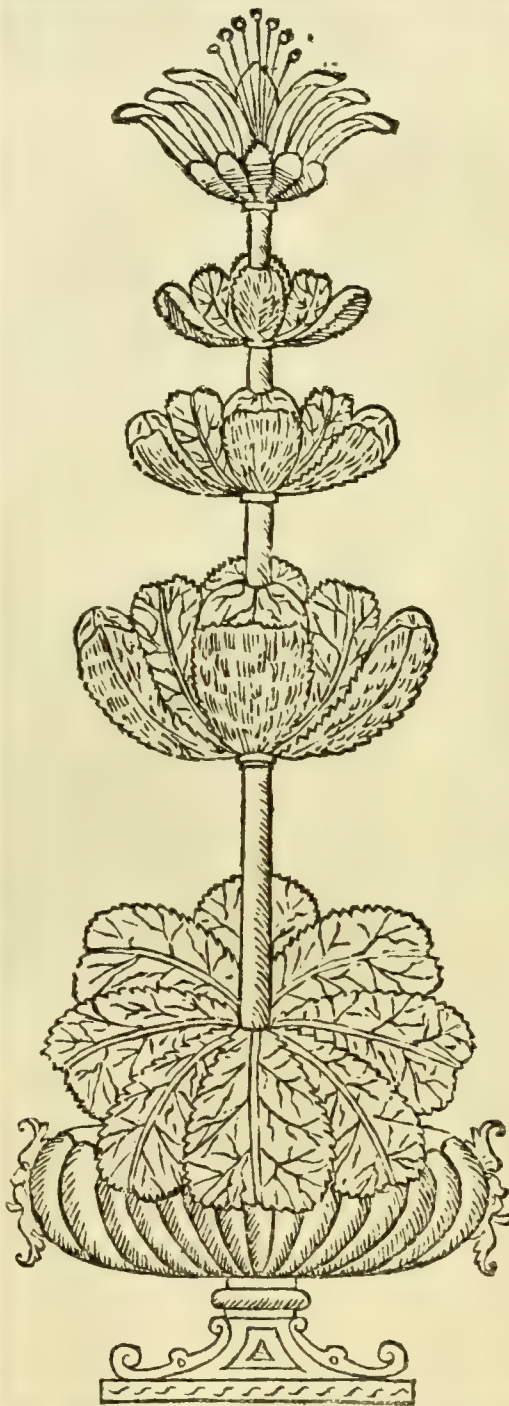


FIG. 93.—CONVENTIONAL ILLUSTRATION OF THE "MARANTO" PLANT, REPRODUCED FROM THE ITALIAN BROADSIDE.

with a solitary head which, at the first glance, suggests a plant of the Umbelliferae or Compositae; whilst the flowers of the *L. Martagon* are in a terminal raceme. There was no room for a raceme, so perhaps the Italian engraver thought it would serve the purpose if he gave a single flower—a kind of artistic licence necessitated by lack of space! But, as

TREES AND SHRUBS.

PINUS PATULA.

THERE is a considerable variety amongst the species of *Pinus*, due chiefly to the varying length of the leaves, the number in a cluster, and their relative stoutness or otherwise. The leaves of *P. patula* are long, slender, light green, produced three together in a sheath, and hang down over the branches with greater smoothness and regularity than a horse's mane. There is a tree of this species on the rockery at Wisley about 8 ft. high, and broadly pyramidal, with horizontal branches, as the specific name would imply. The direction of the branches enables the leaves to hang perpendicularly, and this gives the whole tree a distinctiveness which I have seen in no other member of the genus. Were one to have seen the tree during the drought of last year its habit would have suggested that it was flagging. The pleasing light green of the foliage at the present time indicates that it is in the best of health. The tree is a native of Mexico, and was first described in 1838. It is reputed not to be hardy, but there is no indication of tenderness so far. *J. F.*

INDOOR PLANTS.

GREVILLEA ASPLENIFOLIA.

GREVILLEA asplenifolia (syn. *G. longifolia*), of which a flowering spray is well illustrated in Fig. 94, is now coming into the market from the South of France. Although not the most showy member of the genus, it is a free grower, and its long, elegant shoots, with their slender foliage and reddish-pink flowers, are excellent for decorative purposes in the cut state.

The plant is a native of New South Wales, and the genus includes many beautiful species—all natives of Australia, with the exception of some species native of New Caledonia—which are poorly represented in gardens at the present day. In common with many other members of the natural order Proteaceae, many of the species, in the absence of seeds, are by no means easy of increase. Propagation, by means of cuttings, is slow and uncertain, and many cuttings, even if they can be rooted, do not grow at all freely. At Kew we graft such species on seedling stocks of *Grevillea robusta*, on which they take readily and grow freely.

The subject of this note grows well and makes a fine specimen if planted out in a bed or border, in a cool conservatory or greenhouse. Other beautiful greenhouse species are *Grevillea thelemanniana*, *G. preisei* and *G. punicea*, the last named being the best of them all in respect of colour and freedom of flowering. It is a pity there is so little interest taken in this class of plants at the present day. *J. Coultts, Kew.*

FUCHSIA SPLENDENS.

IN general appearance *Fuchsia splendens* is widely removed from the numerous garden varieties, forming as it does a free growing, rather loose-habited bush, clothed with heart-shaped leaves of a soft texture. The flowers, which are about 1½ inch in length, are of a tubular shape, but somewhat inflated in the middle. They are deep scarlet in colour, while the sepals and petals are green. The sepals do not reflex in the same manner as in most other *Fuchsias*. A very pretty variety, of which *Fuchsia splendens* was one of the parents, was shown at a spring meeting of the Royal Horticultural Society in 1912. It was raised at the nursery of Messrs. W. H. Rogers and Son, Southampton, as the result of crossing *F. splendens* with a Continental kind—*Gartenmeister Bonstedt*. The variety, known as *Benita*, did not gain any recognition from the Floral Committee, but at the same time it seemed to be very distinct, pleasing, and exceedingly floriferous. The blossoms, which hang in clusters at the ends of the shoots, are about an inch long, and supported by pedicels of the same length. The stout tube of the flower, and the sepals which do not reflex, are of a rosy scarlet colour, while the petals are bright orange scarlet. *T.*

MARKET FRUIT GARDEN.

MARCH was a cold month almost throughout, with much strong wind, mainly from the east and north-east. Conditions were very unpleasant for work in the open, but were all that could be desired for the welfare of the fruit trees. Buds made such slow development that not even Plums were in bloom at the end of the month. Last year the earliest-blooming varieties were open on the 15th, and most of the Plums,

1.82 inch, which is under the average. Thus there was little interruption to soil cultivation. Every plantation received its first stirring with either horse or motor cultivator, and a start was made with hoeing. It is seldom that the land works so well at the first spring cultivation. The surface did not get panned down so hard as usual during the winter.

PLUM APHIS.

Winter spraying having been finished early in March, I am now waiting to catch the Plums



FIG. 94.—GREVILLEA ASPLENIFOLIA.

Pears, and Cherries bloomed during the latter part of March. Thus fruit trees are quite three weeks later than they were last year. This is a good thing, because we may reasonably hope that they will now experience favourable weather for blooming. It is time now, however, that they pushed on, and it would be well if we could have a warm, showery April, which would take us quickly over the blooming period. The longer the bloom hangs fire in the advanced bud stage the greater the risk of damage by insect pests.

The rainfall of March at my place was only

when the earliest bloom is on the point of opening. They will then be sprayed with nicotine and soft soap to kill the mother queens of the leaf-curling Plum aphid (*Aphis pruni*). I have usually waited until immediately after the fall of the bloom, but that is not always soon enough to prevent damage. No aphid multiplies so rapidly as this, nor so quickly and effectively protects itself by curling the leaves. Therefore, it is better to spray before blooming, in spite of the fact that only the most exhaustive search can discover any of the mother-queens on the trees at that time. I have almost given up

looking for them, but spray as a matter of routine, because there is hardly a season when some harm is not done by this pest, and often it is very serious indeed. A bad attack of *A. pruni* ruins the crop and may half kill the trees. Some growers find spraying with limewash just before blooming an effective means of prevention. There will be a wonderful display of Plum blossom; so it is worth while to give the crop every attention this year, particularly as Apples are likely to be scarce.

Since writing the above I have found several of these stem-mothers and spraying has been started. They are large aphides and almost exactly the same colour as the young Plum wood—purplish brown.

DEAD BRANCHES.

Whilst pruning during the winter a good many mysterious dead branches were found on Apples. There is no appearance of any fungous disease; and an expert mycologist failed to find the cause. The trouble was worst in some trees of Beauty of Bath, which with me is usually a very healthy variety. I am inclined to think that it is simply a result of last year's drought, particularly as it was most serious in a grassed orchard, which showed more signs of distress during the dry season than did cultivated plantations.

SMALL FRUITS.

During the war large areas under small fruits went out of cultivation, or were devoted to other food crops. The agricultural statistics show that growers are making up the acreage. During the winter of 1920-21 it increased by 13,800 acres, bringing the total up to 72,600 acres, or about the same as in 1916. Of this increase Strawberries accounted for 3,768 acres. It will, of course, be several years before supplies of small fruits return to normal; and by that time it is to be hoped that the duty on sugar will have been reduced so that manufacturers can produce jam to sell at a reasonable price, and thus greatly increase the consumption.

MANURES FOR FRUIT TREES.

Experiments in the manuring of fruit trees have given such conflicting results that we may be said to possess no reliable information as to the needs of the different crops. No doubt they all require nitrogen, phosphoric acid, potash and lime; but we do not know in what proportions. In this respect fruit growers are much less fortunate than farmers, for the manurial requirements of farm crops have been established by repeated experiments.

Mr. G. E. Colby, chemist to the Californian Department of Agriculture, who has been studying the chemistry of fruits for some years, has worked out the amount of the vital soil ingredients removed by the various fruit crops. He obtained the following results per 100 lb. of fresh fruit:—

	Potash	Lime	Phosphoric Acid	Nitrogen
	lb.	lb.	lb.	lb.
Apples ...	1.40	0.11	0.33	1.05
Cherries ...	2.77	0.20	0.72	2.29
Pears ...	1.34	0.19	0.34	0.90
Plums ...	3.41	0.25	0.75	1.81

Now it has been found in the case of farm crops that the composition of the plant does not indicate the most successful manurial treatment, because it does not take into account the plant foods already present in the soil, nor the feeding or rooting habit of the crop. For instance, an analysis of Swedes shows that the crop withdraws from the soil about 150 lb. per acre of nitrogen, 30 lb. of phosphoric acid, and 120 lb. of potash. Yet field experiments have proved beyond doubt the phosphatic fertilisers are by far the most important for this crop. The Swede is so shallow-rooting that it fails to obtain the small proportion of phosphoric acid it needs unless this is supplied in the form of manures.

However, we may perhaps learn a little about the needs of fruit crops from the figures quoted above. It is noticeable that potash is the ingredient which occurs most largely in each case, but specially in the stone fruits, Plums and Cherries. Phosphoric acid, generally considered so important for all fruit-bearing subjects, ap-

pears in the smallest quantities. Nitrogen does not assume so much importance as one would expect, considering that in practice organic nitrogenous manures prove the most useful of all, but there is a reason for this. The figures refer only to the fruit, but the tree has to make leaves and wood as well, and nitrogen would occur largely in these.

The practical lessons of the figures seem to be that the stone fruits require more generous feeding in all respects than Apples and Pears, whilst they also make special demand for potash and lime.

NON-RETURABLE PACKAGES

We have a satisfactory non-returnable package for Apples and Pears in the British standard box, and for certain of the soft fruits chip baskets with handles are much in favour; but we have nothing really satisfactory for Plums, Cherries, and such of the soft fruits (*e.g.*, Currants) as are not choice enough to market in small chips. The best thing available is the chip "bonnet," which holds the same amount of fruit as the wicker half-sieve. This is an excellent package for quite small consignments, but it has decided drawbacks for general purposes. It does not stack or load well on vans, lorries, or in railway trucks. The small, slightly rounded bottom makes it roll about. Moreover, it is not strong enough to stand roping, which is essential with big loads on a van or motor lorry. Some of the Continental chip non-returnables of half bushel capacity are superior, because, although the fruit is held in a bonnet-shaped receptacle, there is a square outer casing which has rigid wooden corner-pieces, so that the packages stack better and are altogether stronger.

It has occurred to me that thin wood, such as the round cheese boxes are made of, would be excellent material from which to make non-returnable packages; but I do not know whether this is made in England or if it is cheap enough for the purpose. The ideal package must be cheap and rigid, and it should, if possible, be available in the flat, like the Apple box, or capable of nesting, like the bonnet, so that it may not require too much space for storage. Strength is essential now that so much fruit is carried on motor lorries, big loads being the rule. Thin chip packages are really too flimsy.

The existing wicker half-sieves are quite suitable for Plums and soft fruits, but non-returnables are certainly desirable. There are buyers of fruit, such as the large stores and multiple shops, which will not be bothered with packages that have to be returned, and therefore purchase imported fruit only. *Market Grower.*

ANNUAL FLOWERS FOR NORTHERN GARDENS.

THERE is a general apathy amongst gardeners in regard to the merits of annuals, yet if the area devoted to their cultivation by some of the leading seed firms could be filmed when the plants are at their best, and shown on picture screens throughout the country, it would be a revelation in colour, and an object lesson of the utility of these easily raised flowers.

There need be no hesitation in employing the usual summer bedding plants in geometric beds, and allotting borders to annuals, thereby saving valuable time and labour without in any way reducing the effect. Annuals generally are seen to the best advantage when employed in an informal manner, and a border of them backed with Sweet Peas and associated with a selection of plants which, though not strictly annuals, bloom profusely when treated as such, is a fine feature in summer, and one that may be had with a minimum of labour and expense.

Many kinds of annuals are also suitable for associating with hardy perennials and may be employed to fill in vacant spaces in the herbaceous borders. The foreground of shrubberies may also be lightened considerably with the aid of the more robust-growing kinds, and there are dwarf annuals as attractive as alpine for the rock garden. In addition, many kinds are valuable

for supplying cut blooms, and a plot of ground devoted to annuals for this purpose is well and usefully employed.

No hard and fast rules can be laid down as to the sowing and raising of annuals; to limit the sowings to the months of March and April is to reduce their utility to the minimum. Up to March they should, in all but the most favoured parts, be sown in pots, and the protection of frost-proof frames provided. Several kinds are useful for conservatory decoration in April and May, and those planted out will furnish a display in June, and onwards, according to the date of sowing.

Ground intended for annuals should be prepared some time in advance of sowing in order that the soil may have time to settle, as when newly turned up it is too loose to favour the growth of strong, self-supporting plants. It is not a case of lavish manuring with the majority as it is of providing a fair depth for the roots, and a fine surface tilth, especially for seeds to be sown direct in the open. Many hardy annuals do not transplant readily, except when raised in pots, owing to the tap-like character of their roots, and are therefore best sown where they are intended to bloom. It is essential to thin the plants before they crowd one another in order that their lateral development be not retarded. Supports, where necessary, are easily fixed while growth is upright, and for all medium growers a few short twiggy sticks are all that is required. Mention may be made of a few leading sorts for this mode of treatment. *Godetias* might well head the list, and some idea of their importance may be realised when it is seen that over twenty named sorts are available, embracing all the leading colours in single and double blooms, and varying in height from 1 foot to 3 feet. The Stock-flowered *Larkspurs* are also divided into tall and dwarf varieties, the former having a just claim for notice for cutting. Amongst *Lupins* the *Hartwegii* varieties are a great improvement on the old type. *Lavateras* or *Mallows* provide valuable material for the background of borders, and the plants should be allowed a space of 2½ feet apart. *Sutton's Loveliness* is a splendid variety. *Clarkias* have attained some fame as conservatory plants, and the effect of groups in the open is no less charming. Others with an equal claim to notice as being suitable alike for sowing in the open and for growing in pots to be kept in reserve for putting out where vacancies occur, include *Cornflowers*, *Sweet Sultan*, *Nigellas*, *Annual Chrysanthemums*, *Coreopsis*, *Eschscholias*, *Candytuft* and *Antirrhinum*. For edging purposes dwarf *Nasturtiums*, *Cupid Sweet Peas*, *Viscarias*, *Linarias* and *Virginian Stocks* are suitable. For all the Poppies, and especially the *Shirley* type, there are countless uses which need not be referred to.

Shirley Poppies should be sown on several occasions at intervals of three or four weeks to obtain a display throughout the season until late in the autumn, and the seedlings should be thinned as early as possible to not less than one foot apart. There are also beautiful varieties of *Panavor somniferum*, which grows some two feet high, and the colours range from white to intense crimson.

Amongst half-hardy and tender annuals there is an equally wide choice. *Asters* and *Stocks* alone are capable of creating an effect quite equal to that obtained from the usual type of bedding plants, and with less labour and inconvenience. Under each heading there is a greater variety than is often realised. There are types admirably fitted by rigid selection for use in formal beds in case of need, while others have a marked value in the mixed borders and for cutting. *Marigolds* are also worthy of more notice—the double French and African kinds for general purposes, and the dwarf, single French *Marigolds* for beds. The fragrance of *Nicotianas* is acceptable almost anywhere. *Sahaglossis* has become very popular in late years, and a bed of this annual in July and August is a fine feature. All these, and there are others too numerous to deal with now, should be sown under glass in April, and the seedlings subsequently pricked off into frames or boxes, and gradually hardened off for planting out early in June. *Yorkshire Gardener.*

ORCHID MYCORRHIZA.

ONE of the most interesting phenomena in biology, and at the same time one of the most puzzling, is the living together of two organisms in intimate association. Symbiosis, as it is called, is generally assumed to be of mutual benefit, though probably it is never more than a compromise. Orchids have long been known to show fungal hyphae in their roots and, next to Lichens, are the most frequently cited examples of symbiotic union in plants. Link (1840) first observed the hyphae in the young seedlings of *Goodyera* without realising what they were, but Reissek (1847) recognised their nature, worked out their universality in Orchids and their distribution in the plant, and attempted to extract the fungi. Since his day much has been learned about fungus roots (mycorrhiza) and they have been found to occur very widely spread throughout the plant kingdom. This does not mean, however, that the relation between the green plant and fungus is always the same and what is said below must be taken as referring only to Orchids.

The fungus is best seen in the young roots. A transverse section just above the root cap (Fig. 95) shows the balls of hyphae in the cortical cells. The epidermal cells are not usually infected and the fungus does not enter the endodermis. One, two, or more layers of the cortical cells

this to the test by extracting the fungus and inoculating seeds with it: when the appropriate fungus is present and the proper cultural details attended to, practically every seed germinates. The seeds of Orchids are very small, the embryo being frequently only just visible to the naked eye. They possess a single integument, which is in the form of a characteristic network. On sectioning the seed (Fig. 96) there is seen to be no differentiation into cotyledon, stem and radicle as is almost universal in flowering plants. In cultivated Orchids the cells at the suspensor end, that is the end by which the seed is attached, are generally somewhat larger than those at the upper end, though *Cymbidium* and others show no such differentiation. Seeds taken from the capsule under sterile conditions and sown on ordinary substrata where no fungus is present, do not as a rule develop. Generally, they merely swell and become green. The only case so far known in which any considerable development can take place under these conditions is that of *Bletia hyacinthina*, where Bernard found that thin, slender seedlings developed with distinct leaves.

The food reserve of Orchid seeds is most frequently oil, part of which becomes transformed into starch. The reserve food comes to its end just as the seed begins to become green. This is usually after three or four months; if no fungus infection take place then, the seedling dies. It is somewhat surprising that after the

Haslingden, who obtained a First-Class Certificate for the novelty.

Cattleya Minnehaha, obtained by crossing *C. Trianae* alba and *C. Lady Rowena* (Suzanne Hye de Crom $\times$ Warneri alba), also a Dell hybrid, shows the advantages of *C. Warneri* alba in crossing, and gives evidence of the desired effect being secured by thoughtful work. The flower is broad in all its parts, pure white, with an orange yellow blotch in the centre of the lip.

CYMBIDIUM HYBRIDS.

W. WATERS BUTLER, Esq., Southfield, Edgbaston, sends an interesting selection of *Cymbidium* flowers raised in his garden, two of which are new crosses.

Cymbidium Pyrhus (*Wigmanum* $\times$ *Holfordianum*) is a very desirable novelty, as it is quite distinct in colour from the bulk of hybrid *Cymbidiums*. The sepals are gamboge-yellow tinged with red; the petals are rather paler in colour and with a clearly defined red line down the middle. The lip is similarly coloured externally, but is white inside, and has the front beautifully marked with red spotted lines. The upper side of the column is red. *Cymbidium Vedic* (*Lowgrinum* $\times$ *insigne*) is sent in three varieties, two having the white and rose tints of many other kinds, but No. 4,420 is a very distinct form with Primrose yellow colour. The sepals and petals, and the white lip are spotted with claret red.

Others sent are *Cymbidium Fortuna* (*churum* $\times$ *Schlegelii*), a superb white, recorded for Mr. Waters Butler last year; and *C. Venus*, Southfield variety (*insigne* $\times$ *Holfordianum*), also previously noted.

SCALE INSECTS ON ORCHIDS.

CATTELYAS, Laelio-Cattleyas, Brasso-Cattleyas, Sophro-Cattleyas and other Orchids of this class are very susceptible to attacks of scale insects, which secrete themselves beneath the dry skin of the old pseudo-bulbs. In addition, therefore, to dipping and sponging the leaves and plants in a solution of nicotine, the skin of the pseudo-bulb should be removed to make sure of destroying all the insects. J. T. B.

PROMENAEAE.

THREE species of this interesting genus are in cultivation, viz., *P. xanthina*, *P. Rollissonii*, and *P. stapelioides*, and when these plants are in good health they produce plenty of bloom, especially the yellow *P. xanthina*. The plants are best grown in shallow pans and suspended about two feet from the roof rafters of the intermediate house, or the cooler end of the Cattleya division. Frequent disturbance of the roots is not advisable, and if due attention is paid to watering, the rooting medium will remain in good condition for several seasons.

TRICHOSMA SUAVIS.

THIS sweetly fragrant Orchid blooms during the winter and should be grown in a cool house throughout the year. Any necessary repotting or top-dressing should be done when the new growth is a few inches high, employing the usual mixture of peat, partly decayed Oak leaves, and *Sphagnum*-moss. This Orchid should be kept more or less moist at all times in accordance with its condition of growth.

BRASSAVOLA.

At one time *B. Digbyana* was in great demand for hybridising purposes, but now it is rarely seen, a remark which also applies to *B. glauca*. Both are interesting plants, the former being noteworthy for its large, fringed lip. The plants require similar treatment to that afforded *Cattleyas* and *Laelias*. *B. nodosa*, *B. cucullata*, *B. venosa* and *B. lineata* are quite distinct species, having terete leaves, which grow in a downward direction. On account of this peculiar habit the roots should be made fast to Teak wood rafts which have previously been covered with *Sphagnum*-moss and peat. During the growing season the plants should be suspended from the roof rafters of a warm house and the roots kept well supplied with water. A sunny position should be chosen and the plants should receive plenty of light at all seasons. When at rest a cooler temperature will suffice, and the plants may be kept slightly drier at the roots. B.

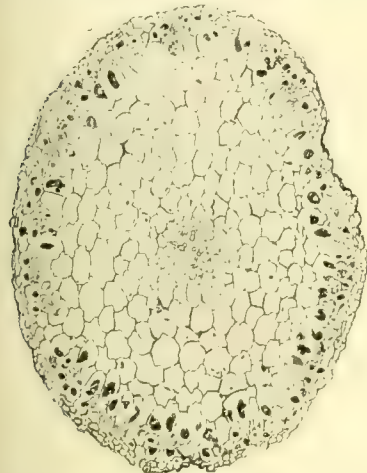


FIG. 95.—SECTION OF YOUNG ROOT OF HABENARIA JUST ABOVE THE ROOT CAP, SHOWING FUNGUS MYCORRHIZA IN THE OUTER CORTICAL LAYERS; $\times 36$.



FIG. 96.—LONGITUDINAL SECTION OF SEED OF ODONTOGLOSSUM, SHOWING THE SLIGHT DIFFERENTIATION IN THE CELL STRUCTURE. THE INTEGUMENT HAS BEEN RUPTURED IN SECTIONING; $\times 215$.

may contain the fungus, though the distribution is remarkably constant in any species. All Orchids so far investigated possess mycorrhiza with the single exception of the saprophytic *Wulfschlaegelia aphylla*. Apart from this anomalous case the amount of fungus present in the root seems to bear relation to the amount of chlorophyll—plants like *Listera* and *Epipactis*, which have dark green leaves are irregularly infected, whereas, when there is little chlorophyll, as in *Limodorum* and *Corallorhiza*, the fungus is well developed. It is interesting to note that aerial roots are not infected, except when they are in contact with the soil and without chlorophyll.

Part of the charm of Orchid growing is the satisfaction in overcoming the difficulties met with in germination. The trouble in obtaining seedlings has been one of the bywords of horticulture. Seedlings are apparently rarely found in nature—and half a century ago were rarer still in cultivation. The method of sowing seeds on the soil of the parent plant led to a different state of affairs. The known constancy of the presence of fungi in Orchid roots and the fact that the only means of securing germination was by sowing the seeds on soil which contained, or had contained, these roots, led many to believe that there was some relation between the mycorrhiza and the seed. As most people know, Noël Bernard eventually put

production of chlorophyll death should occur rather than autonomous growth by aid of photosynthesis; the seedling appears to form chlorophyll as a sort of despairing effort. If, however, the appropriate fungus be added, now at the latest, an extraordinary change takes place. The fungus seems to give an impetus to development. What, however, is the appropriate fungus? So far as we know at present it must be the fungus normally in the roots of the parent plant or of some near ally. J. Ramsbottom.

(To be concluded.)

ORCHID NOTES AND GLEANINGS.

TWO NEW WHITE HYBRIDS.

BRASSO-CATTELEYA Albion, raised in Baron Schröder's gardens, The Dell Park, Englefield Green (gr. Mr. J. E. Shill), between *B.-C. Thorntonii* alba and *Cattleya Trianae* alba, is a grand addition to the large white hybrids which will never be too plentiful. It is impossible to imagine a better flower in any respect, for it is perfect in form, pure white, and of fine substance, with broad, circular fronted, fringed lip. The disc of the lip is coloured chrome yellow. *B. C. Albion* was shown at Manchester on March 16 by T. Worsley, Esq.

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Roofing of Garden Fruit Cages (see p. 158).—About ten years ago I built a fruit cage here 100 ft. by 50 ft., beneath which I planted Gooseberries, White Lion, Trumpeter, Green Ocean, and Lancashire Lad; Currants, White Dutch, Versailles, and Boskoop Giant. One line of Loganberries was planted, and Strawberries, Royal Sovereign and Waterloo, put between the rows of other fruits. The Strawberries did not succeed. Lettuce Holborn Standard in their place was a great success. I have not seen any of the other fruits injured by drip from the galvanised netting. Boskoop Giant Black Currant became badly infested with big bud, and although the big buds were removed by hand-picking last year the big bud became worse than ever; the bushes were therefore grubbed up and burned. The ground has been trenched and Raspberry Lloyd George planted. It will be interesting to see if, after ten years, Strawberries will succeed, and I shall plant a few runners from pots in July or August to test them. *William Currell, East Cliff Lodge Gardens, Ramsgate.*

—The point raised by Mr. Aubyn Trevor-Battye in your issue of April 1 is interesting and important. For many years I grew good crops of Strawberries in a "cage" surrounded with wire-netting and fish-netting over the top. When I made a new garden here I set up a complete "cage" with wire-netting over the top. As I now have a much better soil for Strawberry cultivation, I was very disappointed to find that the plants not only refused to bear, but some kinds, such as Royal Sovereign, absolutely died out. This went on for some years, while every endeavour was made to obtain improved results. In the meantime it was observed that runners cultivated in a bed outside the enclosure did remarkably well, but failed when transplanted inside. Consequently the Strawberry bed was removed to a plot previously occupied by Potatoes, and the plants have flourished exceedingly since. In addition to Strawberries there were grown in the "cage" Raspberries, Gooseberries, Currants, Cherries and Plums. Gooseberries were unaffected and did very well. Raspberries also succeeded, but not quite so well as those outside the cage. Currants behaved similarly. Plums and Cherries did very badly indeed. As a wire-netting surround appears to be harmless I think it most probable that the injury is due to the harmful action of zinc salts dissolved from the galvanised netting over the top, and not to any influence on the temperature. Perhaps in suburban and seaside gardens the effect would be more noticeable than in an open, inland district, as the smoke and salt would favour a more rapid solution of the zinc. If in other gardens harmful effects are not observed this might be the reason. Mr. Trevor-Battye asks if the damage only applies to the first year. It certainly continues for years; I suppose so long as any zinc remains, and very soon after all trace of galvanising is gone the netting rots and the cage becomes useless. *F. T. Paul, Cloudestee, Caldy, Cheshire.*

—There is little doubt that Mr. Trevor-Battye's letter of inquiry (page 158) will evoke widely different opinions. It is a very decided conviction with many gardeners that the drip from the roofing wire is inimical to the fruits beneath, but it is always a difficult matter to draw from them information which is the direct outcome of personal knowledge—it is usually based on hearsay, never a reliable post on which to lean for support. In a long experience I have never known evil results to be associated with properly constructed wire cages. That there is a deleterious effect when the growths of fruits and Roses are directly attached to galvanised wire, is perfectly well known, and it appears usual for the trouble to commence during very hot sunshine on wires wet after a shower, but contact seems to be an essential to the injury, since I have not seen the slightest damage due to drip from roofs on Strawberries, Raspberries, Currants or Gooseberries. The

fault in many fruit cages lies in the fixed roof which excludes birds when they are wanted, equally as effectively as when they are not wanted. The roof should, of course, be sound, but it must be removable at will, with ease, and immediately the crops from the enclosed plants have been harvested it should be taken off for careful storage until such time as it is required again. *H. J.*

Heavy Rainfall in Central Wales.—In your issue of March 25, page 142, and March 11, page 116, Mr. Wiggins and Market Grower, respectively, give the rainfall record for January and February of this year. Market Grower also gives the record for the first two months of 1921. It may interest your readers to have the record for Central Wales, taken 580 feet above sea level. In the first six months of 1921 we had—January, 8.26 inches; February, 0.92; March, 7.31; April, 2.69; May, 2.75; June, 0.82. For 1922 the record is—January, 6.74; February, 7.17; and March, 3.20 inches. There were twenty-eight rainy days in January, and the heaviest rainfall occurred on the 16th, when 1.60 inch was recorded. In February we had twenty-two rainy days, and the heaviest fall, on the 4th, was 0.71 inch. March gave seventeen rainy days, with the heaviest fall of 0.64 inch on the 6th. The total rainfall for the first two months of 1922 was 13.91 inches, and, up to March 31, 17.11 inches. *D. H. Dunn, Hafod, Devil's Bridge, Aberystwyth.*

Voles.—The subject of dealing with voles, discussed in the *Gard. Chron.* for some weeks, is of interest here, as we are surrounded by woods. I have been troubled with the pests, and have tried all manner of traps to catch them. One plan is to dig a circular hole in the ground one foot in diameter at the top, about a foot deep and 18 inches diameter at the bottom. I have caught so many as eight voles in one night in a trap of this kind, using Peas, Beans or bread as bait. During my first winter here we caught 180 voles on half an acre of fruit plantation. We also used what are known as figure-four traps; but as your correspondent, G. H. Hollingworth, has 50 acres of fruit trees to deal with, the only trap that would serve his purpose would be a more or less permanent one, as I think the one-trap one-vole business would be too expensive. I also advise the encouragement of hawks, owls, and weasels, especially the last, as the small amount of harm done by the birds and weasel is far outweighed by the number of mice and voles they destroy. *W. H. Clark, Bussock Wood Gardens, Newbury.*

Aristolochia gigas Sturtevantii.—Since stove plants have undergone such reduction in this country, it is surprising to find this plant outside a botanic garden. It flowered recently in the nursery of Messrs. L. R. Russell, Ltd., Richmond. Much taller plants have been grown and admired for their curiously shaped and strangely coloured flowers. Even the hardy A. Siphon grows much more rampantly, and is admired or esteemed for the shade cast by its large leaves, when used for covering arbours. A. gigas Sturtevantii excites surprise on account of the great size of its flowers, which are purple, downy, and netted with veins on the face, while the exterior is strongly ribbed. One of the three lobes of the perianth is also furnished with a long tail. The species is a native of Guatemala, and is figured in the *Bot. Mag.*, t. 4568. The variety is finer in colour, and larger than the type. *J. F.*

Mr. John Gray (see p. 134).—Mr. Divers may like to know that my father, Mr. John Gray, is still at Brantingham Thorpe, Brough. They were both in the bothy there together in 1872. My father was awarded a First-class Certificate in fruit and vegetable culture from the Society for the Encouragement of Arts, Manufacture and Commerce, which was held in Hull at that time. There were no late trains from Hull to Brough, so he walked the distance of 12 miles to be ready for work the next morning at 6 o'clock. He walked this distance on three different occasions. Later, he married, and started in business as a florist and seedsman, still working in the gardens at Brantingham

Thorpe. I was appointed gardener in the same gardens at the age of 22 in the year 1905, which post I held for five years. Then the place was sold. I am pleased to state that my father is still enjoying good health. *Bernard Gray, Stotham House Gardens, Stotham, Brough, East Yorkshire.*

Carnation Bis Greenfield.—Having read with interest the remarks of Mr. W. J. Carter on Carnation Bis Greenfield (page 158), I would add that I have known it for several years. We have it in these gardens, and I have often remarked how strange it seems that this splendid Carnation is so rarely seen in collections. Bis Greenfield is one of the best Carnations with which I have had anything to do. It sends up strong cuttings which root very freely. The variety also has very dark green foliage. I should like to know when it was first brought out, and by whom. *H. Hills, Fauke Wood Gardens, Sevenoaks.*

Forced Hyacinths.—This year again many of the forced Hyacinths have developed four or five spikes of bloom from the one bulb, and especially those of blue shades, instead of one well-developed spike. La Grandesse, one of the best white Hyacinths, has in some cases, sent up two or three spikes; pink and red sorts have proved the most satisfactory in sending up one extra fine inflorescence. This multiple flowering has been very common in recent years in the case of bulbs which appear to be first-class for pot culture. In the case of Hyacinths used for bedding this defect is often overlooked, yet it is annoying when plants are grown especially for exhibition purposes. The cause may be due to one or more reasons, such as lifting the bulbs too early before they have had sufficient time to mature, or not allowing them a sufficiently long resting period. It is just possible that the varieties lose their vigour after they have been propagated for a number of years in succession, as the trouble is more noticeable in the older varieties, pointing to a weakened constitution; indeed, many of the bulbs rot off when they are started into growth. This all points to the need of raising new varieties by hybridisation to maintain the true type of flowering Hyacinths. *F. Pollintine, The Gardens, Rosemere, Wylde Green.*

Kalendarium Universale, or The Gardiner's Universal Calendar, etc., by Benj. Whitmil.—If any reader of *The Gardeners' Chronicle* possesses a copy of the first edition of this little book, which was published about 1726, I should be very grateful if he would send me a copy of the list of Roses mentioned in it. At the end of the later editions there is a list, entitled "A Collection of the best sorts of Flowers." No doubt the first edition has a similar classified list, and a copy of the names of the Roses there mentioned would be of great service in clearing up a point upon which there is at present some doubt regarding Rose history. Will readers please observe that references to other editions are not wanted? *C. Harman Payne, 195, Wellmeadow Road, Catford, S.E.6.*

Iris unguicularis.—It can scarcely be too widely known that this winter-flowering Iris, which commenced unfolding its blossoms here early in October, was producing flowers at the end of March, having in the meantime provided an abundant supply of spikes without a break. There still appear growths with flower sheaths that will carry the flowering well into the present month. It should, however, be stated that the plants have a warm and favoured position against a south wall, and this, coupled with the fact that the clumps are well established and large, will in some measure account for so continued a display. Three things are apparently necessary for success—suitable position, a certain amount of moisture, and exposure to sun and air. Generally, the best time for planting this species is after flowering—early in April, the best position being under a south wall though I do not advocate planting under a fence. When planting this Iris the rhizomes should never be buried under the soil, but kept at the surface. Almost any soil which is not of a heavy nature will suffice. *James A. Paice, Elstree.*

FRUIT REGISTER.

APPLE JOHN STANDISH.

In our description of this new, late market Apple, we referred (see p. 160) to the extraordinary cropping qualities of the trees; in Fig. 97 we illustrate a portion of one of the long branches crowded with Apples, exhibited last autumn by Messrs. Isaac House and Son, showing the freedom with which the fruits are borne on the spurs. Those who saw these branches were impressed with the enormous crops they bore, even in a year when Apples were unusually plentiful, and one of the reasons why the variety received the R.H.S. Award of Merit was because of its prolific nature of bearing. A description of the fruit was given on page 160; a specimen we have before us is still plump and fresh-looking, and promises to keep for much longer. The fruits even now are very juicy, and all these qualities, combined with the very attractive appearance, should cause the variety to find favour with growers, especially as a late market dessert variety.



FIG. 97.—APPLE JOHN STANDISH, R.H.S. AWARD OF MERIT, MARCH 28.

APPLE ROSEMARY RUSSET.

This variety is one of the best to follow Cox's Orange Pippin, and has been exceptionally useful this winter, as Cox's Orange Pippin has deteriorated. It is at its best about January, but keeps well into March. The tree is a free grower and requires frequent root pruning to bring it into full bearing, especially cordon trees. The cordon method of training is the best form to adopt for this variety and our plants are free from canker at present. I send a sample of fruits, which are of a medium size, just suitable for the dessert table. The variety is a free bearer, as the blossoms set freely. The fruits are highly flavoured and have a bright yellow skin. They grow close to the wood, and the leaves cluster round them, affording protection from heavy rains, which is an advantage as the skin is very thin. A. B. Wadds, Englefield Gardens, Reading.

APPLE WINTER PEARMAN.

This Apple is well known in some parts, but little known generally, yet the variety is such an excellent one it should be more generally grown. The tree is an abundant bearer, the fruit being large, richly coloured and of good flavour. Recently a sample was brought for my inspection and naming, which gave me great delight. Its synonyms are Great Pearmaine, Duck's Bill

Pearmain, and Old Pearmain. The fruit is of large size, being three inches and a quarter wide, and three and a half inches in height. It is of true Pearmain shape, with five ribs towards the crown. The skin is smooth and shining, coloured deep yellow, streaked with flesh colour on the shaded side, but of a beautiful clear, deep crimson on the side next the sun, and strewn all over with russet dots. The eye is large and open with short segments and set in a deep and prominently plaited basin. The stalk is about a quarter of an inch long and inserted in a deep, funnel-shaped cavity, which is lined with russet. The flesh is yellowish, firm, crisp, juicy and sugary, with a brisk and pleasant flavour.

This Apple is useful for cooking and dessert purposes, and is available late in the season. It is believed to be one of the oldest known varieties, and was cultivated in Norfolk as early as 1200. In those days the word Pearmain was spelled Pearemaine, which signified Great Pear Apple, in allusion no doubt to varieties known by that name bearing a resemblance to the form of a Pear. *Pomona.*

VEGETABLES.

RUNNER BEANS.

The drought last year proved exceptionally trying for this very important crop, and more especially were they a failure on light, porous land. Our best supply is usually gathered from plants that are grown in well prepared trenches, two feet wide. The soil is worked deeply, and an abundance of well decayed manure thoroughly incorporated with it, as the digging proceeds. Ample room should be allowed for the plants to grow sturdily, and to produce a long supply of large, fleshy beans. In dry weather, when Runner Beans are grown in trenches, mulchings of manure may be placed over and about the roots, and water supplied in quantity at intervals whenever needed. The water will wash down the manurial properties direct to the roots, and greatly benefit the plants when in full bearing. It is of great importance to gather the pods as fast as they become ready, so that others to follow may have a better chance of developing quickly.

Long, stout Pea sticks form the most useful supports, or tall, stiff stakes, inserted deeply in the soil by means of a crowbar, may be used. The plants offer a great surface to the winds of autumn, and at such times they are also very heavy at night with dew. H. M.

SOCIETIES.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

MARCH 16.—*Committee present*:—The Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, Dr. F. Bedford, J. Birchenall, A. Burns, A. Coningsby, D. A. Cowan, J. C. Cowan, A. G. Ellwood, J. Evans, W. Giles, Dr. R. N. Hartley, J. Howes, A. Keeling, J. McNab, D. McLeod, F. K. Sander, E. W. Thompson, and Hillier.

Awards.

FIRST-CLASS CERTIFICATES.

Cattleya Dupréana alba, a pure, white flower with yellow throat; *Odontoglossum crispum majesticum*, a large flower of fine shape, blotched deep red and with a white margin; *O. crispum Astraec*; *O. Pescatorii Rex*, a large flower with broad white petals and sepals, the latter slight rose colour and a very broad lip with deep purple blotch. From P. SMITH, Esq.

Potinaria Juliettae (S.-L.-C. Marathon × B.-C. Ena), the broad sepals and petals are finely coloured and with intensely dark lip; *Lycaste plana Measuresiana*, sepals greenish-brown, petals and lip cream coloured. From Dr. F. BEDFORD.

Odontoglossum crispum Brunhilda, and *Laelio-Cattleya General Allenby* (L.-C. Lucasiana × C. Fabia), from S. GRATRICK, Esq.

Dendrobium Dr. Hartley (chessingtonense × illustrissimum), a fine yellow flower with dark brown centre in the lip; *Odontoglossum Thwaitesii Hartley's var.* (Rossii × Harry-anum), a very distinct variety with a white lip. From Dr. R. N. HARTLEY.

Cymbidium Castor, Bridge Hall var., a large cream coloured flower. From Mrs. BRUCE and Miss WRIGLEY.

C. Castor, St. Mary's var., with large white flowers. From the Rev. J. CROMBLEHOLME.

Odontioda Juno (eximium × Coronation), the ground colour is rose, heavily spotted bright red. From A. HANMER, Esq.

Cymbidium Alexanderi, Bolholt var., the sepals and petals are white, the lip spotted and lined with deep red. From Capt. W. HORRIDGE.

Odontioda Alcantara, Beardwood var., a fine, reddish-brown flower with white margin. From Col. Sir J. RUTHERFORD, Bart.

Brasso-Cattleya Albion (B.-C. Thorntonii alba × C. Triana alba), a white flower of very good form. From T. WORSLEY, Esq.

Laelio-Cattleya Aquitania, Sanders' var. (C. Enid × L.-C. Britannia), a large flower with mauve sepals and petals and deep purple lip. From Messrs. SANDERS.

AWARDS OF MERIT.

Lycaste Skinneri Goliath and *L. S. Delight*, from Mrs. BRUCE and Miss WRIGLEY.

Odontoglossum crispum West Point Monarch; *Odta. Brighteye*, from S. GRATRICK, Esq.

Odontioda Joyce var. Milky Way; *Odontoglossum crispum Marlind* (Marie × Lindenii). From P. SMITH, Esq.

Cymbidium Alexanderi var. Rajah. From Capt. W. HORRIDGE.

GROUPS.

Mrs. BRUCE and Miss WRIGLEY, Bury (gr. Mr. A. Burns), were awarded a large Silver-Gilt Medal for a group of *Lycastes* of the Skinneri section; *Cypripediums* and *Cymbidium*s. S. GRATRICK, Esq., West Point (gr. Mr. J. Howes), was also awarded a large Silver-Gilt Medal for a group in great variety. Capt. W. HORRIDGE, Bury, was awarded a Silver Medal for a group.

Messrs. SANDERS, St. Albans, were awarded a Gold Medal for a magnificent group in which *Cymbidium*s were an especial feature.

T. WORSLEY, Esq., Haslingden (gr. Mr. J. Sandwell), was awarded a Silver Gilt Medal for a group of choice *Cypripedium*s. A. HANMER, Esq., Buxton (gr. Mr. W. Giles), was awarded a large Silver Medal for a general collection. Col. Sir J. RUTHERFORD, Bart., Blackburn (gr. Mr. J. Lupton), staged a group for which a large Silver Medal was also awarded. The Rev. J. CROMBLEHOLME, Clayton-le-Moors (gr. Mr. E. Marshall), and Dr. R. N. HARTLEY, Wigan, were awarded Silver Medals for groups.

ROYAL HORTICULTURAL.

APRIL 11 AND 12.—The hall at Vincent Square was well filled on these dates with an exhibition that was beautiful, interesting, and greatly admired by a large number of Fellows and visitors. Daffodils, Orchids, Roses, Carnations, flowering shrubs and Alpines were the leading features.

Orchid Committee.

Present: Sir Jeremiah Colman, Bart. (in the chair), Prince Shimadzu, Messrs. James O'Brien (hon. secretary), Gurney Wilson, R. Brooman White, Frederick J. Hanbury, the Rev. J. Crombleholme, H. G. Alexander, J. E. Shill, J. Cypher, S. W. Flory, H. T. Pitt, A. McBean, W. J. Kaye, E. R. Ashton, Pantia Ralli, T. Armstrong, J. Wilson Potter, F. K. Sander, C. J. Lucas, and Chas. H. Curtis.

AWARDS OF MERIT.

Cymbidium *Castor* var. *claytoniense* (insigne $\times$ *Woodhamsianum*), from the Rev. JOHN CROMBLEHOLME, Clayton-le-Moors. A very fine hybrid, forms of which have been exhibited before, but the specimen now shown, a fine example of high cultivation bearing a noble spike of nineteen flowers, represented it at its best. The wax-like flowers are bluish white, with ruby-red markings on the front of the lip and the face of the column.

Odontoglossum *eximium* var. *Mabel*, from PANTIA RALLI, Esq., Ashted Park, Surrey (Orchid grower, Mr. Farnes). *Odontoglossum* *eximium* results from crossing *O. crispum* and *O. ardentissimum* (*crispum* $\times$ *Pescatorei*), and the present novelty was obtained by crossing two fine varieties of the original type, the result being a flower of greatly improved shape and form. The bloom is coloured deep claret red, with white lines between the blotches, and it has pure white margins.

Oncidioda *Stuart Low* (*Oncidioda* *Cooksoniae* $\times$ *Oncidium* *macranthum*), from Messrs. STUART LOW AND CO., Bush Hill Park, Enfield, and Crowborough, Sussex. This is the second use of the yellow *Oncidium* *macranthum* in the combination which produced *Oncidioda* *Cooksoniae* (*Cochlidia* *Noezliana* $\times$ *Oncidium* *macranthum*), and the result is a good stride towards obtaining a crimson hybrid of the size of *O. macranthum*, as noted in *The Gardeners' Chronicle*, April 1, page 149. The flowers are purplish red, with yellow on the tip of the labellum and margins of the petals.

PRELIMINARY COMMENDATION.

Odontodia *Pittiae* (Oda. Juliet $\times$ Odm. St. James), from H. T. PITT, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood). A pretty novelty shown with its first flower, which was of good size and broad proportions, the greater part of the segments being closely blotched with magenta-crimson, with relieving lighter lines, the yellow crest of the lip being a prominent feature.

GROUPS.

MESSRS. SANDERS, St. Albans, received a Silver Flora Medal for a finely arranged group of both hybrids and species, the *Odontoglossums*, *Odontiodas* and *Dendrobiums* being specially well displayed. Novelties were *Odontoglossum* *Royalte* (*Rolfae* $\times$ *Royal Monarch*) a very dark and distinct hybrid; *Odontodia* *Majestic* (Oda. Coronation $\times$ Odm. *majesticum*) of the Oda. Coronation class, but larger and deeper in colour. The middle of the group was of the yellow *Laelio-Cattleya* *Goldcrest* with scarlet *Odontiodas*, and among interesting species noted were *Dendrobium* *chrysanthum*, *D. aggregatum* and many forms of *D. nobile*, *Cirrhopetalum* *picturatum*, some singular *Bulbophyllums* and *Masdevallias* and *Odontoglossum* *curiosum*.

MESSRS. STUART LOW AND CO. were awarded a Silver Flora Medal for a varied and excellently well-arranged group consisting chiefly of *Odontoglossums*, *Odontiodas* and *Laelio-Cattleyas*. Among the *Odontoglossums* was the perfectly formed Odm. *harvegtense* Low's variety. Other choice plants were *Cattleya* *Schroderae*, *Achilles*, *Oncidioda* *Stuart Low*, *Laelio-Cattleya* *Areca* (L. C. General Maude $\times$ C. Enid), a very pretty and well-formed flower and L.-C. *Topaz* (L.-C. *Smilax* $\times$ C. *Mossiae*), a good yellow variety.

H. T. PITT, Esq., Rosslyn, Stamford Hill, was awarded a Silver Banksian Medal for an interesting group, in the centre of which was a grand plant of the rare *Eulophiella* *Elisabethae* of the original importation, which has been in Mr. Pitt's collection for nearly twenty-nine years. The plant, which was in the most perfect health, bore a spike of thirteen wax-like white flowers. *Miltonia* *Venus* var. *Dulcies*, the very rare *Epidendrum* *Endresii*, *Cirrhopetalum* *Colleti* and other pretty species were also shown.

MESSRS. FLORY AND BLACK, Slough, were awarded a Silver Banksian Medal for a neat group, the central plant in which was a fine specimen of *Cattleya* *Empress* *Frederick* var. *Vesuvius*, the richest in colour of its class; with it were L.-C. *Princess Mary*, *Odontioda* *Prince Albert*, the white *Cattleya* *The Bride*, and some pretty *Sophranitis* crosses.

Floral Committee.

Present: Messrs. Henry B. May (in the chair), W. P. Thomson, C. Williams, E. A. Bowles, G. Reuthe, H. V. Warrender, Sydney Morris, R. C. Nutcott, Jas. Hudson, J. W. Barr, Donald Allan, John Heal, Andrew Ireland, C. R. Fielder, W. Howe, W. B. Gingell, J. Jennings, J. F. McLeod, M. C. Allwood, A. Turner, H. R. Darlington, Hugh Dickson, D. B. Crane, W. G. Baker, Reginald Cory, Amos Perry, H. J. Jones, W. B. Cranfield, Clarence Elliott, and Chas. E. Pearson.

AWARDS OF MERIT.

Rose Souvenir de Claudius Pernet.—A *Pernetiana* *Rose*, broad petalled, of good form, but none too substantial. The colour is lovely light golden yellow, with buff and cream-white shading on the upper part of the outer petals. Slightly fragrant; long stemmed; glossy foliage. Shown by Messrs. W. EASLEE AND SONS.

Bougainvillea Mrs. Butt.—A distinct variety, shown as a young plant, which apparently had been subjected to considerable heat, hence the bracts were limp. The colour is fiery red, with rose shading on the inner surface. Shown by Messrs. STUART LOW AND CO., Enfield.

GROUPS.

A good variety of *Roses* was displayed by Mr. E. J. HICKS. *Madame Butterfly*, *Columbia*, *Mrs. Elisha Hicks*, *Premier* and *M. Ed. Heriot* amongst the many sorts so well shown were especially valuable (Silver Flora Medal). Allen Chandler, a new perpetual flowering climbing *Rose* of crimson colour, was included in a group by Mr. G. PRINCE, with vases of *Padre*, *Lady Plymouth* and *C. E. Shea* (Silver Banksian Medal). *Souvenir de Claudius Pernet*, a magnificent deep yellow *Pernetiana* *Rose*, carried on long, stout stalks, was well shown by Messrs. W. EASLEE AND SONS. *Hoosier Beauty*, *Columbia* and *Premier* were also excellent (Silver Banksian Medal).

Coloured *Freesias*, of nearly every possible variety, were shown by Messrs. SUTTON AND SONS, and this formed an interesting feature of the meeting. Of the many sorts so well shown, mention can only be made of *La Charmante*, orange-flushed throat margined with rose, *Robinetta*, rosy mauve, *Buttercup*, rich yellow, *Apogée*, large, deep primrose, and *Mouette*, fragrant, lilac tinted (Silver Flora Medal). A collection of well-grown *Hippeastrums* was contributed by the Hon. Mrs. SKEFFINGTON-SMYTH (gr. Mr. G. Marchan), Stockton House, Wilts (Silver Banksian Medal).

Brightly coloured *Rhododendrons*, such as *R. Aucklandii* *rubrum*, *R. arboreum* *Kermesum* and *R. barbatum* were included by Mr. G. REUTHE in his exhibit of uncommon trees, shrubs and alpines. The fragrant *Berberis* *Bealei* and *B. hyenalis* and *B. hakeoides* were other interesting items (Silver Banksian Medal).

Such interesting plants as *Olearia* *stellulata*, *Osmanthus* *Delavayi*, *Draba* *imbricata*, *Saxifraga* *cochlearis* *minor*, and other alpines were shown by Messrs. SKELTON AND KIRBY (Silver Banksian Medal). Various alpines with elegant little plants of the miniature Irish Juniper were shown by Messrs. W. H. ROGERS AND CO. (Silver Banksian Medal). An attractive little collection of coloured *Freesias* and spring flowers was arranged by Messrs. BARR AND SONS (Bronze Banksian Medal). Alpine plants were displayed

by the Misses HOPKINS (Bronze Banksian Medal).

Carnations were shown in excellent condition by several specialists. Messrs. ALLWOOD BROS. had a large stand of beautiful blooms of Mrs. C. F. Raphael, which, for effect, was equalled only by a collection of mixed sorts of the same type, including a seedling very much of *Marian Willson* appearance, but larger, and rather more plentifully striped with rose colour. Jessie Allwood, another perpetual-Malmaison, was richer in colour, and so even more effective than earlier in the season. Many useful perpetual varieties were also shown (Silver Flora Medal). Amongst the many good Carnations displayed by Messrs. KEITH LUXFORD AND CO. were *White Wonder*, *Carola*, *White Benora*, *Maine Sunshine*, *Coquette* and *Rose Sensation* (Silver Banksian Medal). *Violet Mond*, a fragrant bright purple *Carnation* of good habit, was prominent in an exhibit by Mr. C. ENGELMANN, who also showed good vases of *Peerless*, *Circe*, *Cupid*, *Laddie* and *Nigger* (Silver Banksian Medal).

A particularly interesting collection of *Acacias* in perfect condition was made by Messrs. STUART LOW AND CO. Besides such fairly well-known sorts as *Acacia* *Riceana*, *A. armata* and its variety *pendula*, there were several plants of the uncommon *A. lineata* bearing long, graceful sprays of tiny, deep golden balls of flowers. *Hippeastrums*, *Anthurium* *Scherzerianum* varieties, and several distinct *Epacris* were also admirable (Silver Flora Medal). Adjoining their exhibit of *Acacias* and other greenhouse plants, Messrs. STUART LOW AND CO. showed many vases of especially good Carnations. In a corner space Messrs. L. R. RUSSELL, LTD., displayed to great advantage *Wistarias*, *Cestrum* *elegans*, *Viburnum* *Carlesii*, *Azalea indica*, excellent forms of *Clivia* *miniata*, *Hippeastrums* and *Brunfelsia* *eximia* (Silver Banksian Medal).

The beautiful soft, pink-coloured *Azalea* *H. domanyo*, bearing a profusion of flower, was extensively shown by Messrs. G. G. WHITELEGG AND CO., and this made a particularly effective display. At one end of the little informal, yet pleasing, rockery, there were many plants of the fragrant *Iris* *pumila* *formosa*. Amongst a selection of Alpines *Morisia* *hypogaea*, and *Aethionema* *Warley* *Rose* were very attractive (Silver Banksian Medal). Bold effect was made by Messrs. J. PIPER AND SON with large, well-grown plants of Japanese Maples, batches of *Viburnum* *Carlesii*, *Daphne* *Cneorum*, various *Clematis*, and a beautiful breadth of *Lithospermum* *Heavenly Blue*. Other good features included *Veronica* *Hulkeana*, and a splendid plant of *Convolvulus* *Cneorum* (Silver Flora Medal).

A very convincing little rock garden was built by Messrs. W. M. CUTBUSH AND SON. The plants included various *Aubrietias*, *Saxifragas*, *Alyssum* saxatile varieties, and *Primulas*, with bushes of *Azaleas* and *Brooms* (Silver Banksian Medal). Spring-flowering shrubs, such as early *Rhododendrons*, forced *Laburnums* and *Viburnums*, with *Azalea* *mollis* and Japanese Maples were arranged by Messrs. WALLACE AND CO., who also showed a few alpines (Silver Flora Medal).

Amongst a collection of choice alpines by Messrs. R. TUCKER AND SONS were plants of the tiny, rose-coloured *Saxifraga* *retusa*, *Androsace* *pyrenaica*, *A. argentea*, *Cheiranthus* *Harper* *Crewe*, and *Daphne* *arbuscula*, as plants only a few inches high and crowned with sweet-scented mauve flowers. The tender *Daphne* *indica*, and several pots of *Fritillaria* *Meleagris* were also shown (Silver Flora Medal). A bright, spring display was made by Messrs. WATERER SONS AND CRISP with *Brooms*, *Bulbocodiums*, *Muscari*, *Violas* and a dwarf *Forget-Me-Not* (Silver Flora Medal).

Polyanthuses in great variety and all of merit were displayed by Mr. G. W. MILLER, and of these, several gold-laced varieties were very attractive. Other spring flowers included red Crown Imperials in quantity, *Muscari* *Heavenly Blue* and a small collection of *Saxifragas*, with a few *Sempervivums* (Silver Banksian Medal). Miniature alpine gardens were again exhibited by Mr. F. G. WOOD, and this time they were in

handy shallow trays, which had a cross-handle, suitable for easy transport. A small rock garden was appropriately planted with Iberis, Morisias, Aubrietias, and the like (Bronze Banksian Medal). Seasonable alpine were effectively displayed in an informal rock garden by Messrs. MAXWELL AND BEALE (Silver Banksian Medal).

Narcissus and Tulip Committee.

Present: Messrs. E. A. Bowles (in the chair), G. W. Leak, G. H. Engleheart, A. R. Goodwin, J. Jones, F. Barchard, H. V. Warrender, Reginald Cory, George Monro, F. Herbert Chapman, Herbert Smith, Rollo Meyer, W. F. M. Copeland, W. Poupart, Geo. Churcher, Peter R. Barr, W. Backhouse, G. Reuthe, J. W. Pearson, W. B. Cranfield and Chas. H. Curtis (Hon. Sec.).

There was an excellent display of Daffodils and Tulips.

AWARDS OF MERIT.

Narcissus Silver Chimes.—One of the most delightful Daffodils we have seen for a long time. It is the result of crossing a Tagetta variety with N. triandrus. The growth is robust, stems erect and stout, bearing from five to seven semi-drooping flowers. The latter are about two inches wide, perianth white, slightly reflexing; cup round, citron yellow. The flowers are fragrant and beautiful and this variety had many admirers. Shown by Mr. J. C. MARTIN, Bosvigo Gardens, Truro.

Narcissus Golden Pedestal.—A shapely giant Leedsii variety that is practically a golden counterpart of the white variety named Pedestal. Perianth and trumpet are alike of good form and colour. Shown by Mr. J. L. RICHARDSON, Watford.

Narcissus White Nile.—A refined giant Leedsii variety, with frilled, pale primrose-yellow trumpet and regular, white perianth. Shown by Messrs H. CHAPMAN, Rye.

Narcissus Magog.—A bold Trumpet Daffodil of large size, evidently of N. maximus ancestry. It was shown as a market variety and got its award as such. The colour is soft golden yellow; the trumpet is deeply and evenly frilled and the perianth segments very slightly twisted. Shown by the DONARD NURSERY Co., Newcastle, Co. Down.

GROUPS.

A particularly meritorious collection of Narcissi was staged by Messrs. BARR AND SONS. It was fairly representative of all sections, and the very many blooms were of great merit. Pax, a beautiful Leedsii, Midfire, Barrii with a brilliant corona, Pixie, Ornament, Jasper, and Michael Angelo of similar type, were also very attractive. Of the Trumpet varieties, Alara, King Harold, Thackeray, Adegar, Estrella, Titimus, Frantin, Labour, Mustapha, and Achilles were especially noteworthy. This exhibit was also strong in such Poetaz sorts as Triumph, Jaure d'Merveille, Intermediate Sunset, Helios and Rembrandt (Gold Medal).

The central feature of a large exhibit by the DONARD NURSERY Co., was a handsome mass of King Alfred, Gog and Prospector: two other large, rich yellow Trumpet varieties were also shown in quantity. The new Magog was also largely shown. The richly-coloured coronas of Torch, Carnival and Brilliancy made them very conspicuous. The double-flowered Copeland's Seedling and several new seedlings were also of merit (Silver Gilt Flora Medal).

A comprehensive collection was shown by Messrs. CARTWRIGHT AND GOODWIN. Sunrise, Lemon Star, Marigold, Lady Boscawen, Henrietta, The Fawn and White Lady, are the names of only a few of the many good varieties (Silver Banksian Medal). The ANGLESEY BULB GROWERS' ASSOCIATION had a decorative exhibit of such sorts as Princess Victoria, Coryn, Cedys and Dafal.

A small, but choice collection of Narcissi was arranged by Messrs. F. H. CHAPMAN, LTD. This was mostly of unnamed seedlings, Trumpet and Incomparabilis varieties, but also included Fortune, which may be termed a Sir Watkin with an orange cup, Sunrise, Barri and Dactyl, a good Poeticus (Silver Banksian Medal). The decorative value of Silver Chimes was fully illustrated in an exhibit of Daffodils by Mr. J. C.

MARTIN. Such double-flowered varieties as Carnation, Conquest and Gullock and the Barri sort Little Gem, with unnamed seedlings, were also of more than average merit (Silver Banksian Medal).

Messrs. R. H. BATH, LTD., again displayed Darwin Tulips growing in fibre. On the present occasion Petrus Hondius, Moralis, Mrs. Potter Palmer, Clara Butt and Prof. Suringar were particularly grand. Many pots of the old double mauve Primrose were also of interest (Silver-Gilt Banksian Medal). Useful plants in 5-in. pots of such Dutch Tulips as Enchantress, White Beauty Beauty, Jaure Aplait, Moncheron, Rising Sun and Pink Beauty were well shown by Messrs. R. and G. CUTHBERT (Silver-Gilt Banksian Medal). A collection of useful Darwin Tulips, associated with Japanese Maples, was shown by Messrs. CARTER AND CO. Of the many sorts, Bartigon, King Harold, Psyche, from WILLIAM PITT, were particularly attractive (Silver Banksian Medal).

Fruit and Vegetable Committee.

Present: Messrs. C. G. A. Nix (chairman), J. Cheal, A. H. Pearson, Geo. F. Tinley, S. B. Dicks, W. Jefferies, E. Merryweather, G. Reynolds, F. Jordan, W. Poupart, A. Metcalfe, T. Pateman, E. Neal, J. C. Allgrove, E. Harriess, A. Bullock, P. C. M. Veitch, W. Bates, W. H. Divers, F. G. Treseder, G. Berry, W. Wilks, E. A. Bunyard and Prof. W. L. Howard, pomologist of the University of California (visitor).

A seedling Apple raised from a pip of the Old Nonpareil variety, and named Devonshire Cream, was shown by Mr. MARTIN, Market Gardener, Pinhoe, Exeter. The skin is light, clear yellow, flushed with citron on the sunny side. The fruit is of small to medium size. The flesh is juicy and very sweet. It was recommended that a deputation of the Committee inspect the tree next autumn. The same exhibitor showed another very sweet Apple, raised from Cox's Orange Pippin, and named Martin's Favourite. It is a pretty red fruit, but not so good in quality as the other.

Messrs. BUNYARD AND Co., Maidstone, showed thirteen varieties of late dessert Apples, viz., Claygate Pearmain, American Mother, Wagener, Allen's Everlasting, Heusgen's Golden Reinette, Roundway Magnum Bonum, Sturmer Pippin, Norman's Pippin, Easter Orange, Lord Hindlip, Galvalva, Duke of Devonshire, and Mannington Pearmain. The best flavoured were Claygate Pearmain, Wagener, Roundway Magnum Bonum, Sturmer Pippin and Easter Orange.

Messrs. R. F. FELTON AND SONS, Hanover Square, showed splendid fruits of Doyenné du Comice Pears imported from South Africa. The quality was superb in every respect.

The Daffodil Show.

Owing to adverse weather this was the smallest Daffodil show that has been held for a long time. It was only in the more favoured parts of the country that the blooms are sufficiently advanced for exhibition purposes, while the exhibits were few, the general quality was very high and augurs well for a good season at a later date.

The only exhibit of a collection of 36 varieties fairly representing the different divisions was by Mr. J. L. RICHARDSON, Watford, Ireland. This was quite a good exhibit and well worthy of the First Prize it received. Of the Trumpets, Van Waverins' Giant and Cleopatra were the best of the named blooms; Black Prince and Acme (poeticus) and Red Lady (Barri) were also especially noteworthy. Mr. RICHARDSON was similarly placed in the class for 18 varieties, and here he also showed many unnamed seedlings, with similar sorts to those in the larger class, and of equal merit.

There were three entries of 12 varieties, not in commerce, but only two were forthcoming. The Engleheart Challenge Cup was won by the DONARD NURSERY Co., Newcastle, Co. Down, with an excellent collection of seedlings. These were mostly of the large Trumpet and Incomparabilis type. Mr. F. CHAPMAN, who was second, included his new white Nile, Neris, a

beautiful creamy-sulphur Trumpet sort, and St. Bernard, a Bernardino seedling with orange tinted, frilled lip.

Of the two exhibits of 12 varieties, three stems of each, the better was by Messrs. BARR AND SONS, who included in Stornoway Warwick, Latona and Tresskerr, very good trumpet varieties. The DONARD NURSERY Co. were second.

HUNTINGDONSHIRE DAFFODIL.

IN spite of the wintry weather a very successful show of spring flowers and Daffodils was held at Huntingdon on Wednesday, the 5th inst.

Messrs. Barr and Sons had a very tastefully arranged exhibit of Daffodils from their Cornish nursery. Among Trumpet sorts, King Alfred, Mustapha, G. P. Haydon, Peter Barr and Victoria were in fine form, while other groups were well represented by Barrii conspicuus, Blackwell, Incognita, Lucifer, and the cyclamineous hybrids.

Messrs. Allwood Bros. contributed a fine stand of Carnations; Wivelsfield Scarlet, Wivelsfield Claret, Edward Allwood, Mrs. Raphael, Benora, Apricot, etc., and the usual hybrid border varieties, all merited the admiration they received.

Mr. G. W. Miller, Wisbech, had a capital exhibit of Polyanthus, Primroses and Alpines.

There was a very good attendance. The judges were Messrs. S. F. Staffurth and J. Mallender.

Obituary.

W. Waghorn.—We very much regret to learn of the death of Mr. W. Waghorn, fruit foreman of Messrs. G. Bunyard and Co., Maidstone, in whose employ he had been since he was eighteen years old. Mr. Waghorn, who was 68 years of age, was well known to exhibitors at the principal London and Provincial shows, which he attended with the fruit exhibits of his firm.

TRADE NOTE.

A largely attended Conference, presided over by Mr. Alfred W. White, was held under the auspices of the Chamber on the 6th instant. Mr. W. G. Lobjoit, Controller of Horticulture, and Mr. H. V. Taylor, Deputy Controller, being present.

The question under discussion was that the Destructive Insects and Pests Order of 1921, as far as bulbs are concerned, had brought more disadvantages than advantages. It was contended by several speakers that the inspection in Holland was of little use, but that considerable delay in transit was thus caused and consequent damage. There was also the question of the additional expense, and that once the certificate was given the importer had no redress in the event of damage. Further, the risk of damage by delay was feared ten times more than the risk of disease. On the other hand, the Order had admittedly done good as regards auction sales, and generally it was agreed that an efficient and speedy inspection was the ideal to aim for.

The Controller pointed out that the Order entirely met the forcers' case. Bulbs could come in without a certificate, and the Customs would notify the Ministry as to where they were destined. Forcers could thus register with the Ministry and go ahead and use the bulbs, but could not distribute them until after inspection. This seemed to clear the position of forcers, and discussion was resumed as to the position of dealers, and it was agreed to take advantage of the forthcoming visit to Holland of the deputation to the International Horticultural Conference, on the 20th instant, from the Chamber, the Horticultural Trades' Association, and the British Florists' Federation, to interview leading Dutch exporters as to the possibility of speeding up or, if necessary, altering the form of certificate or inspection. Mr. H. V. Taylor, Deputy Controller, promised to accompany the deputation and give his assistance.

ANSWERS TO CORRESPONDENTS.

AZALEA LEAVES DISEASED: *J. R.* The gall-like condition of your Azalea leaves is caused by a fungus, a species of *Exobasidium*. Later in the season the swollen leaves develop a "bloom" which consists of the spore-bearing organs of the fungus. Be careful to remove all the diseased leaves before this stage is reached and burn them. It is an old complaint of *Rhododendrons* and *Azaleas* and was described in these pages so long ago as July 19, 1879, p. 119.

EARLY-FLOWERING CHRYSANTHEMUMS IN POTS: *R. E.* June is really too late a date for propagating *Chrysanthemums* for cultivation in small pots. Five-inch pots are rather small; six-inch pots will give you much better results. If you particularly want plants in pots of the size you mention, you can propagate as you suggest, and from young stock rooted earlier in the season. To obtain fine examples in six-inch pots, propagation should be commenced during April; grow one plant in a pot, and stop the plants until the number of shoots required is obtained. Such plants require high cultivation and strict attention as regards watering, for neglect in this respect results in the loss of the bottom leaves, without which they look very poor specimens. For this reason all varieties are not suitable for your purpose, for, although many have good flowers, not all make good plants. Taking them all round, there are few better varieties for this method of cultivation than the *Caprice du Printemps* set, the best of them being *Yellow Cap*, *White Cap*, and *Kathleen Thompson*. The colour of the flowers of *Caprice du Printemps* is not pleasing to everyone. All these varieties flower towards the end of October. Other varieties worth trying for October use are *Uxbridge Pink*, *Mrs. Roots*, *Lucie Louppe*, *Mlle. M. Fabre* and *Blanche de Poitou*. To follow them, try *November Gold*, *Sorcerer*, *Felton's Favourite*, *Market Red*, *Rosalind* and *Pourpre Poitevine*. For December, *Ivy Gay*, *Niveus*, *Framfield Pink*, *White* and *Yellow Money-maker*, *December Pink*, *December Gold*, *December Bronze*, *Baldock's Crimson*, *Heston Pink* and *Heston White*. Some of the singles of good habit are also well suited for this purpose, *Ladysmith* being a good type, the small-flowered varieties being best, although *Caterham Bronze*, rooted late and well grown, is very fine. It is well to try a few fresh varieties each year, and thus find out those best suited for your particular purpose.

HIPPEASTRUM SEEDLING: *J. E.* The flower was somewhat faded when we received it, but we do not think it is so fine as some of the crimson varieties already in cultivation. However, as the variety is very vigorous and has produced a spike of four fine blooms, it is well worth perpetuating for decorative purposes in the greenhouse and conservatory.

NAME OF FRUIT: *Rez.* 1, *Catshead*; 2, *Graham* or *Kentish Deux-Ans*; *Catshead* is probably the parent tree, and at some time the *Graham* variety has been grafted on to it.

NAMES OF PLANTS: *T. S.* 1, *Juniperus chinensis*; 2, *Thuja orientalis*; 3, *Cupressus pisifera* var. *plumosa*; 4, *Cunninghamia sinensis*; 5, *Pinus austriaca*; 6, *Picea excelsa*.—*A. M.* *Grevillea asplenifolia* (see Fig. 94).—*T. O. C.* *Salvia fulgens*.

PROPAGATING BRUNFELSIA.—There is no difficulty in propagating any of the *Brunfelsias* by means of cuttings inserted in a sandy compost and plunged in a warm propagating case over bottom heat. They may be propagated from young growths sufficiently firm to prevent damping, or from cuttings of the previous year's wood. You do not state what species you have, but it appears to be *B. latifolia*, which is a native of Brazil; but there are several other species native of South America. *Brunfelsia calycina* used to be common in gardens; the variety *macrantha* has much larger and deeper coloured flowers. You may be able to obtain plants from Messrs.

L. R. Russell, *Richmond Nurseries*, *Sheen Road*, *Richmond*.

QUICKLIME: *E. H. W.* There is no gas evolved when water is added to calcium oxide. Energy is liberated in the form of heat, and calcium hydrate ($\text{Ca}(\text{O.H.})_2$) is formed. If this is exposed to the air for a few weeks the carbon dioxide of the air enters into combination, and calcium carbonate is produced. The oxide is certainly very useful in ridding the soil of many insect pests.

RASH FROM DAFFODIL BLOOMS: *M. G.* It is very likely that the rash is caused through handling the *Daffodils*, as there are numerous cases of a similar nature on record. When the flower stems are gathered the cut end of the stem exudes a quantity of sap which is highly charged with microscopic needle-like crystals of calcium oxalate. These crystals gain a ready entrance into the skin and act as an irritant to people with tender skins. The rash on the face may be explained by the person rubbing or touching that part with the hands. The affected parts should be treated with carbollic or zinc ointment, and if the hands are dressed with vaseline before the flowers are picked the crystals cannot enter the skin so readily. It is also advisable to wash the hands directly after handling the flowers is completed.

ROMNEYA COULTERI AND DOUBLE HOLLYHOCKS: *M. E.* *Romneya Coulteri* may be pruned about the beginning of April; except in favoured places in the south and west, there is usually not much choice except to cut the plants right down to the ground. If there are any strong shoots unharmed by frost the dead tips should be cut off and the weak and soft shoots cut clean out. Luckily *Romneya Coulteri* usually flowers freely on strong current year's shoots thrown up from the base. *Double Hollyhocks* from good selected strains come true from seed, both as regards colour and doubleness. For the last ten years we have been raising two fine varieties every year from seed, and they always come true.

SOWING BARE PATCHES ON A LAWN: *C. R.* Before sowing lawn grass seed on the bare patches, it would be advisable to well dig them and to incorporate some decayed manure with the soil. The soil should then be made thoroughly firm, raked level, and sown at the earliest opportunity. A calm day should be selected for the sowing, and the soil should be sufficiently dry not to adhere to the boots when it is trodden upon. The best quality grass seed should be procured—economy in this direction is a fatal mistake with a feature which, to all intents and purposes, is to be permanent. At so late a time in the season the seed should be sown rather more thickly than need have been the case earlier—1½ oz. per square yard would be a suitable quantity to use. After sowing the seed lightly rake over the surface, taking care not to bury the seed deeply, or the finest grass seeds will not germinate. Generally some protection from birds is necessary, and this may best be afforded in small areas by covering with garden netting raised above the surface by one of the methods usually adopted with *Strawberry* beds. If netting is not available, fowl's wing feathers will be found exceedingly effective. These should be suspended on strong threads criss-crossed at about 2 ft. from the ground; one feather to each 20 in. run of thread will be sufficient to scare the birds.

TETRACHLORETHANE: *R. S.* This chemical may be obtained from Messrs. *Murphy and Sons, Ltd.*, *Horticultural Chemists*, *Mortlake*, *London, S.W.14*, who also supply full particulars regarding its use in controlling white fly.

TOMATO PLANTS DISEASED: *P. T.* The trouble appears to be due to an early infection by *Phytophthora infestans*, but the specimens were so dried up when they reached us that it was almost impossible to find a bit of leaf. Spray with weak *Bordeaux* or *Burgundy* mixture.

TREATMENT OF OLD VINES: *J. B. D.* Cut out the rods which have died and train young shoots from the base to take their places. After the *Grapes* have stoned, or as soon as the first tinge of colour appears in the berries, give dressings of vine manure in alternate weeks, in addition to the manures you have given. Your *Grapes* will not colour better by the vines being started earlier, but by reducing the atmospheric moisture and increasing the ventilation. After colouring commences always admit a little air by means of front and top ventilators at night from the end of June onwards, allowing a gentle warmth in the pipes during damp weather.

WEEDY LAWN: *W. W. F.* The cause of the lawn drying out very quickly is the sub-soil of clay with only a thin veneer of good soil on the surface. You should endeavour to stimulate the growth of the grass by rich top dressings, such as old potting compost or good garden soil mixed with well-decayed farmyard or stable dung. The application of sulphate of ammonia will have the effect of stimulating the growth of the grass, but it will not give body to the turf. Your best plan would be to mark out the lawn into suitable areas and apply the top dressing evenly over each portion. Nitrogenous manures may be mixed with the fine soil, and bone meal may be added as well. After a lapse of a week or so the lawn should be raked both ways and stones or other rubbish removed. In dry weather a light roller drawn over the sward will serve to ensure an even surface and press the soil well about the roots of the grass.

Communications Received.—*J. W. S.*—*C. C.*—*H. A.*—*P. R.*—*W. W.*—*F. T. P.*—*W. C.*—*D. H. D.*—*J. C.*—*H. T. C. D.*, Thanks for ls. for R.G.O.F. Box—*K. W. P. T.*

THE WEATHER.

WEATHER IN MARCH.

MARCH commenced with a spell of open, unsettled, south-westerly weather. A great change then occurred in the pressure-distribution over this part of the world, and from the 10th day dry, light winds from the colder half of the compass prevailed, with scarcely any intermission, to the month's close. The most frequent direction was due east, and the next frequent due north. A number of days were cold, and many nights extremely so, being fine and starlit to an unusual extent. Fortunately, practically throughout these last three weeks, the weather was exceptionally calm for March in Southport. The most easterly period occurred about the middle of the month, and was very hazy; but at all other times ozone was abundant. For the complete month, the mean temperature was barely 40°, being half a degree below normal. There were, however, 126 sunny hours, or four more than usual. The total rainfall amounted to only 1.36 inch in *Hesketh Park*, 1.23 inch near *Birkdale Station*, and 1.04 inch near *Woodvale Ainsdale*; the deficiency at *Hesketh Park* was 0.86 inch. There were 77 fewer miles of wind per day than the average at *Marshall's*. Frost occurred in the shade on 6, and upon the grass on as many as 18 nights; the lowest reading in the open was 18° on the 22nd. Small quantities of snow fell on the 21st and 24th, and an inch on the early morning of the 31st. Fog was restricted to one night and one morning. There were no gales. *Joseph Bazendell*, *The Fernley Observatory, Southport*.

THE WEATHER IN SCOTLAND.

A few mild days towards the beginning and middle of the month gave March a mean temperature slightly above the normal, but, on the whole, the month was a cold one. While the rainfall showed a deficit of fully one inch below the normal, March was exceptionally dull with occasional fogs. Rain fell on 17 days to a total of 2.05 inches, the wettest day being the 6th, with 0.62 inch. Of bright sunshine 106.4 hours were registered for 25 days, giving an average of 3.4 hours per day and a percentage of 29. The mean temperature was 40°, with a mean maximum of 47° and a mean minimum of 33°. The highest maximum of 56° was on the 11th, and the lowest minimum of 25° on the 23rd. On 16 nights the temperature fell below the freezing point. The mean minimum on the grass was 38°, with a lowest of 17° on the 23rd; there were 22 nights of ground frost. At 1 ft. deep the soil temperature rose from 38° on the 1st to 42° on the 15th and the five following days, and then fell to 39°. With a mean of 29.84 inches, the barometer varied from a highest of 30.52 inches on the 13th to a lowest of 29.98 inches on the 8th. Snow fell on 3 days, the heaviest fall being that of the 31st. The prevailing winds were westerly; there were no gales. *John Davidson*, *Director of Studies*, *St. Andrews Provincial Training College Gardens, Kirkton-of-Mains, near Dundee*.



[Photographs by H. N. King.]

CLAREMONT, ESHER, SURREY, THE RESIDENCE OF H.R.H. THE DUCHESS OF ALBANY.

THE Gardeners' Chronicle

No. 1843.—SATURDAY, APRIL 22, 1922.

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 48.1.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, April 19, 10 a.m. Bar, 30.5; temp. 56°.—Weather—Sunny.

Do Plants Know Time? The conception of limiting factors referred to in our leading article on p. 175 is due to the distinguished plant physiologist, Mr. F. F. Blackman, of Cambridge. It is of great value not only to botanists, but also to horticulturists, and some of its applications will be dealt with on another occasion; but for the moment attention must be confined to an attempt to apply it to periodic movements. Take the case of Mr. Mill's *Dracaena Goldiana*. The several days on which its flowers opened punctually at 3.55 p.m. doubtless varied considerably both as to temperature and light. These factors were not limiting. The opening of the flower depends also on internal factors. The cells of the floral tissues have to make or absorb sugar, this sugar has to accumulate to a certain amount before growth is sufficient to force the flower open. The suggestion is, therefore, that the structure of the flower—that is, of the tissues concerned with causing it to open—provided a limiting factor. The cells of which that tissue is composed could grow no faster even though external conditions became more favourable. They had their labourers' strike;

so much and no more could they grow, and hence each day the same length of time was taken by them in accomplishing their work. It is not pretended that this application of the doctrine of limiting factors solves all difficulties or offers a complete solution of the problem. It is put forward in the hope that those who have shown by their observations that plant life teems with mysteries which plant-physiology has as yet by no means solved, may find it useful in thinking over the significance of their observations. The idea may be extended thus. Daybreak ushers in a series of operations which are arrested at night. As soon as sunlight falls on a plant, its stomata, which were closed during the night, begin to open. With the opening of the stomata—the breathing pores of leaves—oxygen necessary to active life is free to diffuse into the leaf more rapidly than it could when the stomata were closed. Thus chemical processes dependent on relatively large supplies of oxygen would resume activity with daylight, to fall off again as the stomata close in the early afternoon. Hence the whole life of the plant would tend to be divided into two shifts, a day and a night shift, and some kinds of work would go on actively during the one period and either be knocked off altogether or limited during the other. In this way it is possible to imagine that the business of the opening of the flowers of *Dracaena Goldiana* is an affair of the day shift. This work begins at daybreak and though the plant does it as fast as it can, the earliest moment it can be completed is at 3.55, for the limiting factor of the process is by assumption not one of the external factors, light or temperature, but an internal factor independent of external factors. Of course, it is possible by artificial means to make some other factor limiting. For example, if temperature be lowered plant processes slow down. In some cases it has been shown that the rate of a plant process depends in a very definite manner on temperature, the rate of the process being doubled (within limits) by an increase of 10° C. Thus it may be understood how complex is the problem of understanding the behaviour of the growing plant. For it is subject to both external and internal factors, each of which may in turn be limiting so that the marvel of periodicity becomes the greater when it is realised how out of such a welter of circumstance the plant contrives stability and orderliness of behaviour. One other conception may prove helpful to those who take pleasure in cogitating upon the ways of plants. All vital activity of whatsoever kind means the production of waste products, and mechanism, if it is to act continuously, must have means of disposing of these products. Cut off the exhaust from an internal combustion engine and the waste products of combustion accumulate in the mechanism, the engine labours and finally ceases to run. So with living organisms; plant activity is a form of combustion. It results in the production of waste substances. The plant's means of riddance of waste substance is less perfect than the animal's, but it suffices. It is probable that periodicity of the kinds here considered is not unconnected with the accumulation of waste products of activity escaping from a tissue at a certain rate, but more slowly than they are formed. The mechanism, after a definite time, is clogged by the products of its own activity, slows down, and stops, only to become active again after the lapse of a definite interval of time, when sufficient of the waste products has been removed to admit of resumption of work by the mechanism. These conceptions applied to the Runner Bean and to *Convolvulus*, and cognate cases of periodicity have

helped to form a picture of how these strange happenings might occur. We would not, however, have offered these speculations for the consideration of others had it not been for the fact that the recent correspondence in these columns has shown that the problems which have vexed our mind so much and so often are of such general interest that even uncertain suggestions, such as are here put forward, may prove of service, and perchance set others thinking to better effect.

New Regius Keeper of the Royal Botanic Garden at Edinburgh.—It is announced that Mr. William Wright Smith is to succeed Sir I. Bayley Balfour in the offices of Regius Keeper of the Botanic Garden at Edinburgh, Regius Professor in the University of Edinburgh, and King's Botanist in Scotland, which Sir I. Balfour vacated on the 8th inst. It has come to be a tradition that these high offices should be held by a Scotsman, and it is a matter for general congratulation that it should have been found possible on this occasion to maintain the tradition by so happy an appointment. Mr. Smith, who was born in 1875, has spent a considerable part of his official career on Sir I. Bayley Balfour's staff at Edinburgh, for in 1902, after taking his degree at the University of Edinburgh, he was appointed assistant and lecturer in the department of Botany, having charge of the laboratory and superintendence of research work. In 1907, Mr. Smith was appointed Keeper of the Herbarium in the Royal Botanic Garden at Calcutta, so that his election to the Edinburgh posts adds another link to the chain of association between that well-known garden and the mother country. In 1908 he was appointed Acting Superintendent of the Calcutta Garden and at the same time officiated as Director of the Botanical Survey of India. In the course of his duties in connection with the Survey, Mr. Smith had the exceptional good fortune to undertake the botanical exploration of little known regions in Sikkim, and on the borders of Nepal, Tibet and Bhutan. In particular he explored the Lonakh valleys north of the Kangchenjunga glaciers, at an elevation of over 14,000 feet. Subsequently he worked the High Himalaya between Chumbi and Eastern Sikkim. Mr. Smith is, therefore, one of the few living botanists with personal experience of exploration in the Eastern end of the Himalaya. After four years in India, Mr. Smith returned to Edinburgh as Deputy to the Regius Keeper of the Garden, a post he only now relinquishes. Mr. Smith's work in connection with the systematic botany of Eastern Asia and particularly of India, Burma, Tibet and the Western Chinese Alps is well known, and his contributions to the literature of the subject, both in collaboration with Sir I. Balfour and from his own pen, are numerous and important. As Deputy to the Regius Keeper, a not inconsiderable share of the administrative and teaching duties have fallen on Mr. Smith. In view of the unique relations prevailing at Edinburgh between the University and the Garden, the presence at the head of affairs of a systematist is of the utmost importance. The promotion of his deputy may be taken to foreshadow a continuance of the wise and enlightened policy which has prevailed at Edinburgh under the retiring Regius Keeper. Mr. Smith is a Fellow of the Royal Society of Edinburgh and of the Linnean Society, and for many years has been secretary of the Botanical Society of Edinburgh.

Potato Trials at the Royal Show.—Amongst the plots of growing agricultural produce which will be displayed by the National Institute of Agricultural Botany at the Royal Show, Cambridge, next July, the portion allotted to Potatoes is likely to create much interest. This portion will take the form of a comparative yield trial, and will consist of a checker-board made up of plots of the newer first early varieties, and those which have already won public approval. The following varieties will be represented:—America, Colomist, Di-Vernon,

Dunottar Castle, Dunvegan, Immune Ashleaf, Sharpe's Express, and Duke of York. Planting is now completed, and in order to equalise possible effects of soil irregularity, each variety is represented by six plots scattered throughout the checker-board. For demonstration purposes it has been decided to lift a small portion of each variety daily during Show Week, and an assistant will be in attendance daily to furnish the necessary explanations and to answer inquiries. When mature, the remaining plots of each variety will be lifted; the produce weighed; and the results, with explanatory notes, will be supplied to the agricultural and horticultural Press.

Catalogue of Plant Names.—Mr. Harlan P. Kelsey informs us that the pre-publication price of \$3.50 (\$3.75 west of the Mississippi River, in Canada and abroad) holds good for all orders for the "Official Catalogue of Standardised Plant Names," accompanied by cash and received by May 1, 1922. This extension of time was made necessary as it was found impossible to get out the prospectuses to organisations in time for members to avail themselves of the special pre-publication price.

National Institute of Agricultural Botany.—At a meeting of the Council of the National Institute of Agricultural Botany, held on the 23rd ult., one hundred and twenty-five candidates were elected, among whom were the following: The Duke of Devonshire, the Marquis of Salisbury, the Rt. Hon. the Earl De la Warr, the Earl Cawdor, the Earl Fortescue, the Earl of Macclesfield, the Rt. Hon. the Lord Ailwyn, Lord Glentanar, Lord Lee of Fareham, Lord Leigh, the Rt. Hon. Viscount Burnham, the Hon. A. E. Parker, the Hon. I. M. Campbell, the Rt. Hon. Walter Runciman, Sir Herbert Brown, Sir Malcolm McAlpine, Brig.-Gen. Sir Walter Ross, Professor F. E. Weiss, Dr. N. W. Michahelles, Mr. A. Birch, Mr. W. Hasler, Mr. A. E. Humphries, Mr. A. W. McAlister, Mr. A. McAlpine, Mr. Robert McAlpine, Mr. W. H. McAlpine, Mr. G. P. Miln and Mr. J. E. N. Sherwood.

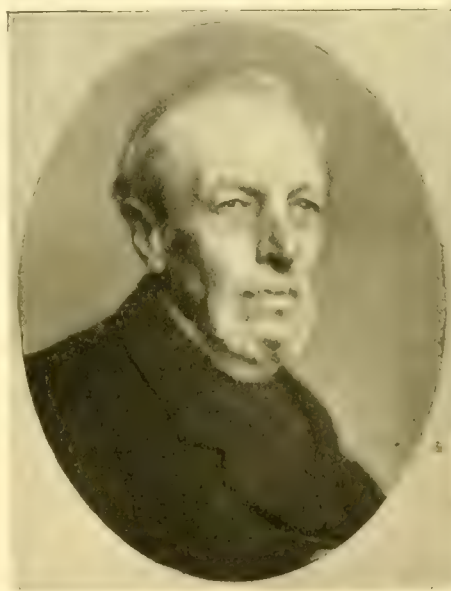
Dahlias in America.—The American Dahlia Society will conduct trials at two stations during the coming season, a northern one at Storrs, Connecticut, and a southern one at College Park, Maryland. The Society will hold its annual show in the roof garden of the Pennsylvania Hotel, New York, on September 26, 27 and 28. According to the *American Florist*, the Society is making highly satisfactory progress and the membership is increasing daily.

Home-grown Sugar.—The Minister of Agriculture, Sir Arthur Griffith Boscawen, states that the Government has decided to remove the excise duty from home-grown sugar, and is making provision to remove the existing duty permanently in the coming Finance Bill. The concession will doubtless result in a stimulus to Sugar-beet growing in this country, and the British Sugar-beet Growers' Society proposes to offer farmers contracts for Beet sugar grown during the coming season.

The Paris Iris Conference.—The Committee of the Paris Iris Conference has drawn up a list of classes open to exhibitors from any country during the flowering period of Irises. The classes are as follows:—(1) The most important and finest collection of Irises of any kind exhibited either at the International Iris show at the Jardin d'acclimatation, or at the meetings of the Conference, 84, Rue de Grenelle; (2) a collection of 50 varieties of garden Irises (Germanica group); (3) a collection of Iris Kempferi; (4) a collection of bulbous Irises (Xiphium); (5) a collection of twenty-five varieties of garden Irises exhibited by an amateur; (6) 10 varieties of garden Irises exhibited by an amateur. The amount of the prizes awarded to successful exhibitors in these classes will be determined by the amount of money collected for this purpose. The American Iris Society has kindly offered its silver medal for 1922 as an award. A prize of 500 francs is offered by Mons. F. Denis for the finest new Iris (I. Kempferi excepted) submitted to the Conference. A prize of 250 francs is offered by MM. Cayeux

et Leclerc for the three finest new varieties of German Irises. Large collections of Irises must be staged on May 25 or 26 before 10 a.m., but small exhibits, or plants of special interest, or those useful to illustrate any point raised at the Conference, may be staged in the Society's rooms on the day of the Conference, May 27. Exhibitors should state the number of flowers they intend to stage, the room required, and the number of vases needed, and applications should be sent as soon as possible to the President of the Society, 84, Rue de Grenelle, Paris. Exhibitors are requested to advise the President of the Conference of their intention to exhibit at least a fortnight in advance of the meetings. There will be no meeting on May 25—Ascension Day. A wrong interpretation of Mons. Denis' gift was conveyed in our note on p. 163, the whole amount of his prize of 500 francs is to be awarded for the finest new Iris.

Mr. N. E. Brown.—Mr. N. E. Brown is one of our oldest and most valued contributors, and he has described in this and other periodicals so many species of plants suitable for cultivation that, like his old colleague, the late Mr. J. G. Baker, he may be described as a gardeners' botanist. Through his long connection with Kew he is known personally to



MR. N. E. BROWN, A.L.S.

many gardeners in all parts of the world, and his quiet, unassuming manner has endeared him to a still wider circle of acquaintances. He was born at Redhill, Surrey, on July 11, 1849, and as he himself facetiously remarks, at death's door, for his home was only a few yards from the churchyard. After attending two private schools and one public school, he finished his education at Reigate Grammar School, where his career was decided for him. The first year he was at the Grammar School, Mr. W. Wilson Saunders, of Reigate, offered a microscope as a first prize for botany. Young Brown was then only some thirteen or fourteen years old, and a microscope was the one thing above all others which he wished to possess. Even at that early stage he had an inclination for the study of natural history, and made a special hobby of insects, but he knew absolutely nothing of botany. However, he decided to win the microscope, if possible, studied hard and succeeded, and he remarks that the possession of that instrument made him a microscopist, as well as a botanist, and microscopy is still his favourite hobby. After leaving the Grammar School he acted as curator to Mr. Saunders, who had a very large collection of insects and other natural history objects. He stayed with that gentleman for six years, and at the end of that period he competed for a vacancy in the Herbarium at

Kew, and succeeded in obtaining the post. That was in February, 1873, and he remained at Kew until 1914, when he retired; but he continues his work amongst plants in a private capacity, and how thoroughly he still pursues his botanical studies is seen in his erudite monograph of the genus *Mesembryanthemum*, which is appearing in these pages.

Food of the Terebo.—At a meeting of the Philosophical Society of Cambridge, on February 6, Mr. F. A. Potts dealt with the food of terebo, the ship-worm. The minute fragments of wood excavated by this mollusc pass through the alimentary canal and are in part digested by it. The stomach has an enormous coecum, which retains a quantity of wood, but digestion takes place in the so-called "liver," some of the cells of which are gorged with particles of wood.

Lincolnshire Flowers for Easter.—We learn that about fifty tons of flowers, chiefly Daffodils and Tulips, were despatched from Spalding railway station, Lincoln, to London and other large centres, for the Easter market.

Extension of Wimbledon Common.—Wimbledon Common, the beautiful public open space on the south-western outskirts of London, has been enlarged by some forty-two acres on the Putney Vale side. The additional land was acquired as a memorial to the members of the Army units belonging to the districts around the common or of families resident in or connected with those districts who have fallen in the war. The land has been formally handed over to the conservators of the common by the executive committee of the Wandsworth and Wimbledon Memorial Fund. The ground has been laid out under the direction of Miss Agar, of the Metropolitan Gardens Association, but nothing in the way of landscape gardening or floral displays has been attempted, and there are no formal paths or flower beds, but suitable trees and shrubs have been planted at intervals.

The Bulb Farms of Holland.—Mr. Anthony C. van der Schoot informs us that the best time to see the Hyacinths, Tulips, and Narcissi in full bloom at the bulb farms of Holland will be from about April 25 until the end of the first week in May.

A New Tree Gentian.—Dr. N. L. Britton, Director-in-Chief of the New York Botanical Garden, records in the *Bulletin of the Department of Agriculture, Trinidad and Tobago*, the discovery of a plant new to science, a member of the Gentian family which he has named *Chelonanthus arboreus*. The tree was found growing at the top of the precipitous northern slope of Mount Tucuche, a short distance from the summit. Dr. Britton states that the plant does not suggest a member of the Gentianaceae at first sight, and it was only after he had broken off a flowering branch and examined a blossom that its relationship became apparent. The tree grows to some two or three times the height of a person, and has a few nearly upright branches and a smooth trunk, which is three or four inches in diameter near the ground; the leaves are broad, dark green, and of leathery texture. The inflorescences form terminal clusters of yellow, bell-shaped flowers, each about one inch long.

Legacies to Gardeners.—The late Mr. Richard Thomas Prowse, C.B., of Howton, Bushey Heath, Hertfordshire, who died on December 17 last, aged 87 years, bequeathed £100 stock, £50, and all out-door and garden effects, poultry and live stock to his gardener, Mr. Fred Daniels, and £50 and his garden seats to his under gardener, Mr. A. J. Young.

Flowering Plants of South Africa.—Part 6 of Volume 2 of the *Flowering Plants of South Africa* contains descriptions and illustrations in colour of ten interesting plants. The first one described is *Gazania subulata*, a handsome, yellow-flowering member of the family known as "Gousblom" in South Africa. Then follow *Pelargonium crassaule*, a woody stemmed species with small umbels of white fragrant flowers;

Androcymbium melanthioides, a low-growing Liliaceous plant which has large, purplish bracts that are far more showy than the cluster of small flowers they enclose; *Mesembryanthemum aloides*, a stemless native of Bechuanaland, with a rosette of fleshy, white-dotted leaves, and sessile, lemon-yellow flowers; *Aloe striata*, a showy plant bearing a panicle inflorescence of tubular, coral-red, yellow-tipped flowers; *Polyxena haemanthoides*, another Liliaceous subject of lowly growth, bearing a cluster of yellowish flowers set amid white bracts; *Dimorphotheca spectabilis*, a poisonous plant bearing large, mauve, Daisy-like flowers, which would be much appreciated for home decoration if they could be produced easily in British gardens; *Mimetes capitulata*, a curious Protead, with white capitula surrounded by narrow, orange-coloured bracts and set in the axils of the closely-set leaves towards the ends of the branches; *Erythrina caffra*, known in the Cape as the "Kaffir Boom" and to the children of Natal as "Cockie Doodles," a tree of moderate height with trifoliate leaves, spiny stems and many flowered dense raceme of pendulous, scarlet flowers; and *Sparaxis grandiflora*, a slender Irid with dull, bluish-purple flowers.

Appointments for the Ensuing Week.—Tuesday, April 25.—Royal Horticultural Society's Committee meetings (two days); Bath and West and Southern Counties Society's Council meeting. Wednesday, April 26.—Irish Gardeners' Association meeting; Elgin Horticultural Society's meeting. Thursday, April 27.—Bristol and District Gardeners' Association's meeting; Royal Botanic Society's meeting.

"Gardeners' Chronicle" Seventy-five Years ago.—*The Warratah* (*Telopea speciosissima*). In the vast colony of New South Wales, which is so abundant in floral beauties, none attracts the traveller's attention more than the Warratah, its splendour being second to none. The rich crimson blossoms, elevated on an erect stem, are discernible at a great distance, and large tracts of it form indeed a gay sight in the months of August and September (spring months there). The *Telopea speciosissima* of botanists, Warratah of the Aborigines, and Native Tulip of the colonists, is found in greatest perfection in shaded valleys of very sandy loam, containing decayed vegetable matter, the accumulations of ages. In such situations it will attain the height of 5 and 6 feet, each shoot producing one and often two flowers, and each stool from one to three and four flowering stems. The roots are large in proportion to the top, with few fibres, but nevertheless very tenacious of life, a great advantage in point of carriage, as the plants may be dug up, the top cut clean off, and packed in casks or boxes, in very dry mould. In this way I have conveyed them to England with pretty good success. The points to be attended to, are, to pack them dry, and to keep them in that condition. When subjected to artificial cultivation in this country, too much stress cannot be laid on the necessity of securing thorough drainage, and on the judicious application of water; for months in winter scarcely any watering will be necessary; should a plant become sodden, however, at this season, through careless watering, I should prefer turning it out of the pot, reducing the ball, and replacing it in the same pot, or one of a smaller size, using very dry soil. *Alex. Burnett, March 8, Gard. Chron. April 24, 1847.*

Publications Received.—*Investigations of the White-Pine Blister Rust.* By Perley Spaulding. Bulletin No. 957; Meade Cotton, an Upland Long-Staple variety replacing Sea Island. By G. S. Meloy and C. B. Doyle. Bulletin No. 1030; Commercial Control of Citrus Scab. By John B. Winston. Circular 215; Inventory of Seeds and Plants Imported by the Office of Foreign Seed and Plant Introduction During the Period from January 1 to March 31, 1917. All published by the U.S. Department of Agriculture, Government Printing Office, Washington. *Empire Forestry*. Vol. 1. Journal of the Empire Forestry Association, Imperial Institute, London. Macmillan and Co., Ltd., St. Martin's Street. W.C. Price 4s. net.

DRY WALL GARDENING.

A DRY wall furnished with a variety of plants in flower is an exceptionally pretty feature in the garden, and there are usually suitable situations in most gardens where a wall of this kind may be formed. The wall may be either very dwarf or tall as is desired, and suited to the environment. It is necessary that the soil used should be of a rich and lasting nature, in order to supply the plants with adequate nourishment, and to retain the necessary moisture. The compost should be mixed and got in readiness for use as the wall is formed, and the plants should be inserted at the same time as the stones are placed in position. Good, solid pieces of stone of all sizes are suitable, and the best shape is flat or oblong, as this form admits most readily of firm packing. The stones should be about eighteen inches long, with smaller pieces, some five to eight inches in length and width. In localities where sandstone abounds this type of stone may be used with every advantage, and the plants will cling to the stone, seed and

Thymus, especially *T. citriodorus*, *T. Serpyllum* and *T. S. album*; *Sedum Ewersii*, *S. kamtschaticum*, which flowers from July to September, *Phloxes* in variety, *Lithospermum*, *Linaria*, *Hypericum*, *Iberis* Little Gem, and others. *Erigerons*, *Dianthus* in variety, *Cerastium*, *Arenarias*, *Acena*, *Arabis*, *Aquilegia*, *Antirrhinum*, and *Polyanthus*.

Certain bulbs may be associated with the plants on the top, such as Crocuses, miniature kinds of Narcissi and Tulip species. These give a fine spring effect before the general mass of plants are in flower. With the selection of plants I have given the wall will be an object of beauty (see Fig. 98) for six months of the year. In dry weather the wall should be sprayed each morning and evening, and when it is hot and very dry the hose or water can should be requisitioned to give the plants a good soaking at the roots. When the various subjects have finished flowering the seed pods should be removed, the plants trimmed, and those that have made excessive growth restricted by pruning. *W. A. Cook, Drynham Gardens, Walton-on-Thames.*



FIG. 98.—EXAMPLE OF THE BEAUTIFUL EFFECT WHICH MAY BE OBTAINED FROM THE SUCCESSFUL CONSTRUCTION AND PLANTING OF A DRY WALL.

reproduce themselves, but any type of stone may be used except such as has a glazed surface.

In building the wall commence by laying some of the flattish stones on the base and allow them to lean slightly inwards, say an inch in every two feet. This will prevent the wall from falling outwards should much rain fall, and the moisture will be directed into the interior part of the wall. When the bottom layer of stones has been laid and fitted, the soil should be filled in as high as the stone, pressing it down firmly to prevent it sinking. Continue this method layer by layer, putting in odd shaped stones here and there to give a more natural effect, taking care, of course, that they are well wedged in at the back so that they are not easily displaced.

Allow each plant plenty of room to develop according to its size, and when the wall is completed finish the surface off level and plant the top with suitable subjects. Amongst plants which are adapted for this method of gardening are *Aubrietias* in variety, *Campanulas* and especially *C. muralis*; *Cheiranthus Allionii*, *Alyssums* in variety, *Saxifragas*, *Sempervivums*,

HARDY FLOWER BORDER.

CARDAMINE ROTUNDIFOLIA.

WITH comparatively little to recommend it compared with many other flowers, *Cardamine rotundifolia*, the round-leaved Lady's Smock, has the great merit of very early blooming, to induce many to give it space in their gardens. It has been familiar to me for very many years, and some time before I acquired it I was rather surprised to observe it in bloom in what was then one of the best collections of good rock and border plants in the United Kingdom. It did not appear good enough to warrant its inclusion, but its owner expressed his high appreciation of the plant on account of its very early flowering. I have grown it for many years since that time, and, although I do not claim that it ought to be numbered among the elite of plants, I like to have it and appreciate to the full its precocity of flowering. It sometimes blooms in February and in a sheltered place, its heads of small, white flowers are valued in the garden, and it is also possible to pick a few flowers for the home at a time when other outdoor subjects are not available. With a little

greenery they form no mean ornament for those who have no glass, and have to depend upon their outdoor flowers for this purpose. *C. rotundifolia* is not difficult to grow on the lower parts of the rock garden or in the border. A sunny, sheltered place is best, as it will bloom there sooner than in a colder aspect. Ordinary garden soil will suit it, but the best rooting medium is a mixture of light loam, sand and a little leaf-mould. The plant may be propagated freely by division.

CORYDALIS NOBILIS.

The noble Fumitory, *Corydalis nobilis*, is one of the border or rock garden plants which has accorded to it less favour than it deserves. It is quite ornamental in the border and its only garden fault appears to be that of slowness of increase. It is not too plentiful in nurseries, and this may be due to this fact, which makes it a less profitable plant than those which are readily multiplied. It is a handsome plant of some ten or twelve inches high. The leaves, like those of practically all the other Fumitories, are graceful, and the flower stems, which are clad with foliage to the top, carry a good head of bright golden-yellow flowers, each tipped with a little reddish-brown dot in the centre. The effect of the whole plant when in bloom is such that few pass it by without admiring it. It is by no means particular as to soil, but it should, if possible, be grown in a light but rich rooting medium. It is one of the many desirable plants which bloom in early summer. *A.*

THE ALPINE GARDEN.

AQUILEGIA STUARTII.

It is now many years since the late Dr. Stuart, of Chirnside, sent me a young plant of the Columbine which bears his name, *Aquilegia Stuartii*, a flower which I never see now, as my specimen met the untimely fate all plants of this hybrid seem to do. So beautiful, however, was it I wish that I could see it again. I do not think it is obtainable from nurserymen, as I have not observed it offered for sale for a long time. It is said to be a hybrid between *Aquilegia glandulosa* and *A. olympica*, but for various reasons, which cannot be discussed here, there are grave doubts of the truth of this statement. The plant is more like a miniature *A. juncunda*, and it has the same large flowers, though, perhaps, a trifle smaller, and the same lovely colouring of white sepals, and corollas of the most charming shade of blue imaginable. The plant is a gem for the rock garden, as its height is rarely more than six or eight inches. I should be glad to know if any reader possesses the true *Aquilegia Stuartii*. I fear, however, that it is likely to be unusually rare, and that it may not even exist in gardens at the present time.

TWO GOOD ANNUALS FOR THE ROCK GARDEN.

SEDUM CAERULEUM is a charming little, low-growing annual with somewhat succulent leaves and small, starry flowers of a delightful soft shade of blue. The plant grows only a few inches high. It flowers for a long time in summer and autumn, and will be found very useful for furnishing places on the rockery where bulbous flowers have bloomed and ripened their growth. Some sow the seed in pots in March and plant the seedlings out in May, but I think better specimens are produced by sowing the seeds very thinly at the end of April or the beginning of May where the plants are to bloom, thinning the seedlings to about six inches apart. In this way charming little groups of the starry, blue flowers, that are almost lace-like in appearance when in a mass, are produced.

The Violet Cress, *Ionopsidium acaule*, is another dwarf annual of high charm, and of much value for the rock garden where it covers what might otherwise be bare spaces with its neat leaves and charming, pale violet flowers, the whole plant being only an inch or two high. It may be associated in perfect harmony

with the choicest of alpine. It is best when sown where it is to bloom, and the end of April or early May is a good time to sow, taking care to sow the seeds sparsely and to thin the young plants before they become crowded. This is one of the best annuals for furnishing bare spaces on the rock-work. A point in its favour is that it likes a little shade. *S. Arnott.*

FLORISTS' FLOWERS.

SWEET PEAS.

THE recent wet, cold weather has delayed various operations in the garden, including the planting out of Sweet Peas raised in pots, from seed sown during the autumn. As soon as the weather is more favourable and the soil in a condition for working, and for the reception of plants, the planting should be undertaken. All growers do not agree with this method of raising Sweet Peas, but I strongly adhere to it, inasmuch as I am of opinion that it results in hardier, more healthy plants than those raised in heat in the spring, and obviates the risk of having blank spaces in the rows which often occur when spring sowing in the open is depended on, whilst the flowers are certainly earlier. Spring sowing in the open should, however, be followed in addition, to prolong the season of flowering, and this is the more important if the summer is very hot and dry.

The ground for Sweet Peas should be as carefully prepared as that for culinary Peas, for the Sweet Pea revels in a good, carefully prepared root run, and to this end the soil should be well and properly trenched in the autumn, incorporating at the same time a liberal quantity of well-decayed manure.

If the planting is to be done in rows, it is well to first stand the pots in position, each sort by itself, in a double row, leaving about a foot to 15 inches between the two sides of the row. Crowding of the plants should be guarded against, and a space of about 10 inches should be allowed between the plants in the rows. At one period it was considered inadvisable to disturb the roots when planting them out of pots, but this is not the generally accepted idea nowadays, and, provided the roots are not damaged, the plants may be carefully divided to permit of planting without crowding. Plant carefully with the aid of a trowel, and make the soil moderately firm.

After planting, draw the soil up carefully around the stems of the young plants to protect them from frost, and, should keen east winds prevail, it is well to provide some slight protection for the young plants, such as by inserting a few boughs of Spruce or similar material along the rows. I have found it beneficial to make a shallow trench for Sweet Peas, as this greatly helps when watering the roots later in the season.

Stake the plants as soon as they are planted, as there is less risk of root disturbance when this is done early, and the necessary support is available as soon as it is required. Good Pea sticks are the best supports for carrying the long growths of Sweet Peas, although many other devices may be employed.

At a later period the side shoots should be tied to the stakes, when they become long enough.

To prolong the flowering season the seed pods should not be permitted to remain, for they draw much of the energy of the plant, with the result that flowering rapidly finishes. When good growth is made it is advisable to afford the plants extra food, in the form of liquid manure; a light mulching of suitable material will also be of much benefit to the roots during dry weather, but, above all, give the plants plenty of water at the roots in hot summer weather.

Sweet Peas may also be planted in circular patches, and a good effect may be attained in this way in the herbaceous border, if it is sufficiently large to accommodate them, and requires additional furnishing; they may also be grown in a row at the back of a border devoted solely to annuals, making a pretty and effective background. *E. Beckett*

CYMBIDIUMS AT WESTONBIRT.

RARELY has the horticultural world been so excited over a new race of garden plants as it has been this year over the beautiful-hybrid Cymbidiums raised at Westonbirt, Tetbury, Gloucestershire. Even as Orchids these splendid plants have deserved and received the keenest interest of specialists, but it is as long-lasting, graceful plants, of easy cultivation in a warm greenhouse, and of the highest value for the decoration of a warm conservatory and the drawing-room that this new race presents such wonderful possibilities. Hybrid Cymbidiums may be had in flower from December to May, commencing with *C. Doris*, a little before Christmas, and concluding with *C. Butterfly*, or a similar *C. Lowianum* hybrid, in May.

Sir Geo. Holford and his able Orchid grower, Mr. H. G. Alexander, commenced to raise hybrid Cymbidiums in 1907. The first hybrid from Cymbidium *insigne* was *C. Gottianum*, raised by Messrs. Sander, who used *C. eburneum* as the second parent. But only a few days after the flowering of *C. Gottianum*, *C. Alexanderi* flowered at Westonbirt, and this was the result of crossing *C. eburneum*-*Lowianum* with *C. insigne* Sanderi. Since then a large number of primary and secondary crosses have been effected at Westonbirt, with the result that six greenhouses are now filled with Cymbidiums, and on the occasion of a recent visit about one thousand spikes of flowers were to be seen. The famous group shown by Sir Geo. Holford at Vincent Square on the occasion of the R.H.S. meeting of February 28, was wonderful, but a visit to Westonbirt revealed the fact that "the half had not been told." Our visit was made on March 30, and consequently hundreds of spikes had already been cut; but, as indicating the longevity of the flowers of certain hybrid Cymbidium, blooms on one plant of *C. Doris*, which opened a few days before Christmas, 1921, were still in good condition. No fewer than thirty new Cymbidiums have been raised and named at Westonbirt, and the majority have been given the names of birds.

Very naturally the question may arise—If Sir Geo. Holford and Mr. Alexander commenced work on Cymbidiums in 1907, how is it that little has been heard of the results until 1922? The answer may be given in one word—War! However, during 1921 and 1922 one Gold Medal, one Silver-gilt Lindley Medal, five First-class Certificates, and seven Awards of Merit have been granted to the Westonbirt Cymbidiums by the R.H.S.; so the honours have been won in bulk instead of being spread over several years, as would have been the case had there been no war.

In all cases Cymbidiums have elegant, grassy foliage, which looks well at every season of the year. Cultural difficulties, such as many Orchids present, do not arise in connection with these hybrids; indeed, they are among the easiest of pot plants to cultivate and flower successfully. The hybrids show a considerable variation in colour and in the style of the inflorescence. Some, as in *C. Dryad*, have erect spikes, but the extreme end of the inflorescence is gracefully arched. In *C. Redstart*, arching spikes are produced, while in these hybrids which approximate most closely to their *C. Lowianum* parent, the spikes are semi-drooping rather than arching. But whatever the style, all are graceful, and whatever the colour of the flowers, all are beautiful. As cut flowers for floral decorations of all kinds Cymbidiums are extremely serviceable, often lasting from two to six weeks when placed in water. A plant in a 6-inch pot will produce one and often two spikes of bloom each year, and be an object of grace and beauty for two or three months—a record few other flowering plants could attain. One plant of *C. Pauwelsii* noticed had five spikes; it was in a 10-inch pot and carried an aggregate of 83 flowers. What plant could compare with such an example for grace, beauty, and its long period of usefulness?

C. Alexanderi, the first Westonbirt hybrid of this group, usually bears white-ground flowers, with a few reddish-purple markings on the lip, but some have a lemon-yellow tint, others have pink shading, and one form is notable for the prominent yellow crest on the lip. *C. Redstart*

(Dryad $\times$ Pauwelsii) is the most wonderfully varied of all the hybrids (Fig. 99), and it may have erect, semi-erect or arching spikes. Most of the varieties have lovely rose-pink flowers, with yellow disc and crimson markings; others are of a deep, old rose colour, which brings the yellow crest into greater prominence; and still others show in their colouring and in the markings on the lip the influence of *C. Lowianum*, which was one parent of *C. Pauwelsii*. *C. Martin* (Lowio-grandiflorum $\times$ Parishii Sanderae), has drooping spikes, and shows the *C. Lowianum* characters in a marked degree, but the flowers are nearly all cream-coloured, often with a green tint, and with the red or crimson markings either as blotches, bars, or spots.

C. Landrail (Dryad $\times$ Lowianum) is a hybrid in which the yellow colouring has been developed considerably, but this shade is often suffused with pink. The yellow and crimson markings on the lip render the flowers of this variety conspicuous among all others. *C. Yellow Hammer* (Gottianum $\times$ Lowianum) has flowers of soft yellow or fawn shades of colour, and in many instances the lip shows the prominent horseshoe-shaped red-brown mark, which is such a conspicuous feature of *C. Lowianum*. *C. Kittiwake* (Dryad $\times$ Gottianum) has flowers of exceptionally good form (Fig. 99) with, usually, a white ground, although some have pink colouring, and in the latter the pencillings and dottings are

C. Merlin, the result of crossing *C. Dryad* with *C. Alexanderi*, has white or blush flowers, with deep violet-rose markings on the lip. *C. Cygnet* (Pauwelsii $\times$ Parishii Sanderae) varies from pure white to deep rosy-purple, and the lip is usually blotched and barred with deep velvety crimson or crimson-purple; it is a strikingly beautiful hybrid. *C. Garnet* (Lowianum $\times$ Parishii Sanderae) has pinkish-bronze flowers with vivid, velvety maroon mark at the apex of the lip.

Other hybrids not here described have been given the names of Pipet, Brownie, Jasper, Linnet, Eider, Ostrich, Widgeon, Bullfinch, Ringdove, Gannet, Petrel, and Corncrake; all these possess their own peculiar points of beauty and attraction.

Although *C. Pauwelsii* was first raised on the Continent, it has been re-raised at Westonbirt, where it is extensively cultivated. Most lovers of Orchids are familiar with its strong, arched spikes and its handsome flowers, all of which show the mark of *C. Lowianum* on the labellum. Thirty-five flowers were counted on one spike of *C. Pauwelsii* at Westonbirt, and one specimen carried six spikes, with an aggregate of one hundred and four flowers. *C. Gottianum* has also been re-raised at Westonbirt, where it produces on an average from three to seven flowers on each of its erect spikes; the big white flowers, with their yellow crest and red-brown markings are extremely beautiful.

ing chapter. "On Laying Our Flower Gardens," and one may ask the question: Might not the outburst of Loudon be caused by the unknown one treading on his toes? If Loudon was an advocate for the make-believe, natural style of gardens, one must own he did get rather a dressing down.

Anyhow, after Loudon's review had appeared another edition of the same work, *The Flower Garden*, appeared the very next year (1839), in which the objectionable part is replaced by a short "Floricultural Calendar" and both the frontispiece, the title, and the little bunch of flowers on the title page are all altered.

The Flower Garden with selected lists of Annual, Biennial and Perennial Flowering Plants has become "*The Flower Garden, its Cultivation, Arrangement and General Management*," and underneath is added, "A new edition carefully revised," and the date at the bottom of the page 1839. The only trace of revision is the very skilful alteration already mentioned, for after page 8, the two editions are exactly the same so far as I have compared them. I am wondering if Mr. Brotherton knows of these two editions, as he does not allude to them in his able summary of the contents of the work on p. 30. I wonder, too, if the binder has cut into the plates as much in his copy as he has in both of mine. From the identity of the covers



FIG. 99.—THREE NEW HYBRID CYMBIDIUMS RAISED AT WESTONBIRT. LEFT *C. KITTIWAKE*; CENTRE, *C. MIRANDA*; RIGHT, *C. REDSTART*. THE FLOWERS ARE REPRESENTED ABOUT TWO-THIRDS THE NATURAL SIZE.

reddish-brown or crimson. In Wagtail (Parishii Sanderae $\times$ Gottianum) the long yellow crest or disc is a conspicuous feature of the narrow-lipped, white-ground flowers. *C. Curlew* (Butterfly $\times$ Alexanderi) has white or blush-coloured flowers, and in every case the lip is heavily marked, and has a prominent yellow crest.

C. Dryad (insigne Sanderi $\times$ Parishii Sanderae) is one of the loveliest hybrids, and one which shows very little variation. It flowers very freely, and its spikes are carried erect until they arch towards the extreme end. One hundred spikes of this hybrid were counted, and few of these were less than 4 feet high. One plant carried four spikes and a total of forty-four flowers.

Cymbidium Miranda (Lowio-grandiflorum $\times$ Alexanderi), illustrated in Fig. 99, is one of the most variable of the hybrids, the colour ranging from pale cream to a deep bronze hue, as in the case of the variety named Bronze Beauty. It forms an excellent contrast to some of the lighter and brighter coloured hybrids. *C. Seamew* (Ansonii $\times$ Parishii Sanderae) has large, purple-bronze coloured flowers, with crimson markings broken up on the buff or whitish lip. In *C. Thrush* (Schlegelii $\times$ Holfordianum) the flowers are pale coloured, sparingly spotted on the grandiflorum-like lip. *C. Warbler* (Gottianum $\times$ Holfordianum) is fairly constant, the flowers being a pale creamy green with a waved lip on which the yellow crest and markings are prominent.

This is not the first time that Westonbirt has achieved fame in connection with one particular family of flowers, but notwithstanding its high reputation in connection with Orchids in general, with trees and shrubs, with Clivias, and its wonderful collection of *Hippeastrums*, it is doubtful whether its owner has ever accomplished quite so great a success in horticulture as the raising of this splendid new race of hybrid *Cymbidiums*. *C.*

"ORR'S FLOWER GARDEN."

I HEAD this note Orr's *Flower Garden*, although Orr is only the publisher and not the compiler. This is, I think, a more accurate word than author, for so much of the book is only, as we say, scissors and paste. For example, opening the book at random at page 284, which happens to be about Pinks, I read: "Hogg begins," "Paxton says," "Mr. Ibbett begins," "Mr. Revell and others consider it," and "Mr. Ibbett adds." which is not bad for one page. This characteristic of the work is mentioned because I cannot help thinking that Loudon's review in the 13th volume of his *Gardeners' Magazine* is a little unfair when he states that the compiler wrote in a "controversial, ill-natured spirit." The only controversial part in *The Flower Garden* is the open-

of the two editions, it would appear that the perpetrators of this barbarism were Orr's own binders, and to allow it to be done to Baxter prints!

I have one more comment to make on Loudon's review. He takes the compiler to task for not producing a better copy of Le Blond's original in the plan he has given of a French Parterre. I have compared them, both and I do not think there is much wrong with it if we take into consideration the necessary reduction in size. It would not be possible to show all the distinctions of the beds and the cut "greens" in their boxes in such a small space, any more than Loudon himself was able to say all that could have been said about a French garden in the few pages of original writing that he gave to *The Flower Garden*, and to Mr. Ferris's Parterre in his rather drastic reviews of these two works, which for a proper understanding of Loudon must be read together as they follow one another in the *Gardeners' Magazine*. Joseph Jacob.

Salvia.—Various kinds of *Salvias* should be potted on as they become ready. It is not wise to allow these plants to become pot-bound until in their final pots. They will be safe now in a cold frame where protection may be given when the weather is frosty. P.

The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Coelogyne cristata.—I have recently had brought under my observation the hardness of this plant, and am thoroughly convinced that it will even withstand a much lower temperature whilst at rest than most growers realise. The plant to which I refer had passed the whole of the past winter in a house where there had been no fire heat whatever, and at the present time is pushing flower spikes, which show every signs of developing satisfactorily. Now is the best time to repot any overgrown specimens, or to break up those that may be in an unhealthy condition, remaking them up into smaller plants as desired. Unless repotting is absolutely necessary, do not disturb the roots in any way, but rather, if in good health, allow the plants to remain as they are, as they invariably suffer when disturbed. In repotting those that require it, use good fibrous loam, chopped Osmunda fibre, and Sphagnum-moss, in equal proportions, with plenty of drainage. The various materials should be used in a rough condition, according to the size of the pans used. Moderately deep pans form the best receptacles; cover the crocks with a thin layer of Sphagnum-moss to prevent the compost working down amongst them. Arrange the compost so that the centre of the plant is higher than the edges of the pan, and direct the young growths to the centre, pressing the compost moderately firm.

THE FLOWER GARDEN.

By EDWIN BECKETT, Gardener to the Hon. Vicary Gibbs, Aldenham House, Hertfordshire.

Hollies and other Evergreens.—The present is a suitable time of the year for transplanting evergreens. When moving them take every care to maintain as good a ball of soil around the roots as possible. Showery weather should be selected, and the plants well mulched when placed in their new positions.

Border Carnations and Pinks.—Plants raised from layers rooted last autumn and wintered in frames may now be planted out. Carnations do best in ground that has been well worked and manured, and where a large area is devoted to their growing, they should be planted out in straight rows, allowing an alleyway between, say, every half-dozen rows, for convenience in getting at the plants to attend to them in tying, etc., and to assist the surface water to drain from the beds. Support the young plants as required by looping the growths to stout stakes, and when planted dust the soil with soot and apply a similar dressing occasionally in showery weather. Pinks should be planted in groups or colonies on the front of the flower borders in a little prepared compost, and will soon make good headway and form beautiful patches.

Plants for the Water-side.—Water gardening is increasingly popular, and many beautiful flowers may be planted along the banks of streams or sides of ponds and lakes. For floral beauty, Japanese Irises—the Iris Kaempferi group—should be included, whilst for early effect *Caltha palustris* and other varieties. The Marsh Marigolds, sometimes known as King Cups, have few to equal them with their wonderful golden flowers. *Myosotis palustris* *sempervirens*, the large-flowered water Forget-Me-Not has a quieter beauty, but is none the less effective. *Senecio Clivorum*, *S. Veitchii*, and *S. Ledebouri* comprise a fine group of golden-flowering plants suitable for growing by the water's edge, whilst pretty, pink-flowered *Lythraums*, *Astilbes*, and *Funkias* are all worthy of a place. There are many other subjects deserving mention, including certain shrubs and trees, chief of which are the various Willows with their finely coloured barks,

so beautiful in the dull winter months. Alders, also, are most effective, whilst Bamboos for the most part revel in well-soaked ground on the swampy side, and thrive exceedingly well under such conditions.

Annuals.—About this period the sowing of various annuals should be undertaken, leaving any that are of a tender nature until, say, a week or fortnight's time. Virginian and Ten-week Stocks, *Ageratum*, *Candytuft*, *Dianthus*, *Eschscholzia*, Indian Pink, Marigold, *Mignonette*, *Clarkias*, Cornflowers, *Godetia*, *Nigella*, *Scabious*, and Sweet Sultan are all well worth growing, where space permits, and their wealth of colour and sweet perfume make them some of the delights of a well-kept garden. Seeds of annuals should always be sown thinly, and the seedlings thinned early, so that the plants are never crowded. Where space is available, a very beautiful effect may be obtained by reserving a border solely for annuals. With their varying heights and brilliant colours, such a border proves a source of wonder and pleasure, and by judicious successful sowings, the various items may have their seasons prolonged, besides providing big quantities of cut flowers for decorating vases indoors.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir C. NALL-CAIN, Bart., The Node, Cudecote, Welwyn, Hertfordshire.

Grevillea robusta.—Seedlings Grevilleas raised from seed sown in February, are ready for transferring to small pots filled with a rich compost, of an open texture. After potting the plants stand them in a moderately warm house until they are well established in the new soil, when they may be grown under cooler conditions. The plants will be found most useful for decorating purposes.

Regal Pelargoniums. To be successful with these plants it is necessary to keep them free from Aphis by vaporising or spraying. Plants sprayed with *Quassia* extract occasionally will keep free from this pest. Good results follow feeding the plants with a concentrated fertiliser. Grow them in a light position until the bloom commences to open, when they should be shaded from bright sunshine.

Hippeastrums.—As these plants pass out of flower top dress them with rich soil, and place them in a house having a temperature of 65° to 70° to encourage them to develop healthy growth and thus build up the bulbs for next season's blooming. Much of next season's success with these plants will depend on the cultivation afforded at this stage. Later, the plants may be transferred to a house having a lower temperature, but they should be given a sunny position in order that the bulbs may ripen thoroughly.

Euphorbia jacquiniæfolia.—Stock plants of this *Euphorbia* that were introduced into heat, as advised in a previous calendar, are breaking freely. When the young shoots are about 3 inches in length they will be suitable for use as cuttings. The latter are best made with a heel of the old wood; immediately they are severed with a sharp knife they should be stood in powdered charcoal to prevent bleeding. The receptacles should be prepared in advance of the potting, in order that the cuttings may be inserted before they flag in the least degree. After they are potted place them at once in the propagating frame. If it is intended to grow them on as large specimens in 7-inch pots, insert three cuttings in a small pot; the plants may then be potted on without any unnecessary disturbance of the roots. I am not in favour of growing this beautiful plant in too large a pot: receptacles 6 inches in diameter are the largest size we use at The Node, while for the latest batch of cuttings 3½-inch pots are used. These latter plants are a useful size for table decoration. This plant delights in a stove temperature until well established in its flowering pot, when it may be grown in a little lower temperature. It requires careful watering at all times, but the roots should never be allowed to become excessively dry.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

Peach Trees in Borders.—Attention should be given to trained trees in the early house; the fruits should be thinned to about 12 inches apart, according to the age and vigour of the trees. Tie the shoots to the trellis as they advance in growth, taking care that the stems are covered with foliage to afford them partial shade from the sun. Do not crowd the trees with young growths: 6 inches to 8 inches apart is not too much space for the young shoots. Stop the strong growths in order to regulate the flow of sap over the whole tree. If the weather is mild the temperature may range from 60° at night, and 75° to 80° at closing time with sunheat and moisture. For syringing use pure soft water, or water free from lime, as water containing lime leaves a deposit on the fruits. Twice a day is not too often to syringe; a little clear soot water syringed over the trees twice a week will impart a healthy hue to both fruit and foliage.

Succession Houses.—Attend to the disbudding and thinning of Peach trees in succession houses as they advance in growth. See that the roots do not suffer for want of water. Late houses containing trees in bloom should have a little fire-heat at night, with ventilation. During dull weather exclude currents of frosty air during the period of fertilisation, and keep a sharp watch for insect pests, which generally appear at this stage.

Frame Melons.—Now is a good time to commence the cultivation of Melons, either in heated pits, or frames heated with manure, or in frames without heat. Many amateur and some professional gardeners find it necessary to utilise fermenting material for forcing purposes, and as frame Melons cannot be produced in fewer than twelve to fifteen weeks from seed sowing, any-one requiring more than one crop should employ fire-heat. From seeds sown now, good Melons should be forthcoming from the end of July to the end of September. The months devoted to their growth provide the heat so essential to success, with a minimum of labour. Assuming that fresh stable manure and leaves in equal parts have been turned two or three times, that beds large enough for the frames have been solidly built, and seeds sown singly in 3-inch pots the day the beds were made, the plants will be ready for planting by the time the excessive heat from the fermenting materials has subsided. Upon these beds small cones of soil may be placed 15 inches high, as Melons should be planted well above the line of watering. Perhaps a better method is the formation of a continuous ridge of compost, the same height, upon which the plants may be placed 18 inches apart, irrespective of the lights or rafters.

Compost.—The most suitable rooting compost for frame Melons is turfy loam of a calcareous and somewhat heavy nature, with old lime rubble or charcoal added, and a little soot. The soil should be mixed some time before it is wanted, and placed where it will become dry and warm, otherwise, when firmly packed in the ridge, heat will be a long time penetrating it. A little bone-meal may be added in preference to rotten manure, if the soil is poor, as manure encourages worms as well as gross growth, and, later, becomes sour when the fruits are swelling. Too light or too rich a compost fills a frame with rampant growth, and plenty of fruit will set; but, later, the plants almost invariably become barren, or go off under attacks of canker.

THE KITCHEN GARDEN.

By JAMES F. HATHAWAY, Gardener to JOHN BRENNAND, Esq., Baldersby Park, Thirsk, Yorkshire.

Onions.—Seedling Onions in pots and boxes should be planted out on ground which has been well trenched and manured. Break up the surface, apply a good dressing of wood ash, rake the surface level, and plant the seedlings in rows made 15 inches apart, allowing 1 foot between each plant in the row. For convenience in

watering a 2 feet wide alley should be made at every twelfth row. The soil on the roots should be disturbed as little as possible, and the plant made very firm in the bed. Water the seedlings if the weather is dry, and syringe them two or three times daily. Strong plants are benefited by tying them to a small stake. Leeks raised indoors should also be planted out in trenches made similar to Celery trenches, in single rows, 1 foot apart.

Cauliflowers.—Plants raised from seed sown last autumn and wintered in frames should be planted out in rows made at a distance of 2 feet 6 inches apart and 2 feet between the plants in the rows. The robust variety Autumn Giant should be allowed 6 inches more each way. Those sown in boxes are also ready for planting out of doors. As much soil as possible should be retained at the roots. After setting out the plants water them overhead with a rose can.

Lettuce.—Seedling Lettuces raised in boxes should be planted out one foot apart in a sheltered part of the garden. A sowing of Lettuce should be made every fortnight to maintain a constant supply.

Cabbage.—Seedling Cabbages growing in boxes should be planted out of doors. The smaller varieties, such as April, should be planted in rows made 15 inches apart, and 12 inches asunder in the rows; larger growing varieties should be allowed 3 inches more space each way.

HARDY FRUIT GARDEN.

By H. MAREHAM, Gardener to the EARL OF STRAFFORD, Wrotham Park, Barnet.

Wall Fruit Trees.—Make a thorough examination of the roots of all wall fruit trees, especially those that have been in position for several years. If the soil is dry, which it may be after last year's long spell of drought, the roots should receive a thorough watering either with clear water or weak liquid manure. First point over the surface soil, and loosen it to allow the water to penetrate freely. If the weather should prove dry after the water has been applied the soil surface may be lightly stirred with a hoe or rake to prevent rapid evaporation; a suitable mulching will also prove useful in this respect. The borders of wall trees are apt to become hard and solid for some distance from the walls if once thoroughly dry, and a heavy rainfall is needed for moisture to penetrate deeply.

Plums.—Whether dessert or cooking varieties it is wise to grow only the best and most useful varieties of Plums, and endeavour to select those which will extend the season so far as possible. Grafting may be successfully accomplished during the present month, and should be practised on healthy trees that are not pleasing the grower. I strongly object to cutting back the branches too near the trunks in accordance with the practice frequently observed, but advise cutting back to branches not exceeding 2 or 3 inches in diameter. On these place one or two grafts. On these smaller shoots, not only will the union be more certain, but the fruiting heads will be more rapidly produced. A few good dessert varieties are Early Transparent, Oullin's Golden Gage, Stint, Jefferson's Gage, Transparent Gage (old), Late Transparent Gage, Washington Gage, Green Gage, Coe's Golden Drop, and Coe's Violet. Cooking Sorts: Victoria (equally good for dessert, jam and bottling), Pond's Seedling, Sultan, Gisborne, Cox's Emperor, Archduke, Prince of Wales and Monarch.

Old Plum Trees.—Trees that are becoming unproductive may be greatly improved if good top dressings of fertile loam, manure, lime, and old brick mortar are applied over the root area. Heavy dressings of manure and lime during the summer growth, well washed down to the roots, will prove very beneficial to those trees that bear heavy crops, and all such trees should be given every attention at the right time, so as to assist them in maintaining sufficient vigour to crop the following season.

THE BULB GARDEN.

NARCISSUS CYCLAMINEUS AT EDINBURGH BOTANIC GARDENS.

AMONG the comparatively limited number of outdoor flowers in bloom in the Edinburgh Royal Botanic Gardens, Edinburgh, in the first week of April were several pretty groups of *Narcissus cyclamineus*, mainly at the base of the rockwork, and close to and on the level of the path. They presented this interesting Daffodil at its best: sturdy, healthy-looking, and bright and well-displayed, against the deep-coloured rocks of which the rock garden is composed. Next to a setting of grass, in which *N. cyclamineus* is delightful, a background of dark rocks, such as those at Edinburgh, is about the best for displaying the golden yellow blooms of *N. cyclamineus*, with their long trumpets and reflexed outer segments. *S. A.*

We can imagine also that, given suitable soil, it would look well in the rock garden. So far, we believe, it has only been cultivated in Cornwall, therefore it remains to be seen whether this exquisite hybrid will thrive in the less pleasant conditions of the Midlands and the bleaker climate of northern counties. *Narcissus Silver Chimes* indicates a line of progress that might well be pursued further in connection with the raising of Daffodils, as at present raisers appear to direct most of their attention towards increasing the size and deepening the colour of trumpet varieties, and extending the season of the poeticus sorts.

TRITELEIA UNIFLORA.

THIS pretty, hardy, dwarf, bulbous plant is not commonly known or met with as frequently in gardens as its merits deserve, for when well grown its unique, pretty, mauve-coloured



FIG. 100.—NARCISSUS SILVER CHIMES. R.H.S. AWARD OF MERIT, APRIL 11. SHOWN BY MR. J. C. MARTIN, BOSVIGO GARDENS, TEURO

NARCISSUS SILVER CHIMES.

THE exquisite and altogether beautiful *Narcissus Silver Chimes* (see Fig. 100), shown so freely and finely by Mr. J. C. Martin at the meeting of the Royal Horticultural Society on the 11th inst., has the very great advantage of having a beautiful and appropriate name. Of sturdy growth, this result of crossing a form of *N. tazetta* with *N. triandrus* promises to become useful for cultivation in pots, for cutting, and for market use, and the hope has been expressed that it may increase with freedom without losing any of its robustness. The individual flowers are of excellent form, about 2 inches wide, with a white perianth in which the segments are just a trifle reflexed. The cup is rounded and of a light citron yellow colour. As from five to seven of these fragrant flowers are carried on one stem, it will be understood that *Silver Chimes* is a desirable *Narcissus* from the market point of view.

flowers, which are borne on slender stems present a charming appearance. There is also a whitish form, but this is not nearly so pleasing.

Triteleias flourish best when planted on a warm sunny border or, better still, at the foot of a warm wall. Propagation is carried out by separating the bulbs and taking away the off sets, when the plants are at rest.

The most suitable soil for this plant is a light, sandy loam enriched with a little leaf mould. The bulbs should be planted about three inches deep; when the foliage turns yellow the ground should be kept as dry as possible in order that the bulbs may open thoroughly; they will then produce much finer flowers and better foliage, which will repay for the slightly extra trouble entailed. When once established in a suitable position the plants will not fail to flower abundantly during April and May year after year. *Richard H. Crockford, Weston Park Gardens, Steering.*

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DONALD BEATON.

THIS one time well known gardener was also remarkable as an individual. He was born in the county of Ross in 1802, shortly previous to his father commencing business in Inverness-shire as a breeder and dealer in horses, in which he failed while the son was a boy at school, this episode altering his prospects for the future. He spoke no English till he attained the age of seventeen. The factor on Lord Lovat's estate of Beaulieu seems then to have taken an interest in the lad, taking him into his house and in due course sending him with his own boys to Inverness Academy, where the quarterly fee charged was five shillings! I have read somewhere that a Scottish boy at the period in question might secure a first-class education, equal to what would cost in England hundreds of pounds, for £10, so that there is nothing remarkable in the above charge. Beaton's academic career was prematurely terminated on account of an outburst of spleen or other equally disreputable scholastic effervescence on the occasion of an examination, and at the age of twenty he had to look out for something to do other than the leisurely life he anticipated in one of the professions.

Finally, Beaton found himself in Beaulieu Gardens, where for some time he was the butt of the other men, partly on account of his previous training and perhaps largely because of his awkwardness in handling tools. Like many young gardeners of that age, he took to field botany, and went a step beyond the others in studying plant physiology. At the age of 23 he commenced crossing plants, and I am not sure if he was not the first person who used "cross fertilisation" to indicate its difference from hybridisation. He left Scotland for good in 1831, the sea voyage to London occupying thirteen days, and he found work in Mackay's Clapton Nursery, Mr. Low, who shortly afterwards became proprietor, then being foreman, with whom he contracted a friendship of long standing. A few weeks only there, and he was appointed gardener to Mr. Gordon, Haffield, near Ledbury, a small estate interesting as having been the property of Jacob Tonson, the famous bookseller and publisher of the early eighteenth century, and where he cultivated vines on a slope and made his own wine from the Grapes. Master and servant had congenial tastes, and the young Highlander experimented on plants to his heart's content, consulted authorities from the former's bookshelves, and travelled at his expense wherever he chose in pursuit of knowledge in gardening. He commenced writing in 1835, and an interesting article on crossing Fuchsias sent to Loudon's *Gardeners' Magazine*, at once obtained for him Loudon's appreciation. An outstanding contribution to that periodical is a long review of Lindley's *Theory and Practice of Horticulture*, long regarded as a standard work. The best of his reviews, however, is that on Dean Herbert's *Amoryllidaceae*, a piece of work that placed Beaton in a foremost position. The last article he wrote for Loudon was in 1841, the cessation being due probably to some misunderstanding between the two. We find him writing in Paxton's *Magazine of Botany*, in 1836, of Orchids, but he does not seem to have contributed to the cheap magazines at all.

Following the death of Mr. Gordon, in 1838, Beaton engaged with Mr. Harris, Kingbury, originally a farm house, on the Edgware Road, where that gentleman erected greenhouses, Orchid houses, and stoves, and gardening was pursued regardless of expense. The whole of the plants were sold three years afterwards on the death of the proprietor, and this was said to be the first collection of plants put to the hammer by Stevens, of Covent Garden. Sir W. Middleton, of Shrubland Park, then engaged Beaton, and there he became famous as a flower gardener and raiser of bedding plants from seed, Geraniums especially, and of these the Nosegay section. He contributed in 1841 to an early number of *The Gardener's Chronicle*, and many of his experiments were noted from time to time in the pages of this journal. He left Shrubland Park in 1852, and settled in Surbiton, where he continued his experimental work among a variety of plants, but Geraniums always received the preference. There he designed and had erected some cottages, but the arrangements were not appreciated by the tenants.

In 1848 Mr. G. W. Johnson, author of a *History of Gardening* and other books devoted to gardening, instituted *The Cottage Gardener*, afterwards better known as *The Journal of Horticulture*, and in its fourth number Beaton appeared on its staff as writer on the Plant House department. On his retirement in 1852, he became reporter, and I think there can be no doubt that his contributions had a very important effect in raising that weekly to the high position it attained as an exponent of practical gardening. But Beaton was no reporter simply of gardening efforts. Anything that attracted his attention at shows was duly recorded; the most remarkable of these instances arose from the visit of the Emperor and Empress of the French, in company with the Queen and Prince Albert, to the Crystal Palace, on April 20, 1855. None of the Press reporters were able to get near the royalties, but Beaton, who spent five hours in examining the plants and exhibits, somehow found himself close to them, and thinking that his young readers would be as much gratified to read what he had to say of the royalties as the horticultural productions, he set down his observations. They are much too lengthy to copy, but these brief extracts will show their quality. Of the Empress he remarked, "You would call her handsome without being a showy woman. She was not the best nor the second best dressed lady there, but she evidently understood the art of wearing and carrying her dress properly. She swept round the Crystal Fountain late in the afternoon, just as if she had that moment been turned out of a mould." Then he described her dress, the colour of her hair, and the style of her coiffure. Of Napoleon he wrote, "There is not a single line in his face, nor a glance in the eye from which you could infer decision of character." His dress and general appearance are also detailed, and equally appropriate remarks on our own royalties. The wonder was great that the reporter of an obscure weekly should have been qualified and fortunate enough to give these descriptions, when the dailies had almost nothing to say. On the occasion of the great frost of 1854-5, when all but the hardiest vegetation was destroyed, Beaton's name also became prominent, and in this way. In an article in the previous autumn he forewarned gardeners to expect a long and severe winter, and prepare accordingly. Afterwards when requested to tell how he had been able to foresee so disastrous a period, he would not be drawn to say anything.

I have no information of his having produced anything in book form other than giving assistance in the production of Johnson's *Gardeners' Dictionary*, the nomenclature in which he was responsible for. He died of paralysis, October 26, 1863, the last article of his writing being published subsequently. It referred to the colour of cross fertilised Peas, and was an explanation to Mr. Charles Darwin, with whom he had a controversy regarding the value of Gaertner's theories and experiments.

As a writer Beaton was extremely profuse, evidently setting down his thoughts without any

effort at condensation, and with advancing years he became more long-winded. At the same time he was original; his observations on cultivation, cross fertilisation and other subjects being always worth attention. In his plain speaking one might almost think him harsh, but there was the saving grace of humour to mollify the sting. His reports were like no other, as this extract from one will show: "Cut Tulips were very numerous, but I do not happen to know one Tulip from another. I began and finished my Tulip fancy in May, 1852, at a show in Manchester, where four or seven hundred blooms were staged, and I think Mr. Mowbray, of the Botanic Garden there, and I had to pay 5s. each, or between us, to get to see them. When I reached Chatsworth next week, I told Mr. Paxton about our entrance fee, and he told me 'the greater fools, etc.' And that is all he reported of Tulips! In an obituary notice, Dr. Hogg gave the highest estimate of his personal worth, and the only word of detraction I ever heard of him was that he was somewhat conceited. His writings, however, do not bear that out, for though they give the impression of the work of an opinionated individual, yet whenever he found he had committed a mistake, it was at the first opportunity admitted or corrected. R. P. Brotherton.

MR. KINGDON WARD'S SIXTH EXPEDITION IN ASIA.

No. 13.—THE VALLEY OF BEAUTIFUL FLOWERS.

AFTER four days spent in the monastery at Yung-ning, on the edge of Chinese Tibet, we started for Mu-li, in the interior, and almost due north.

"Chinese Tibet" is not a good name for the Tibetan Marches, since the country is so little Chinese that the authorities cannot guarantee the traveller's safety once amongst the Mantzu, and indeed can scarcely protect themselves in such border regions as they hold; witness the sack of Chung-tien early in the present year. But the huge territory of which I speak is painted "China" on atlas maps, so let it stand.

I was warned against penetrating far into this wild region and promised to go no further than the chiefs would protect me; and on June 2 we set out. The first stage took us over a low, wooded range of hills, their southern slopes covered as usual with Pines and scrub Rhododendron; and we met with no plant that was not already familiar to us.

Descending the northern flank, however, we noticed many plants coming up in the woods—crimson Androsace, Spiraea, Rodgersia, Arisaema, and other large-leaved shade plants. It was here that *Primula lichiangensis* turned up. Next morning we reached a village at the foot of the main range, and, passing through a cultivated valley, began the long ascent of the divide, which parts the water flowing to the Litang river from that which flows more directly to the Yangtze.

In the lower part of the valley, which was well wooded, flowers familiar to us abounded for many days; but several small Orchids, new to me, were met with. A *Lonicera* already hung out its translucent red berries, and looked so pretty, decorated with hairy fruit as large as Gooseberries, that I collected seed; it must be a very early-flowering species.

As we got higher up into the woods, the valley contracting to a ravine, other flowers came into prominence. Masses of golden *Caltha* carpeted the open glades and a purple *Aquilegia* was common. More unusual was a charming pink Rose, deliciously scented, and a *Strobilanthes* in the dim, damp forest; for a minute I was reminded by this find of the North-East Frontier, but it was only a passing thought. That quartet of North-East Frontier plants—*Strobilanthes*, *Begonia*, *Chirita* and

* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 23, August 20, September 3, October 8, October 29, 1921; January 7, January 21, March 11, March 25, and April 8, 1922.

SPRING BEDDING SCHEMES.

Aeschynanthus haunts me yet. However, it must be confessed that there are far more *Rhododendrons* on the North-East Frontier than there are in this country.

To resume. We camped in the evening high above the torrent on a steep grassy slope sulphur with *Roscoea*; all round was the Pine and Oak forest draped with lichen. High above were barren limestone crags. The woods were fringed with masses of bright yellow *Daphne calacola*, which formed wonderful patches of colour and scented the whole region. It grows both in the woods, where it forms a large bush, and on the open cliffs, where it is a dwarf shrub. I have never seen so many flowers to the cubic inch as this species displayed.

I decided to spend the next day in camp and see what the limestone towers had in store. Accordingly we set out next morning, and plunged straightway into the woods. Here the going was by no means so easy as it had looked from the outside, for there was an undergrowth of Bamboo we had not reckoned with. However, we got through to the ridge, and then began a steep climb, continually interrupted by sheer cliffs. A tiny *Campanula* looked interesting, but was not yet in bloom, and the same with a *Meconopsis* with prickly leaves, a *Lychnis* and an *Adenophora*. A speckled *Fritillaria* was, however, in flower and a snow white *Rhododendron* with little, trumpet-shaped flowers.

At last we reached the crags, and here flowers were more abundant—a lemon-yellow *Caragana* as prickly as a hedgehog, two *Primulas*, the fragrant *Daphne*, and a very fragrant purple flower, *Cardamine*. On the steep earth slopes *Androsace spinulifera* was in bloom, and there were many small *Cruciferae* on the cliffs, besides *Lloydia* and other items. However, the weather was so bad—slashing rain and thick mist that it was not safe to be clambering about these limestone cliffs, so we returned to camp with the spoil. The results were by no means discouraging on this, the first day of serious plant hunting; we ran to earth some fifteen or twenty species, several of them suitable for cultivation.

On June 5 we continued our march northwards, passing at first through forest very similar to that met with in the A-tun-tzu region, but much poorer in deciduous-leaved species, and also in shrub undergrowth. The only big trees were *Picea* and *Oak*; amongst the shrub growth were *Potentilla fruticosa*, several species of *Lonicera*, *Berberis* and *Rosa*, and scattered species of *Deutzia*, *Ribes*, *Rhododendron* (*Azalea*), etc. Presently Bamboo undergrowth reappeared, and a beautiful, violet-flowered *Meconopsis*, with shimmering, satiny petals was met with on fallen limestone boulders in deep shade. This was evidently the plant met with in an adolescent condition on the previous day. Later we met with it all over the country, though July had come before it really opened out. Though we found it on the slate ranges it was much more partial to limestone, where it was as common as it was beautiful.

Primula sonchifolia turned up under the Bamboos—it was over, by the way—and a white-flowered *Thalictrum*. Then, as we continued to climb, the forest became entirely *Abies* with thickets of *Rhododendron*, and the flowers we had found the day before appeared in large numbers; *Androsace spinulifera*, purple *Morina*, violet *Nivalis*, *Primula*, and so on. Here, too, *Incarvillea grandiflora* coloured the slopes, with its vile magenta-purple. As a matter of fact, we found a few white-flowered specimens, which were much more pleasing.

Another species of *Incarvillea* grew here, a great gawky thing, some four feet high, with dull yellow flowers, no more beautiful than its rival. Yet it was a handsome plant in other respects, and might be turned into a fine garden plant if it could be induced to strike its colours in favour of something more pleasing.

A large shrub *Rhododendron* with lemon-yellow flowers in moderate-sized trusses was here much in evidence on the steep hillsides. It was of the *R. Wardii* type, with very regular, bell-shaped corollas. We found it in the woods on the other side of the divide in abundance, a very pretty sight, mixed with *Oak*, *Birch*, *Maple*, etc. *F. Kingston Ward*.

The illustration reproduced in Fig. 101 shows several of the permanent, formal beds on the terrace at Aldenham House, Elstree, grouped around a small fountain and basin and furnished with spring bedding plants. Along the full length of the terrace on the north side, and parallel to the beds shown in the foreground, runs a long, narrow border, the counterpart to which can be seen in the illustration on the far side. The terrace lies to the east of the residence, at slightly higher level than the last-mentioned border, and contiguous to it is a long, wide grass belt, which passes along the southern side of the building. In this are cut four large oblong beds, the short sides of which curve slightly inwards, and these are separated from each other by circular beds. Two other small beds lie near by, at the foot of the wall of the house, whilst the long border first mentioned above also has an annexe, being divided therefrom by a flight of stone steps.

On the terrace itself are four circular beds



FIG. 101.—BEDS OF SPRING FLOWERS AT ALDENHAM HOUSE, ELSTREE.

filled with *Polyanthuses*, and the same subject is used in planting four shaped beds, the companion four to which are furnished with *Myosotis Royal Blue*. Two other circular beds are planted with *Wallflower Fire King*, a vivid orange-coloured variety, and two with *Wallflower Cloth of Gold*, bright yellow.

The long northern border is furnished solely with the fine deep red *Wallflower Blood Red*, whilst its counterpart on the south side of the terrace is planted with *Polyanthuses* only. The annexe is rather more elaborately planted with *Wallflower Eastern Queen*, apricot, changing to pink, for the main part, but for the front rows *Wallflower Ivory White* is used, and the bed, being much higher than the others, is edged with *Polyanthuses*.

The oblong beds on the grass belt are planted with *Polyanthuses* only, but the round ones are furnished with two kinds of plants—No. 1 with *Tulip Inglescombe Pink* bedded with *Aubrietia J. S. Baker*, No. 2 with *Tulip Inglescombe Yellow* and *White Arabis*, and No. 3 with *Tulip La Merville* (old rose-flushed buff), with *Aubrietia Perkinsii* as a groundwork. The two small pieces, close to the house are bedded with variegated *Arabis*, and planted in one case with *Tulip Picotee* (recurved petals of white, edged rose), and in the other with *Tulipa gesneriana spatulata* (bloom crimson, with bright blue base).

The planting of the beds for a spring display usually follows the finish of the summer-bedding period—i.e., about mid-October—and, once the work is completed, careful watch is kept as to the progress of growth, and, should any plants fail, they are made good so far as is possible. Also, after frosty spells, they are examined to see if the roots have been loosened in the soil, owing to the action of frost. Later, the soil is frequently stirred to assist growth, an operation that greatly benefits the plants. When once in flower, the whole scheme presents a delightful picture with a variety of beautiful colours.

The preparation for this work calls for skilled attention in the matter of raising the plants. The *Aubrietias* are obtained from cuttings inserted about July, or early in August, in well-drained pots of sandy compost, and struck in cold frames. The *Wallflower* seed is sown in shallow drills in cold frames, about the middle to the end of June, whilst the *Myosotis* is similarly sown about a fortnight later, and, when the seedlings of both are large enough, they are pricked out into beds until required. *Arabis* is generally lifted and

divided at the time the work commences, and put in the beds direct, the portions soon taking root.

Perhaps more attention is devoted to the raising of the *Polyanthuses*, of which we have a fine strain. During the flowering season very careful selection is made of the best of the plants—i.e., those showing good, free-flowering habit and beauty of flower and colour—and these are marked as seed parents, the others being destroyed later. When the seed on the chosen plants is ripe, the pods are gathered, and the ripening and drying completed under glass. This method of selection is responsible for the fine improvement that has been effected in the strain. The seed is sown in pots or boxes filled with a sandy compost, about the end of February or the beginning of March, germinated in cold frames, and the seedlings, when large enough, are pricked out into shady beds to grow on until wanted; the care devoted to them is amply repaid by their beauty.

At the end of the spring-bedding season, the *Tulips* are lifted and ripened carefully for storing. The *Aubrietias* and *Arabis* are transplanted to other quarters, whilst the *Polyanthuses* are lifted carefully and replanted as and where required, special care being taken with the best plants marked for seed purposes.

E. Beckett

NOTES ON THE CONTROL OF NURSERY STOCK AGAINST CROWN-GALL.

It is generally acknowledged that the presence of the unsightly tumours, known as Crown-gall, on young trees is undesirable, and although direct experimental evidence of the deleterious effect of the disease on nursery stock is at present lacking for this country, observations made by investigators in America show that the galls impair the general vigour of young trees, a result which is not unexpected when it is realised that the galls absorb a considerable amount of foodstuffs which would otherwise be utilised in building up normal healthy tissues. As badly galled nursery stock is unsaleable, it is to the interests of the nurserymen to produce trees as free from the disease as possible.

Certain types of "Paradise" (layered) Apple stocks grown at the Fruit Research Station, East Malling, prove to be very susceptible to Crown-gall, and provide excellent material for field observations and experiments. Observations on young trees as they were being lifted for transplanting showed that in the majority of cases the galls originated at obvious wounds; they were particularly noticeable at the basal end where the stock had been severed from the parent "stool." This fact suggested that methods which reduce to a minimum the areas of the injured surfaces would reduce gall formation, while careless handling which produced unnecessary wounding would induce ready development of galls. It also suggested the possibility of preventing infection of the injured surfaces by covering them with a protective layer of some antiseptic substance.

Field experiments are being carried out, therefore, at East Malling in order to obtain information respecting the factors which favour gall development, and to ascertain whether there is any practicable method of controlling gall formation on layered Apple stocks grown in infected soil. The experiments are still in progress, but a brief outline of results already obtained may be of without interest.

The object of these experiments was to determine:—

- (1) Whether cutting (with a clean cut) the stocks from the "stool" is preferable to tearing the stocks away with a rough "heel."
 - (2) Whether covering the cut surface with a protective layer before planting up the stocks reduced the number and size of the galls.
 - (3) Whether rough treatment at the time of planting increased gall production.
- The stocks used in the experiments were removed from the stools as one-year-old rooted shoots, then subjected to the particular treatment, and planted in infected soil in March, 1920. They were left undisturbed until February, 1922, when they were lifted and the size and situation of the galls noted.

The results may be summarised as follows:—The galls occurring on the base of the stock were distinctly larger where the stocks had been roughly torn from the stools than where they had been smoothly cut with a knife; and on both these groups the galls were larger and more frequent than on stools cut with a knife where the wound had been covered before planting with either Stockholm tar or grafting wax. Of these two materials, Stockholm tar appeared to reduce the disease more than grafting wax; but it also appeared to injure the roots of the stocks to some extent, more of the stocks treated with it having died than those untreated, or treated with grafting wax. This may be attributed entirely to the fact that the types of stock used are often poorly rooted, and frequently have, when planted, no more than two or three roots close to the base of the stem. It seems probable that more freely rooted types of stock would have shown little if any injury.

A further experiment on the effect of injuries, such as bruising the bark and cutting the roots before planting, also gave a significant result. Stocks planted with their bark severely bruised showed after two years' growth a considerable proportion (nearly half) with galls on the main stem above the base; whilst similar stocks

injured as little as possible were very nearly free from such galls. Many of the cut roots gave rise to small galls at the cut end.

These preliminary results suggest that on "Paradise" Apple stocks:—

- (1) Cutting the shoots with a knife gives rise to smaller galls than tearing them from the stool.
- (2) Covering the cut surfaces at the base of the stocks with a protective layer, e.g., Stockholm tar or grafting wax, reduces the number and size of the basal galls.
- (3) Galls on the stem above the base, and root-galls, may be largely prevented by careful handling and planting, so as to avoid unnecessary injuries. *H. Wormald, South-Eastern Agricultural College, Wye; and N. H. Grubb, East Malling Research Station.*

MESEMBRYANTHEMUM AND SOME NEW GENERA SEPARATED FROM IT.

(Continued from page 151.)

Conophytum, N. E. Br.

VERY small succulent plants, stemless or developing stems with age, with several or numerous growths in a clump. Roots very short. Each growth formed of two leaves fused into one fleshy body, globose, oboconical, ovoid, subcylindric or oblong in shape, convex, flat, depressed, notched or two-lobed at the top, with a small orifice resembling a closed mouth at the centre of the top or between the lobes. Flower solitary, growing up from the interior of the growth through the central orifice. Calyx with a distinct slender membranous tube above the ovary, 4-6-lobed at the top, more or less included in or partly or entirely exerted from the body of the growth. Corolla with a distinct slender tube as long as or longer than the calyx-tube; petals numerous or occasionally few, spreading or recurved, in one to several series, the inner series at the mouth of the tube sometimes much smaller than the others and differently coloured. Stamens few or many, erect, not collected into a column, included in the corolla-tube or partly exerted from it. Ovary flat or convex at the top, with a marginal, crenulate, glandular ring, 4-6-celled. Style long or short (rarely almost absent), with 4-6 filiform stigmas at its apex. Capsule small, 4-6-valved, 4-6-celled, with or without cell-wings covering the seeds.

The generic name is formed from the Greek words *konos*, a cone, and *phyton*, a plant, in allusion to the form of the growths, which in many species resemble an inverted cone in shape. I have adopted this name from Haworth's suggestion in his *Revisions Plantarum Succulentarum*, p. 82, where, under his Section Minima, he writes, "If this section proves to be a genus the name Conophytum would be apt." But he does not himself actually propose to consider it generically distinct from Mesembryanthemum, as he does in the case of Glottiphyllum and Gibbaeum. Yet, as I consider that these plants are generically distinct from Mesembryanthemum, I have accepted his suggestion for a generic name for them by modifying it into the Latin form.

The plants included in this genus are all distinguishable at sight from Mesembryanthemum by their form, and technically by their calyx and corolla, each having a distinct tube, by the presence of a distinct style (in two or three species, however, this is almost absent), and by their peculiar mode of growth in both the seedling and adult stage, being, together with those of the genus Lithops, the only known plants that are almost alike in form in both the cotyledonary and adult stages, the only practical difference between the two stages being that of size, as I have described, and illustrated in the *Gardeners' Chronicle*, 1921, vol. LXX, p. 207, fig. LXXXIV., M-O, and p. 225, fig. 97.

A peculiarity of these plants is (as stated in vol. LXX, p. 290) that they have very short roots, rarely more than about an inch or an inch and a half long, and they often grow in a very

shallow layer of soil (from half an inch to one inch thick) that has accumulated upon the surfaces or in crevices of rocks. How they manage to exist in the dry, hot climate of South Africa in such situations is a mystery that cannot be solved in Europe.

The plants of this genus, together with those of the genus Lithops, are popularly known as the "Sphaeroid Mesembryanthemums," and of this group in the most recent monograph of the genus Mesembryanthemum, published by Berger in 1903, only 17 species are enumerated, of which he appears to have seen only six, yet at that date I had at least thirty species in cultivation. In the following enumeration 58 species are described, so that with the addition of the ten species of Lithops already described, the number of Sphaeroids at present known amounts to 68, and I have a few others that I expect to be new species that have not yet flowered. Over a hundred years ago Haworth (*Synopsis*, p. 236) records that he asked Masson (who introduced a vast number of these plants) if he had sent home all the species there were in South Africa, to which Masson replied, "No, nor half of them." And I very much doubt at this period if half the species of Sphaeroids have yet been discovered.

During my botanical career I have worked at a large number of genera of plants, and have generally been able to make some sort of a key to the species, but this genus Conophytum defies all my efforts, for there are so few characters to make use of that can be defined by words. These plants do not possess the evident parts that other plants have; no stem, no leaves, no angles, no stipules, no prickles or spines from which differentiating characters can be derived, only an oboconic, globose, oboconate or two-lobed fleshy mass and a flower. And as the size of the growths of the very same plant in different years under cultivation varies considerably, there is nothing but a difference in colour and markings, and perhaps a very slight difference in form by which to distinguish different closely allied species when out of flower, and these are not characters that can be clearly defined by words, and are sometimes variable. The flowers often differ likewise in small but constant characters that cannot be described, for colour cannot always be relied upon to separate allied species, since different plants of the same species may vary from white to rosy in the colour of their flowers. Haworth and others have thought that the exertion of the ovary from the body of the growth or its inclusion within it is a good specific character, but I find that the exertion or inclusion of the ovary and calyx-tube varies in different years upon the very same plant, so that it cannot be implicitly relied upon. Therefore, only good coloured drawings with dissections accompanying the descriptions can really enable anyone to correctly discriminate between the closely allied species of this genus, and such illustrations I have been for some years preparing for a future work. Meanwhile, I have done the best I can to classify the species by grouping them in accordance with the character of their surface, form and markings.

There is one point that it is very important to note, and that is the difference in size and appearance between newly imported plants and those very same plants after being in cultivation a few years. The behaviour of different species in this respect varies, however; some do not alter at all, while others alter greatly. For example, the growths of the beautiful little *C. minusculum* are no larger to-day, after 13 years' cultivation, than they were when first sent to Kew in 1909, while the growths of *C. globosum*, when introduced at Kew, were about half an inch in diameter, yet a portion of the plant given to myself developed in two years growths 1-1½ inch in diameter, and in subsequent years varied from 2-1½ inch in diameter, a size that it probably never attains in nature. The most remarkable change that I have noticed has been in the case of the very distinct *C. piosulum*, which has altered its form from oboconate to obovoid to an elongated ovoid shape, pointed at the top. *N. E. Brown*

(To be continued.)

THE TREE BOX AT BOXHILL.

THOSE who are interested in our rarer native trees and their timber should pay a visit to Boxhill, in Surrey, which is distant from London about twenty miles. Though this is the only place in Britain where the Box is found in a truly wild state, yet in several other parts of England, and in a few stations in Ireland, this so-called shrub grows in considerable quantity, and has attained to quite tree-like dimensions, some of the tallest specimens exceeding thirty feet in height.

Perhaps the largest and finest of the Boxhill trees are to be seen close to the main road, bordering the private grounds of the Burford Bridge Hotel, and in company with the Yew, Beech and other trees and shrubs that favour a chalky formation. Here the average height of the Box is 35 feet, and the clean, smooth-barked trunks are from six inches to eight inches in diameter at breast high, though one unusually large specimen that was measured had a diameter of 25 inches. Some of the stems have assumed a curious, flattened shape, probably owing to their being top heavy and bent over, several, though 18 inches wide, being only three inches thick.

Though all the trees are of somewhat small diameter, yet the stem thickness is carried well upwards, the girth at 20 feet being, in some cases, little less than near ground level. On other parts of the hill the Box is of much smaller dimensions, being found of all heights from a few feet up to the full-grown tree. Not a few of the trees have assumed a semi-procumbent mode of growth, which is largely owing to overcrowding and consequent bending of the stems; indeed, the whole plantation would be improved by careful thinning and pruning, especially towards the lower fringes of the woodland.

Such thinning, if judiciously carried out, would not interfere in the least with the natural appearance of the wood as a whole, but add greatly to the health and value of the remaining specimens. The timber produced here is of excellent quality, and it is recorded that in 1815 the sale of Box-wood from this plantation exceeded £10,000.

Later sales of Box-wood in this country were those on Lord Gladstone's Dane End estate, in 1917, and about the same time twenty tons were offered for sale in Ireland. Small quantities have also been sold in Kent and Sussex.

Box-wood is of a pleasing, delicate yellow colour, hard, dense and compact, and one of the heaviest of our home-grown timbers, a cubic foot weighing fully 80 lb. It is the best timber that has been discovered for wood engraver's blocks, while in the making of mathematical instruments it is largely employed. For thermometer scales, gauging rods, foot-rules, and wherever figures have to be cut on wood, Box timber has no rival, as it cuts smooth and evenly, without splitting or tearing, and every line is clear and perfect.

For the manufacture of shuttles Box-wood was also at one time mainly in use, but the falling off in supplies led a Liverpool firm to try several substitutes, the most successful being that of the Cornel and Persimmon. The timber of the Phillyrea has, likewise, been employed as a substitute for Box-wood. The Box has a somewhat restricted range in southern Europe and Asia Minor, and the finest timber is sent from the Black Sea forests and Caspian shores. West Indian Box-wood is, in many respects, similar to Turkish, and to some extent satisfies the manufacturer of carpenter's rules and like articles.

It is probable that the Boxhill trees were in the past of larger dimensions than is at present the case, and it was provided in a lease of the land, dated August 25, 1602, that the tenant should use his best endeavours for preserving the Yew, Box, and all other trees growing thereupon; as also to deliver, half-yearly, an account of what had been sold, to whom, and at what price. The Box trees cut down in 1608 upon the sheep walk on this hill realised £50. A. D. Webster.

CHINESE SHRUBS AT ALDENHAM.

(Continued from page 179.)

PHOTINIA DAVIDSONIÆ promises to be a most useful evergreen, as it is perfectly hardy at Aldenham. A handsome specimen there is now 7 feet high, and nearly as much in width. The young shoots are quite red, and offer a fine contrast to the glossy green foliage. Wilson states that the fruits are orange red, and describes the plant as one of the handsomest evergreens in China. The Aldenham specimen—of which an illustration is given in Fig. 102—has not yet fruited.

SYCOPTIS SINENSIS is an interesting evergreen member of the Wych Hazel family, which also flowers during the winter. The most conspicuous parts of the flowers are the yellow stamens. The species bear neat, dark foliage, and makes an attractive shrub or small tree. A



FIG. 102.—PHOTINIA DAVIDSONIÆ.

good specimen at Aldenham is seven feet high.

SYRINGA.—The new Lilacs include Syringa Komarowii with deep, rosy-pink flowers; S. reflexa, which has a long, pendulous inflorescence of carmine-red flowers, that are most attractive before they are expanded; and S. Wilsonii, which has made a fine bush ten feet high, bearing white flowers tinged with lilac.

VIBURNUM.—The various Chinese plant-collecting expeditions have contributed a large number of Viburnums, many of which have proved totally distinct from the kinds hitherto known. Both the evergreen and deciduous species contribute to our gardens some very handsome shrubs, the most noteworthy of which are the following:—V. buddleifolium, a deciduous shrub, with long, narrow foliage, covered on the underside with white down. It forms a well shaped bush, about six feet high, and has black fruit.

Viburnum cylindricum (syn. V. coriaceum), is a strong-growing evergreen, the Aldenham specimen being nine feet in height and the same in diameter. It has large, dull green foliage, with a waxy surface, which is most plainly seen when the leaves are rubbed. The white flowers, produced in midsummer, are succeeded by black fruits. This plant was raised from Wilson's seed, being introduced by him from W. Hupeh in 1907, but the species had

been previously introduced from India in 1881. In severe winters the plant is liable to suffer from damage by frost at Aldenham. V. dasyanthum forms a deciduous shrub with long, dark green, tapering leaves and corymbs of white flowers. The large, red fruits are showy. V. Davidii is a distinct, low-growing evergreen, having blue fruits, which make a pleasing contrast to the dark-green foliage. V. Henryi is particularly fine when in fruit. The berries are produced in pyramidal panicles, and are red at first, changing to black. The species is evergreen, and makes an upright bush from six to eight feet tall. Viburnum ovalifolium, a fine, deciduous species, has made a shapely bush seven feet high. Those who have seen it in autumn assure me of the beautiful show made by its bright red fruit. V. propinquum is a neat-growing evergreen bearing blue-black fruits. In winter the dark green leaves contrast well with the red leaf stalks.

V. rhytidophyllum, which is now fairly com-

mon in gardens, often develops into a fine bush, ten feet high, and is one of the most distinct and best known of the new evergreen Viburnums. The leaves, some six or seven inches long, are dark green above and covered with a dense tomentum on the under-surface. The flowers are not conspicuous, but the red fruits, produced in large trusses in September, are very handsome. Unfortunately it cannot be counted upon to fruit regularly with any profusion; probably if the plants were massed instead of being isolated this defect would be remedied. All who saw them in mass in the Coombe Wood Nursery were impressed with the brilliant display of fruit. V. theiferum forms a distinct, erect-growing shrub with fine foliage, six inches long, two and one-half inches wide, and dark green in colour. It has large egg-shaped, red fruits. V. utile is a pleasing evergreen of somewhat slender growth; a good specimen at Aldenham is six feet high. The dark green foliage is covered on the underside with a dense white down; the blue-black fruits are attractive. V. Veitchii in general resembles the common V. Lantana, and is one of the finest of all in fruit, which is red at first, changing to black. It has proved particularly good at Aldenham when trained as a standard. A. E. Thatcher.

(To be concluded.)

ORCHID MYCORRHIZA.

(Concluded from page 183.)

THE method of extracting the fungus from the root calls for a certain amount of skill. Perhaps the greatest difficulty, however is met with in ascertaining whether the desired fungus has really been extracted, and not the fungus of one of the numerous saprophytic or even parasitic fungi present in the houses. To sow seeds on these would be worse than useless as, unless a seedling has got to the rooting stage, such fungi as *Penicillium* will kill off even well germinated seeds. The characteristics are well shown in Fig. 103. Sclerotia, small hard masses about the size of a pin's head, are formed in some cases, in others these are absent—but the swollen chains of "spores" are always seen on the glass of the containing vessel; it is from the massing of these that the sclerotia arise. Sections of seeds which have been sown on the requisite fungus (Fig. 104) show after a week or so that the fungus has entered through the suspensor end and passed into the larger cells. These are invaded by degrees, the hyphae becoming twisted into a ball in each cell before passing on to the next. Almost immediately the smaller cells at the opposite end of the seed undergo division. Here the meristem of the stem is laid down. The fungus never enters these cells; in fact, the only cells capable of division which ever harbour the endophyte appear to be those of the seed where it first enters. Eventually the developing seedling takes on a swollen shape being most frequently more or less turbinate. Bernard called this swollen tulercle a protocorm from its similarity to the protocorm in Lycopods. The fungus remains restricted to the larger cells and follows in the wake of their division.

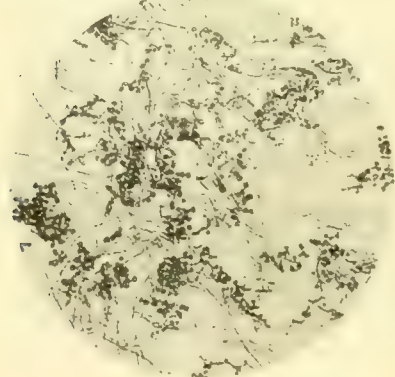


FIG. 103.—FUNGUS ISOLATED FROM ODONTOGLOSSUM ROOTS AND BEGINNING TO FORM SCLEROTIA.

Meanwhile, the rapid division taking place in the smaller cells at the anterior end of the seed gives rise to the young stem and the first leaf (cotyledon). About the time this young leaf becomes visible to the naked eye the cell division has extended along the axis and the beginning of the central stele is seen (Fig. 105). In this manner the young root is formed and begins to absorb its way through the tissues of the protocorm. Finally it passes into the soil. It is a remarkable fact that apparently in none of the cultivated Orchids does the developing root when passing through the tissues enter the fungal zone, nor do the hyphae of the fungus pass into the root. When the root enters the soil, therefore, it is absolutely free from infection: in none of the usually cultivated Orchids does the root obtain its fungus from the swollen protocorm. Infection takes place from the soil most frequently when the root is about a quarter of an inch in length, the hyphae entering the root hairs a little behind the region of greatest growth. It is somewhat unexpected to find that the root is infected in this way and not by the fungus already in the plant, but a somewhat similar state of affairs is again encountered in Orchids with tubers which do not retain

their roots; tubers never harbour the endophyte and the new roots receive their fungus from the soil. Only in one Orchid so far studied, the saprophytic *Neottia*, does constant infection obtain. Here, according to Bernard, the fungus progresses gradually from the widely infected protocorm into the body of the plant, gains the rhizome and infects successive roots: the region of infection is continuous throughout the plant.

What has happened meanwhile to the fungus? Bernard pointed out that after a fungal hypha has passed through the suspensor end of the seed, entrance is forbidden to any other hyphae. There appears to be an attraction, though feeble, towards the place of entry. When a "wrong" fungus is used it may proceed in a more or less straight line and invade the whole of the seed, but in successful germination, the fungus, after seed entry, follows the development of the cells and forms mycelial balls in all the posterior portion of the seedling. According to Bernard, when the fungus reaches the cells bordering on the meristematic region, digestion takes place. This is regarded as being analogous to phagocytosis, such as occurs in animals, where the white corpuscles of the blood attack, engulf

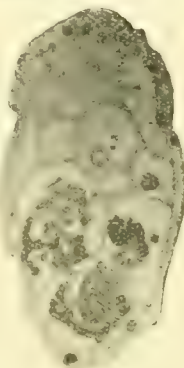


FIG. 104.—SECTION OF AN ODONTOGLOSSUM SEED NINE DAYS AFTER IT WAS SOWN ON A FUNGUS CULTURE. THE MYCORRHIZA HAS ENTERED THE LARGER CELLS AT THE POSTERIOR END.

and digest any invading micro-organisms; the cells in which digestion takes place are the phagocytes.

The same phenomenon is seen in roots. Many observers hold that here the cells containing the fungus may be divided into two kinds, those in which the fungus is digested and those in which the fungus is allowed to thrive and continue until its liberation from the plant to invade other roots. Bernard, likewise considered, that whereas eventually the more deeply lying cells of the protocorm absorb the fungus the cells of the external layers act as host cells. This is an attractive theory, but hardly more. There can be no doubt that the fungal hyphae are disorganised in the cells of the developing seedling, but all the cells containing the fungus appear to act in this way. It is also noteworthy that host cells seem absent from the roots in most cultivated Orchids.

The question arises as to how far it is possible to replace the action of the fungus in bringing about germination by making use of chemical stimulation. Bernard concluded from a consideration of the way in which the endophyte can act at a distance, that is, bring about changes in cells to which it has not access, that there is a general modification of the physico-chemical properties of the sap which can reach all the tissues. He tried the effect of solutions of salep and saccharose in increasing concentrations on seeds of *Bletilla*, *Cattleya* and *Laelia*. Seeds of *Bletilla*, as seen above, germinate under ordinary conditions with the formation of slender seedlings, whereas in high concentrations the seedlings show thickened protocorms and short internodes comparable with seedlings infected with the fungus. The seeds of *Cattleya* and *Laelia* at low con-

centrations of the medium swell and become green. With higher concentrations development is much slower than when the fungus is present, but seedlings of quite normal appearance can be obtained. Thus it appears that augmentation of the culture medium can, in certain cases, supply the place of fungus action. In fact, Bernard states that under the conditions of his experiments it was more certain and easier to germinate certain seeds by the action of concentrated solutions than to have recourse to fungal infection. Germination was slow, but very regular, the protocorms had a normal appearance and the seedlings when fairly developed could be transplanted.

These results are of great theoretical importance as suggesting the manner in which the fungus acts. There are interesting similarities to experimental parthenogenesis in invertebrates, and the activation necessary for the germination of the spores of certain cryptogams. Very recently Knudson (*Botanical Gazette*, 1922, p. 1), has suggested that the fungal stimulation is somewhat of a myth, or at least that it has not yet been conclusively proved, the fungus only being necessary under the conditions of pure culture employed by Bernard and Burgeff. His experiments were, however, conducted with *Cattleya*, *Laelia* and *Epidendrum* (!) where the phenomenon of chemical stimulation is already well known and where, moreover, it is often rather difficult to find fungi in the roots of

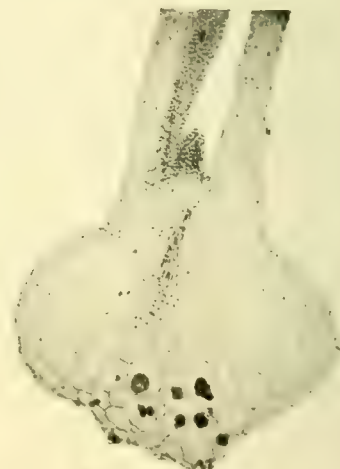


FIG. 105.—LONGITUDINAL SECTION OF ODONTOGLOSSUM SEEDLING SHOWING THE STEM GROWING POINT AND THE BEGINNING OF THE FORMATION OF THE VASCULAR STRANDS. MOST OF THE FUNGUS IN THE TISSUE IS DIGESTED.

cultivated plants. He shows that sugars are apparently the necessary chemicals, fructose being more favourable than glucose. It is probable that the work of the fungus is to introduce carbohydrates into the seed, but so far as I am aware, no one has yet succeeded in chemically stimulating the seeds of *Odontoglossum* and similar plants. It is with these that the late Mr. Joseph Charlesworth, of Haywards Heath, had as uniform a success as is possible. Usually in one of the culture flasks as many seeds germinate as can find room, germination even taking place on the sides of the flasks. No one who has seen such a culture flask, the transplanted seedlings, the growing and then flowering plants, can doubt for a moment that the natural type of germination is occurring; and further, no one with experience of fungi would imagine that they could be harnessed under such conditions unless it was their natural mode of life. When the appropriate fungus is obtained and the ordinary methods of Orchid culture are grafted on to the laboratory methods, the numerically insignificant results obtained in the epoch-making test tubes of Noël Bernard become the millions of seedlings appearing like a green sward in the houses of Messrs. Charlesworth and Co. J. Ramsbottom.

THOMAS AND EW KNIGHT AS A POMOLOGIST.

THE recent decision of the Council of the R.H.S. to award the Knightian medal to exhibitors of vegetables, and the Hogg medal to fruits, must not be taken to infer Knight was not so great a pomologist as Hogg, for he raised numerous varieties of fruits, but, unlike Hogg, his activities were not restricted to pomology, but extended to all branches of gardening, and the vegetables he raised marked a great improvement on those of his time. The name of Thomas Andrew Knight, squire of Downton Castle and owner of land around Tillington, will always occupy a high place in horticulture, if only for the reason that he was one of the founders of the Royal Horticultural Society, and one of its most brilliant presidents. Some of the work which Knight accomplished in fruit-raising may be gathered from the following interesting notes contributed to us by *Pomona*, but a fuller list is given in *Gard. Chron.*, Feb. 10, 1877, p. 170:—

Mr. Knight gave much thought and attention to the raising of Apples, Pears, Cherries and Strawberries, obtaining many choice varieties that are still in cultivation, although a century has elapsed since the work began.

Lord Scudamore, of Holme Lacy, whilst Ambassador at the Court of France in Charles I.'s time, is said to have collected in Normandy cuttings or grafts of cider Apples, which he afterwards had grafted and planted in Herefordshire. Mr. Knight followed somewhat on the same plan, and to-day the selected seedlings of his raising may be found in the orchards that once belonged to him. Among these, are the Tillington Seedling, an Apple of Pearmain shape, of beautiful colour, a fair cropper, and very good quality. The tree is not a strong grower on the Crab stock, but is robust on the Paradise stock. The season of this variety is November to January. Wormesley Pippin, named from Wormesley Grange, a country seat where Mr. Knight once resided, is a fruit of medium size; the stalk is long; the skin pale green with brown next to the sun; the flesh white, crisp, with a rich vinous juice. Red and Yellow Ingestre varieties are twin productions raised from seeds of the same fruit, the parents being Orange Pippin crossed with Golden Pippin. This is a fine instance of the value of crossing, and had Knight achieved no other triumph of his skill and patient industry, this result would have been sufficient to hand down his name with honour to posterity. Bringewood Pippin, a variety he raised by crossing Golden Harvey with the pollen of Golden Pippin, is a nearly globular fruit of middle size with short stalk and bright gold coloured skin, dotted with white specks and russety next to the sun. The flesh is firm, crisp, juicy, sweet and highly perfumed. The season is November to April. Downton Pippin, originated with Mr. Knight, who crossed Orange Pippin with the pollen of Golden Pippin, this latter variety being a favourite for hybridisation purposes; Mr. Knight's aim was to raise a variety as near the colour and shape of an Orange as possible, and probably to ensure a prolonged season. The fruit of Downton Pippin is larger than that of its parents, the skin is yellow and covered with numerous specks; the flesh is yellowish. It is a very excellent Apple, and the tree a good bearer.

Mr. Knight also raised Strawberry Elton, a valuable late variety; Nectarine Downton, a fruit of luscious quality; Pear Knight's Monarch, and Cherries Waterloo, Knight's Elton, Black Eagle and Early Black, all of which are excellent varieties, still in cultivation.

FRUIT REGISTER.

APPLE WINTER QUOINING.

This variety is synonymous with Winter Queening, Winter Quinin, and Calleville d'Angleterre. The flesh is greenish-yellow, tender, soft, sugary, rich and aromatic. Several large trees of this useful Apple may be found in some districts of Herefordshire.

Early in the season the colour does not "take the eye," for the skin is pale green, covered with stripes of deep red and marked on the shaded side with a thin coat of russet. The eye is small and closed, and set in a narrow angular cavity. The stalk is slender, half an inch long, and inserted in a narrow angular cavity. At this season of the year it is a dessert Apple of merit. *Pomona*.

APPLE LAXTON'S PEARMAIN.

THIS excellent dessert Apple (see Fig. 106), received the R.H.S. Award of Merit on January 31 last when shown by the raisers, Messrs. Laxton Bros., of Bedford. It is a seedling raised from Wyken crossed with Cox's Orange Pippin, and another interesting case similar to the one referred to by *Pomona* in his article on this page dealing with Apples raised by Thomas Andrew Knight. A second pip from the same fruit gave a variety of first-class merit, Laxton's Superb, which also obtained the R.H.S. Award of Merit. Laxton's Pearmain greatly resembles Cox's Orange Pippin in appearance, but is of duller red, and has a longer stem; the eye, however, is almost identical with that of Cox's Orange Pippin. The quality of this late Apple is excellent, but it is somewhat past its best at the end of January, being in its

agencies at work. I use three or four rabbits' tails tied neatly on to fairly long cane, so that all branches may be easily reached. With this, when the pollen is dry and free, I brush carefully over the anthers until the brush is covered with pollen, and when this is the case, another variety is treated. Stigmas are touched, and cross pollination effected. If this method were adopted generally, I am sure more fruit would set, thus proving that bad weather is not wholly responsible for poor crops.

I notice Mr. A. N. Rawes states that Coe's Golden Drop pollinated with Jefferson did not set, neither did President pollinated from Late Orange, which shows that incompatibility must be taken into account. In general practice it seems desirable to cross pollinate with varieties which produce an abundance of pollen. *R. H. Crockford, Weston Park Gardens, Stevenage.*

VEGETABLES.

CELERIAC.

I HAVE often wondered why Celeriac or, as it is called here in Sweden, "roots Celery," is not more cultivated in England, as it is very easily grown. Seed should be sown in March in boxes



FIG. 106.—APPLE LAXTON'S PEARMAIN.

finest condition about Christmas. The tree is said to be of very vigorous growth, upright in habit, and very prolific in cropping.

HARDY FRUIT GARDEN.

SELF-STERILITY IN PLUMS.

Plum blossom will soon be opening, hence a reminder that certain varieties of Plums are self sterile may be opportune. Those who have read in the R.H.S. *Journal* issued last May, the account of the tests carried out among Plums at Wisley during 1919, will understand how greatly gardeners are indebted to the director and staff at Wisley for the most valuable information given.

Three varieties of Plums proved self fertile, and these were Denniston's Superb Gage, Monarch and Czar. Varieties partly self fertile are Early Rivers, President and Prince Engbert, and those self sterile are Coe's Golden Drop, Decaisne, Grand Duke, Jefferson, Kike's Blue, Late Orange, Transparent Gage, Pond's Seedling, Comte d'Althaus's Gage, and Washington. As most Plum blossom is fully open within a period of two weeks, I advise cross pollination, especially should the weather prove dull and cold, with few bees and other pollenising

or in a warm frame, and the seedlings pricked out later in frames, if possible with warm manure underneath; in fact, the same culture as is applied to Celery should be adopted until May, when the plants should be ready to plant out in the open. Choose a piece of land that has been manured for a previous crop, or dig in well-rotted cow manure. Twelve inches between the rows and seven inches between the plants is a very good distance to plant. During dry weather Celeriac should receive copious supplies of water at the roots and be kept free from weeds. Liquid manure should be supplied when the roots begin to swell. In September it is a good plan to begin to take away some of the leaves; here we take away all the lower leaves first, and three weeks later strip off most of those remaining, leaving only two or three in the centre. This removal of leaves greatly assists the roots to swell and become a better shape, and if done carefully saves a lot of work when the time comes to lift the roots.

The best place in which to store Celeriac in the winter is a cold frame, setting the roots closely together in soil or sand. Here they will keep quite fresh and plump until spring. I have seen "roots Celery" in England quite dry and almost wizened in winter, and, of course, under those conditions the vegetable

loses its flavour, as well as its commercial value, especially if sold by weight, as is often the case in Sweden.

I presume the reason that this useful and easily grown vegetable is not so much used in England as on the Continent is that more Celery is grown in Great Britain. From a commercial point of view Celery is much cheaper to cultivate than Celery, and it may be used for many purposes in the kitchen instead of Celery. I have sold roots of Celery here at from three-pence to sixpence or more each, which I consider is a good return for the labour and room allowed them. I am not sure that there is a great demand in England, but I well remember a greengrocer in a fairly large way of business telling me twelve years ago it was a pity more of this vegetable could not be grown at home, as supplies were mostly imported from the Continent. *James Page, Adelsnäs Trädgård, Atvidaberg, Sweden.*

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Do Plants Know Time? (see pp. 31, 47, 95, 118, 158, 172).—It is only necessary for me to reply to the questions asked by Mark Mills, seeing that the subject is much more widely discussed on pp. 175 and 189. I did not state nor infer that all flowers were made to open by anthocyanin and the rays of the sun. Indeed, I stated that a good explanation could be given in some cases, and that other movements were connected with night-flying insects and heredity. Every movement of plants has to be judged on its own merits. The closing movements of the flower heads of *Tragopogon pratensis* are not due to the heat of the sun, for the heads close before the maximum temperature has been reached. The closing is autonomous and hereditary. The bracts of the heads close and press the receptive stigmas of the older florets against the pollen of the younger ones, and thus effect cross-fertilisation. That is the object of the closing. *J. F.*

Thompson's "Gardeners' Assistant."—In answer to *Quez*, the prices given apply when sets are out of print. "Recent," in my notes, should have been "older," as the early issues of the enlarged book are the more valuable. There have been a number of editions issued at various times, including several of the one-volume work, which, by the way, is not much wanted now and worth very little to collectors. *A Book Collector.*

Musa Cavendishii.—I was interested in reading Mr. Snell's and Mr. Hill's notes on Bananas growing in the *Gard. Chron.* of March 25. It causes me to wonder whether Bananas are grown as much in private gardens as they were, say, twenty-five to fifty years ago by the old school of gardeners. When at Wimbledon House fifty years ago Sir H. Peek's gardener, Mr. James Ollerhead, grew bunches averaging 100 to 112 pounds, and continued producing them annually up to 1895; the bunches had to be supported from the rafters by chains. The Banana house was about 24 feet long and 20 feet high in the centre. The bed was 5 feet wide, divided by a brick wall, which made two borders 2 feet wide and 2 feet deep; the borders or beds were filled up with good Banstead loam with plenty of $\frac{1}{2}$ -inch bone added. There was ample piping for providing bottom heat, also plenty for maintaining a warm temperature in the house. Mr. Ollerhead also grew a smaller variety in the Aquatic House, in tubs, which carried bunches of 20 to 30 pounds weight. When I read of 36-pound bunches, it occurs to me that modern gardeners have much to learn from the old school about Banana growing. *Thos. E. Furnell, Quakers Hall Nursery, Sevenoaks.*

—I was much interested in the correspondence in your issues of March 4 and 25 on this fruit. I fruited three plants last year, with an average of 100 fruits to each bunch, the one shown in the photograph (not suitable for reproduction—Eds.) having 130 fruits, and was carried by a two-year-old plant, having a height

of 8 feet, with a stem 24 inches in circumference. The plants were grown in tubs, with a night temperature of 65°, and 70° by day, rising 10° with sun heat, when a little ventilation was given. These Musas were grown in a light structure 25 feet high. The manures used were Le Fruitier and liquid cow manure. I quite agree with Mr. J. Snell when he writes that Bananas may be fruited and ripened easily in eighteen months to two years from suckers. My employer spoke of the very fine flavour of the fruit grown. *F. Capp, Nostell Priory Gardens, Wakefield.*

—I was interested in the correspondence of Mr. J. Snell and Mr. H. Hills on the cultivation of *Musa Cavendishii*, especially as Mr. Hills mentioned that this Musa was grown at Colwood during his service there. We have at the present time a fine bunch of 144 fruits on a plant growing in a box on the Palm house stage. This bunch developed last October, and has been growing in an average night temperature of 55°. The fruits are fine and well developed. There is also another growth with a bunch just showing, and a fine bunch was cut from a plant growing in the same box last year. I may add that the plants have been grown in the same soil for several years, but liberally fed with manure and soot water. If possible, I will have a photograph taken and will send a print to you, in the hope that it may be suitable for reproduction in *Gard. Chron.* *Alfred Swann, Colwood Gardens, Warninglid, Haywards Heath.*

Blinds for Glasshouses.—In your issue of March 25, Mr. Pateman observes, "The blinds should now be fixed." Is it not much better to have such blinds as the wooden chain-lath blind that may be kept in its place all the winter and let down at night to conserve the heat and keep the glass protected, and are thus always ready for use, summer and winter, rather than have to "refix the blinds 'or the summer'?" *F., Crandon, Hadley Green, Barnet.*

Ipomaea rubro-coerulea (p. 135).—This blue-flowered *Ipomaea* may be, as stated by Dr. Robertson Proschowsky, the most pure sky-blue coloured of flowers; but it is not sufficiently hardy for general outdoor cultivation. Of all blue flowers there are few to equal that of the long introduced, but seldom grown, *Commelina coelestis*. Poets have sang of it, and of the many myths which cluster round it, it will suffice to recall one, mentioned in your columns by *Cornelius Senex* in his monthly notes (see *Gard. Chron.*, Vol. XXVIII., 1900, p. 81), "The Daughter of the Year." Of it we are told that "a seed adhered to the foot of the flower angel as she returned to heaven after visiting her charge below. It gazed on the celestial blue until heaven's azure passed into its tiny frame, when it returned to emulate the empyrian hue on earth." *Fred. W. Jeffery, Dalsrif, N.B.*

Roofing of Garden Fruit Cages.—A most important and interesting point has been raised by Mr. Trevor Battye in your issue of April 1. About twelve years ago a fruit cage was built here, covering half an acre, and it is still in good condition. It has one wire door at each end, and was planted with Raspberries, Black Currants, Red and White Currants, Gooseberries and Strawberries; since the Gooseberries were grubbed up (owing to mildew) Strawberries have been planted between the other subjects. I have also a piece of ground within the cage set aside for Strawberries only. I have not discovered any damage due to zinc salts from the wire overhead, as we have good results every year with Strawberries within the cage, but I quite believe that the temperature acts adversely at times, but not sufficiently to cause harm if the crop is planted between rows of taller fruits. Of Raspberries and Currants we have good crops. There is not the slightest damage done through drips from the roof. *F. J. Wren, Wittersham House Gardens, Wittersham, Kent.*

—When I took charge of these gardens thirteen years ago my employer had just built and planted a fruit cage, with Red Currants and Gooseberries, which have been a great success, as the bushes crop well every year, whilst

others in the near neighbourhood have failed to bear owing to late frosts, which usually occur in this district. Last year the Gooseberries gave a record crop; I was obliged to string the branches to the roof of the cage to support the weight of the fruits. The bushes are still healthy. I found the first two years I was here that the Red Currant fruits were a little discoloured, but by deferring the summer pruning a little this defect was not apparent afterwards. I have never grown other fruits in cages, so do not know how they would do here. Our greatest trouble is when we get a heavy fall of snow, as we are exposed to the north-east, with no protection whatever. The soil is a dark loamy clay, on a subsoil overlying rock. *George Gilbert, The Grange Gardens, Farnborough, Banbury.*

SOCIETIES.

ECONOMIC BIOLOGISTS.

PROFESSOR E. B. POULTON, president, occupied the chair at a meeting of the Association of Economic Biologists, held in the Imperial College of Science on Friday, March 31. Dr. Wm. B. Brierley showed some fine original photographs of Dr. Erwin F. Smith, the most eminent living plant pathologist, of Professor Richard Owen and of Herbert Spencer. A paper on "Advantages and Disadvantages of Team Work in Economic Biology" was read by Dr. W. Lawrence Balls, of the Fine Cotton Spinners' Association. The paper was an attempt to enunciate certain principles governing the increasing development of team work between different scientists and sciences, particularly on the industrial and economic side. Three union principles were formulated as follows:—(1) The team leader must administer research, and not merely administer; (2) the "scientific management" of scientific research must be considered; (3) every new problem needs a new method. Of major principles, apart from the self-evident essential of sincerity, two were enunciated:—(1) The specialist in an applied science must be a "Jack-of-all-trades." (2) The scientists' code of "individualism in effort and credit; communism in results" must not be contravened. It is amazing that a subject of such vital importance to the immediate welfare and future progress of science should have had so little attention paid to it, and the attempt of Dr. Balls to bring it to the forefront for discussion is much to be commended. That team work in research must be adopted on an ever-increasing scale there is no doubt, but its detailed technique is a matter of much controversy, and in the discussion which followed the paper the following took part:—Professor V. H. Blackman, Dr. Wm. B. Brierley, Mr. A. B. Bruce, Dr. E. J. Butler, and the President.

A second paper was read by Dr. Franklin Kidd on "Problems of Fruit Storage," in which he described the uses of fruit storage in commerce, and gave an outline of the quantities of fruit imported into this country as compared with what is grown by ourselves. The speaker dealt more particularly with Apples as one of the most important crops, and showed how behind we are in this country in the matter of storage of these fruits. He gave a *résumé* of experiments carried out to test the efficacy of "gas storage" a cheaper method than cold storage. The possibility of "gas storage" was first suggested by some purely scientific research carried out by Dr. Kidd on the effect of carbon dioxide and oxygen upon germination and growth. It is another instance of results of the great practical value arising almost directly from research of apparently a purely theoretical significance. The interesting fact in the present case is that the original pioneering research and its application to an immediately practical end are both by the one person.

Finally, Dr. Kidd in his paper dealt with a series of recent experiments on the respiration of Apples during their storage life after gathering. At each of three temperatures tested,

2.5° C., 10° C., and 22.5° C., the rate of respiration changes with age in similar manner, first rising, then falling. The age changes in the respiration curves are, however, not related to the amount of respiration. Apparently while the respiration rate has a temperature relation of 1:2.5:8, the age factor has a temperature relation of the order of 1:4:30, and, consequently, at analogous points on the age respiration curves, more carbon dioxide has been produced at a temperature of 2.5° C. than at 10° C. or 22.5° C.

The value of the work that Dr. Kidd and his colleagues are carrying out on this problem of fruit storage cannot be overestimated, either in its scientific or its practical aspects. Money is needed in order to carry out research, and fruit growers and merchants who will surely benefit from these researches should make it a point of personal honour to see that all support possible is given to ensure that no avenue of investigation is left untried from a mere lack of a few hundred pounds income.

In the discussion following Dr. Kidd's paper the following took part:—Dr. West, Dr. Brierley, Mr. Bruce, Professor Percival, Professor V. H. Blackman, Mr. Lamb, and Mr. Taylor.

READING AND DISTRICT GARDENERS'.

THE final meeting of the winter session, held in the Recreation Club-room, Abbey Hall, under the presidency of Mr. H. H. Cook, was set apart for demonstrations in floral work, and Mr. H. Wynn, The Gardens, Hammonds, Checkendon, gave various examples of this art suitable for private households, such as bowls for the dining-room and drawing-room, and a design for a dinner table, large or small. Daffodils, Schizanthus, Carnations, Statice, Richardias, Amaryllis and Cinerarias were the flowers used. Great interest was manifested in the work, and at the close Mr. Wynn was heartily congratulated and thanked.

There were two excellent exhibits in the non-competitive section, and both were awarded the Association's First-class Certificate of Cultural Merit, viz., two dozen Lane's Prince Albert and Seedling Apples, the fruits being remarkable for colour and sound condition for so late in the season, shown by Mr. E. BLACKWELL, The Gardens, Foxhill, Reading; and six excellent plants of Cineraria stellata staged by Mr. A. H. FULKER, The Gardens, Elmhurst, Reading.

In the competition for three plants of Polyanthus grown from seed during 1921, there were only two entries, owing, no doubt, to the excessive drought of last year. The first prize was won by Mr. H. WYNN, The Gardens, Queen's House, Goring Heath, and the second by Mr. W. SHARPE, The Gardens, Sidmouth Grange, Reading.

It being "hospital night," a goodly collection of cut flowers was brought to the meeting, not solely for exhibition purposes, but to be sent for the use of the patients at the Royal Berkshire Hospital. Those contributing were Messrs. Dore, Fulker, Harvey, Jones, Reeves, Sopp, Townsend, Tovey, H. Wynn and J. Wynn. A collection taken in the room enabled the Association to send a sum of £2 10s. to the funds of the hospital.

ROYAL CALEDONIAN HORTICULTURAL.

APRIL 4.—The ordinary monthly meeting of this Society was held at 5, St. Andrew Square, Edinburgh, Mr. David King, president, in the chair.

Mr. R. Glode Guyer, of Messrs. Duncan Flockhart and Co., manufacturing chemists, Edinburgh, who started a very successful drug farm in Edinburgh some years ago, gave a lecture, illustrated by lantern slides, on "Edinburgh Physic Gardens, Past and Present." Mr. Guyer gave a historical account of the physic gardens which had been successively formed in Edinburgh, commencing with that of George Heriot's Hospital, the Governors of which instructed their gardener to have their eastern yard planted with all sorts of "physical and medicinal plants"

in 1661, exactly forty years after the establishment of the physic gardens at Oxford, the first of its kind in Britain. Early in the eighteenth century there were three physic gardens in Edinburgh, at North Yards, Trinity Hospital (the site of which is now occupied by the part of the North British Railway Company's Waverley station lying to the east of the present North Bridge), and Kirk o' Fields (adjoining the site of the present Old University Buildings). Mr. Guyer traced the subsequent changes which took place in connection with these physic gardens, and concluded his address with a description of his firm's drug farm at Warriston, of which he exhibited a number of slides showing fine crops of Belladonna, Henbane, Foxglove, Monkshood, etc.

The exhibits were *Primula obconica grandiflora rosea*, from Mr. R. B. WHITE (awarded a cultural certificate); *Violet Princess of Wales*, from Mr. D. M'LEON, Yester (awarded a cultural certificate); and *Richardias*, from Miss BURTON, New Saughton Hall (awarded a cultural certificate).

ROYAL HORTICULTURAL OF IRELAND.

APRIL 5 AND 6.—With no break in the long spell of chilling conditions, which has held spring flowers in abeyance, the show held by kind permission of the Earl of Iveagh, K.P., in the covered court, Earlsfort Terrace, Dublin, was small, but generally bright and pleasing.

The absence of trade groups due to the same cause, and possibly others, was less conspicuous than it might have been owing to the large floor group set up by Mr. F. STREETER, gardener to B. H. Barton, Esq., D.L., Straffan House, Co. Kildare, and this practically saved the situation. For this the Society's Gold Medal was unanimously awarded, and in recognition of Mr. Streeter's work in contributing highly meritorious groups both to the shows and to Council meetings, he was made a honorary member of the Society.

Alpines and hardy flowers were judged by Messrs. J. W. Besant, Rialtas Sealadach na Heirann (late Royal) Botanic Gardens, Glasnevin, and P. Reid, St. Anne's Gardens, Clontarf. In the premier class for twelve pans, not exceeding 12 inches diameter, distinct, Mrs. BUTLER, Priestown, Co. Meath, won the challenge cup presented by Mrs. Greer. For a dozen pots or pans, not exceeding 5 inches diameter, distinct, Lady Nutting's challenge cup was won by MURRAY HORNIBROOK, Esq., Abbeylax, Queen's Co., with Miss HART, Woodside, Howth, and Mrs. BUTLER 2nd and 3rd respectively.

For two dozen vases of hardy bulbous, tuberous, or rhizomatous plants in competition for the challenge cup presented by Capt. S. Anketell Jones, Kilkenny, Capt. RIAL, D.L., Old Conna, Bray (gr. Mr. T. Webster), won first prize; Mrs. BUTLER 2nd. In the class for twenty-four vases of hardy cut flowers, shrubs not excluded, Capt. RIAL won Mrs. Geo. Mitchell's challenge cup. For a similar class of 12 vases, the Rt. Hon. ANDREW JAMESON, P.C., Sutton House, Co. Dublin (gr. Mr. G. Osman); Wm. ROBERTSON, Esq., Hermitage, Dundrum (gr. Mr. C. Kempton); and Mrs. McENNERY, Dalguise, Monkstown (gr. Mr. Wm. Taylor), were placed in this order. In the smaller class, for 6 vases, Major SEAGRAVE, Killymon, Co. Wicklow (gr. Mr. J. Gilleran), was first prize winner, his exhibit including a grand bunch of *Pieris japonica*.

In a class for hardy shrubs, 12 vases, distinct, the prizes presented by Messrs. Wm. Watson and Sons, Ltd., Killiney Nurseries, Co. Dublin, the Hon. A. E. GUINNESS, Glenmaroon, Co. Dublin (gr. Mr. W. Stevens), led; 2nd, the Rt. Hon. ANDREW JAMESON. In a similar class for 9 vases, Wm. ROBERTSON, Esq., won first prize; 2nd, Mrs. McENNERY; and for 6 vases of Rhododendrons, distinct, G. VAUGHAN HART, Esq., Waltersland, Stillorgan, was placed first, and R. K. A. KENNEDY, Esq., Kilmacurragh, Rathdrum, Co., Wicklow, second.

ED. D'OLIER, Esq., Knocklinn, Bray, had

the only exhibit in the class for 12 Roses; while for 6 vases of Carnations, distinct, the prizes presented by Messrs. Chas. Ramsay and Son, Royal Nurseries, Ballsbridge, Dublin, Mr. STREETER had the only exhibit. Several classes for hardy Primulas and Polyanthus were not a strong feature, the winners being Mrs. BUTLER, C. WISDOM HELY, Esq., Oakland, Rathgar (gr. Mr. J. H. Orr), T. RAY, Esq., Thornfield, Stillorgan (gr. Mr. H. Cousins), and Captain RIAL.

Daffodils were not yet at their best, although Mr. J. L. RICHARDSON's Waterford blooms, included such good varieties as Lord Kitchener, Michael, Bernardino, Sir John French, Silver-spring, Van Waveren's Giant, Duke of Bedford, Mermaid, Incognita, Lemon Star, Mrs. Sydenham, Lord Roberts, Mrs. Gamp, Kingcup, Queen of the North, J. T. Bennett Poë, Sirdar, Buttercup, Avalanche, Red Lady, White Queen, Homespun, and some of his own remarkable unnamed seedlings, in the important class for 30 vases, distinct, and secured the Lord Ardilaun perpetual challenge cup. For 12 large trumpet Daffodils; distinct, and for 12 medium cupped varieties, distinct, Mr. RICHARDSON was also the winner; C. W. PARR, Esq., Athboy, Co. Meath; Mrs. BUTLER and Mr. PARR won other honours.

The 21 classes for plants were but sparsely filled. For 6 *Primula obconica*, C. WISDOM HELY, Esq., won first prize; 2nd, Major KELLY, Montrose, Donnybrook. For 6 plants suitable for table decoration, Wm. ROBERTSON, Esq., led; 2nd, Mrs. McENNERY. The best three Deutzias were shown by Major KELLY; 2nd, C. WISDOM HELY, Esq. (both excellent). Prize winners in other plant classes were: W. ROBERTSON, Esq., Major KELLY, Mrs. McENNERY, Miss CUNNINGHAM, Trinity Hall, Dublin; T. RAY, Esq. For Hyacinths, the prizes presented by Messrs. M. Rowan and Co., Capel Street, Dublin, Mr. T. RAY won the premier award.

Fruit and vegetables provided few entries, but high quality ruled. The class for baking Apples included superb examples of Newtown Wonder, and the prize winners were Lord CLONCURRY, Lyons, Co. Kildare (gr. Mr. W. Hall), Capt. RIAL, and ED. D'OLIER, Esq., as placed. For baking Pears, the 1st and 2nd prizes were won by Lord CLONCURRY and Wm. ROBERTSON, Esq., respectively. Other prize winners were: Broccoli, Lord CLONCURRY; Cabbage, T. N. ATKINSON, Esq.; Lettuce, Mrs. McENNERY; Onions, Major SEAGRAVE; Parsnips, Lord CLONCURRY; Potatoes, new, Lord CLONCURRY; Potatoes, old, Major KELLY; Rhubarb, Wm. ROBERTSON, Esq.; Seakale, C. WISDOM HELY, Esq. For a collection of vegetables, 6 kinds, the prizes presented by the firm of Sir Jas. W. Mackey, Ltd., Dublin, Lord CLONCURRY was placed first with fine examples of April Queen Broccoli, Scarlet Model Carrot, New Success Potato, Canadian Wonder Beans, white Artichokes, and Early Snowball Turnip. In a similar but smaller class, Mrs. McENNERY led.

A Silver Medal was awarded to Mr. MURRAY HORNIBROOK for an extensive collection of miniature alpines, among which were *Anemone Halleri*, *A. intermedia*, *Jeffersonia dubia*, *Saxifraga Sundermanni*, *Sedum Palmeri*, *S. Stahl*, *S. confusum*, *S. adenotrichum*, *S. cupressoides* and *S. moranense arboreum*, with *Sempervivum Ballii*, *S. Thomassii*, *S. pulchellum*, *S. violascens* and *S. hirtum*. The collection comprised nearly a hundred distinct species and varieties of the three genera. Mr. HORNIBROOK was also awarded a F.C.C. for *Thymus citriodora tricolor*. By common consent the most attractive shrubby subject in the show was a good plant of *Pieris taiwanensis* (see Fig. 68, March 25, 1922), raised by Mr. W. E. Trevithick, gardener to the Marquis of Headfort, Headfort House, Kells, Co. Meath, from seeds sent from China by Wilson in 1918 (First-Class Certificate).

Awards.

A First-Class Certificate was also awarded to Mrs. LA TOUCHE, Kilmacurragh, for *Magnolia Campbellii*. Thirty fine bunches of Daffodils in 70 distinct varieties, considerably helped the limited Daffodil display. An Award of Merit was awarded to Major KELLY for a goodly group of well-grown Cinerarias.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.

The monthly meeting of this Society was held in the R.H.S. Hall on Monday, April 10, Mr. Chas. H. Curtis in the chair. Nine new members were elected, Six members withdrew interest amounting to £20 8s. 10d.; one lapsed member withdrew his deposit of £11 12s., and three members over the age of 70 years withdrew from their deposit accounts sums amounting to £17 5s. 7d.

The death certificates of four deceased members were received and the sums of £28 10s. 2d., £26 12s. 4d., £21 10s. 7d. and £41 13s. 1d., were passed for payment to their respective nominees. The sick pay for the month on the Ordinary Side amounted to £99 2s. 1d., and on the State side to £90 11s. 6d., while maternity benefits came to £6.

The question of appointing agents all over the country was discussed and referred to the next sub-committee meeting.

ANSWERS TO CORRESPONDENTS.

BEGONIA HAAGEANA: *H. A.* Begonia Haageana is easily propagated by means of cuttings any time during the spring or summer, and these root readily in a warm propagating case. Rooted during April or May, they make excellent plants by the following winter. If grown on for a second year, they make fine specimens in ten-inch pots.

DARK CRIMSON PHLOX: *C. N.* We do not know of any variety of Phlox, the flowers of which may be correctly described as crimson, but Charles Davis and Imperator are catalogued as such. Your best plan is to inspect a good trade collection in flower, such as is grown by Mr. H. J. Jones, Ryecroft Nurseries, Lewisham.

MELON PLANT DISEASED: *A. J. S.* An abundance of fungus mycelium and also bacteria were found to be present in the decaying roots and base of the stem. The specimen, however, was insufficient to determine the exact nature of the disease; if you will send a fresh specimen, carefully packed in a tin box, we will endeavour to assist you further.

NAMES OF PLANTS: *M. G.* 1, *Viburnum Tinus* (Laurustinus); 2, *Cornus Mas.*—*J. W. S.* A fine form of *Scilla sibirica*.—*H. A.* Begonia Haageana.—*A. G.* 1, *Saxifraga apiculata*; 2, *Saxifraga apiculata alba*; 3, *Saxifraga scardica* var. *obtusa*; 4, *Sedum acre variegatum*; 5, *Sedum album*; 6, *Sedum rupestre*.

PEACH TREES DYING: *J. S. and J. T.* The trouble is not due to organic disease caused by a fungus, but most probably results from some error in cultivation or unsuitable conditions at the roots. Do not keep the borders excessively dry in autumn, and if there is any sign that the drainage is imperfect, this should be seen to when the trees are in a dormant condition.

PEACH AND NECTARINE LEAVES DROPPING: *H. V.* There is no fungus present in the leaves sent. You should have forwarded a whole branch, as the trouble may probably be due to disease in the wood. Exercise great care in watering. When the trees are defoliated in the autumn, lift the roots of one of the trees and ascertain if the drainage is perfect.

POTATOS DISEASED: *E. P. D.* The tubers are severely affected with the disease known as "internal rust spot," which is believed to be caused by a bacteria. Such tubers should not be used for seed purposes, but should be destroyed by burning.

TOMATO PLANTS FAILING: *C. J. M.* A critical examination of the stem does not reveal the presence of any fungus mycelium, but the material you sent was insufficient for a correct determination of the complaint. It does not appear to be typical foot rot, a disease caused by the fungus *Phytophthora cryptogaea*.

Communications Received. J. P.—F. W. J.—M. W. G.—L. G. C.—J. W. B.—A. D. F.—W. B. B.

MARKETS.

COVENT GARDEN, Tuesday, April 18th, 1922.

We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Tuesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general average for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—*Ens.*

Fruit: Average Wholesale Prices.

s. d. s. d.	s. d. s. d.
Australasian Apples.	Lemons, Murcia
Cox's .. 26 0-40 0	—Messina, cases 10 0-12 0
Cleopatra .. 19 0-20 0	Oranges,
Bibston .. 20 0-21 0	—Murcia, .. 26 0-30 0
California New-	—, Blood .. 26 0-28 0
town Pippin .. 20 0-22 0	—Jaffa .. 21 0-22 0
Dunn's Seeds, 19 0-20 0	—Denia .. 16 0-25 0
Jonathan .. 17 0-18 0	—Bitter .. 10 0-10 0
Other Varieties 16 0-17 0	—Valencia 300's 22 0-24 0
Oregon, Newtown 20 0-22 0	Pineapples .. 2 0-4 6
—Winesap .. 16 0-18 0	South African
Bananas, singles 15 0-25 0	—Grapes
—doubles .. 22 6-32 6	Hannepoot, .. 8 0-10 0
Dates, Tunis,	Colmar, .. 15 0-18 0
doz. cartons 5 6-6 0	—Peaches .. 10 0-12 6
Figs, per doz. .. 9 0-18 0	—Pears, Nells .. 6 0-7 0
Grape Fruit .. 25 0-35 0	—Kaiser .. 4 6-20 0
Grapes,	Strawberries
—Belgian .. 3 6-4 6	English forced
	per lb. .. 8 0-20 0

Vegetables: Average Wholesale Prices.

s. d. s. d.	s. d. s. d.
Artichokes, green 4 0-5 0	Parsnips, per cwt. 14 0-18 0
Asparagus, forced,	Peas
per bundle	—French, per
—Cavillon .. 3 0-4 0	basket .. 10 0-12 0
—Lauris .. 4 6-6 0	—Guernsey, per lb. 2 6-3 0
Beans,	Potatoes,
—Guernsey, .. 1 9-2 3	—Dunbar, .. 10 0-11 10
—Worthing .. 1 9-2 6	per ton .. £11 0-11 10
—Broad Beans .. 9 0-10 0	—English, white,
Beets, per bus. 4 0-5 0	per ton .. £5 10-£7 10
Cabbages, per bag 18 0-23 0	—King Edward,
Carrots, per cwt.	per ton .. £9-£10 10
—washed .. 22 0-32 0	—Guernsey, new,
—new, doz. bun. 14 0-16 0	per lb. .. 0 10-1 0
Cauliflower	—Tenerife, case 16 0-22 0
—French, crate 14 0-18 0	Radishes, round,
—Guernsey, crate 14 0-18 0	per doz. .. 2 6-3 6
—Gely, washed flats 2 0-3 0	—long .. 1 3-2 0
—Chicory .. 0 10-1 0	Rhubarb,
Cucumbers, flat, 15 0-18 0	—forced, doz. .. 2 6-3 0
Endive .. 4 0-5 0	—outdoor .. 8 0-12 0
Garlic, per lb. 0 8-0 9	Seakale, per lb. 1 6-1 8
Greens, per bag 15 0-20 0	Spring Onions,
Lettuce, per doz.	doz. bun. .. 5 0-6 0
—cos, .. 6 0-8 0	Turnip Tops, bag 5 0-8 0
—cabbage .. 2 6-3 0	Tomatoes,
Mint, per doz. 6 0-15 0	—Canary Island 16 0-25 0
Mushrooms, per lb. 2 6-3 6	—English and
Onions,	Guernsey .. 2 6-3 0
—English .. 30 0-36 0	—Guernsey, per cwt. 8 0-12 0
—Valencia, case 40 0-45 0	New Turnips, doz 12 0-18 0
Parsley, per bus. 4 0-5 0	

REMARKS.—The improvement in business, due to the Easter demand, tended to harden values all round, but the usual post-Easter reaction is ruling at the time of writing, and prices are easier. Australasian Apples are selling freely, the latest shipments from New Zealand being in first-rate condition. Fair supplies of Californian and Oregon Newtowns are still available, at firm values. Cape fruit generally have been a good trade, except for Red Hannepoot Grapes which were slightly watery, but the last arrivals have been in excellent condition. The cold weather has had a deterrent effect on the demand for Oranges. Lemons have also suffered from the adverse climatic conditions, and values are easier. Forced Strawberries and Figs are in better supply, but the demand is not very firm at ruling prices. Rhubarb is selling slowly owing to a more restricted demand for both forced and natural supplies. Cucumbers are now in full supply, and prices are considerably easier. Tomatoes from Worthing, and Guernsey are increasing in quantity almost daily, and the first arrivals from the Lea Valley are also reported. Lettuce is more plentiful, supplies from France being augmented by arrivals from Holland and home grown produce. Forced Beans from all sources are quoted lower, as are Peas and new Potatoes. All green vegetables continue scarce, and comparatively costly. The Potato trade is quiet, and prices tend to fall.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated.)

s. d. s. d.	s. d. s. d.
Adiantum	Crotons, per doz. 30 0-42 0
cuneatum, .. 13 0-15 0	Cyrtolium .. 10 0-16 0
—elegans .. 15 0-18 0	Erica,
Aralia Sieboldii 10 0-12 0	—melanthera .. 36 0-48 0
Araucarias .. 30 0-48 0	Genistas,
Asparagus plu-	per doz. .. 18 0-24 0
mosus .. 12 0-16 0	Marguerites,
—Sprengeri .. 12 0-18 0	per doz. .. 15 0-21 0
Aspidistra, green 48 0-72 0	Nephrolepis, in
Asplenium,	variety .. 12 0-18 0
per doz. .. 12 0-18 0	—32's .. 24 0-36 0
—32's .. 24 0-30 0	Palms, Kentia .. 24 0-36 0
—nidus .. 12 0-16 0	—60's .. 15 0-18 0
Azaleas, each .. 2 6-5 0	—Cocos .. 24 0-36 0
Boronia,	Pteris, in variety 12 0-21 0
per doz. .. 24 0-30 0	—large 60's .. 5 0-6 0
Cacti, per tray,	—small .. 4 0-4 6
12's, 15's .. 5 0-6 0	—72's, per tray
Cinerarias,	of 15's .. 8 6-4 0
per doz. .. 15 0-21 0	

Cut Flowers, etc.: Average Wholesale Prices.

s. d. s. d.	s. d. s. d.
Adiantum deco-	Marguerites, yellow,
rum, doz bun. 9 0-12 0	per doz. bun. 4 0-6 0
Anemone,	Narcissus, per doz.
—fulgens per doz. 4 0-4 6	Grand Primo .. 3 0-5 0
—St. Bridg. .. 4 0-6 0	—obvalaris, .. 3 0-4 0
Asparagus plu-	—ornatus, .. 4 0-6 0
mosus, per bun.	Orchids, per doz.,
long trails, 6's 4 0-5 0	—Cattleyas .. 12 0-18 0
med. sprays, .. 2 6-3 6	—Cypripediums 6 0-9 0
short .. 1 0-1 6	Pearlzonium,
—Sprengeri, per bun.	per doz. bunch,
long sprays, .. 2 6-3 0	—double scarlet 15 0-18 0
med. .. 1 3-1 6	Primroses, per
short .. 0 9-1 0	doz. bun. .. 1 6-2 6
Azalea, doz. bun. 6 0-8 0	Ranunculus,
Camellias, per box 2 6-3 0	French, doz. bun.
Carnations, per	—white .. 4 0-6 0
doz. blooms, 4 0-6 0	—red .. 4 0-6 0
Croton leaves,	Richardias (Arums),
various, per bun 2 6-4 0	per doz. .. 5 0-6 0
Daffodils, single	Roses, per doz.
—Emperor, per	blooms—
doz. bun. .. 4 0-6 0	General Jacqueminot
—Golden Spur, .. 3 0-4 0	per doz. .. 2 0-2 6
—Horsfieldii .. 4 0-6 0	—Madame A.
—Watkins, .. 4 0-6 0	Chatenay .. 5 0-6 0
—Princes, .. 3 0-4 0	—Melody .. 4 0-6 0
—Guernsey, .. 3 0-4 0	—Opheia .. 4 0-6 0
—Victoria, per	—Liberty .. 4 0-8 0
doz. bun. .. 4 0-6 0	—Richmond .. 4 0-6 0
Fern, French	Smilax, per
per doz. bun. 1 0-1 3	doz. trails, .. 5 0-6 0
Forget-me-Not,	Sweet Peas,
per doz. bun. 8 0-12 0	—Coloured .. 6 0-12 0
Freelias, doz. bun. 3 0-4 0	—White, doz. bun. 4 0-12 0
Hyacinths,	Tulips, per bun.
per doz. spikes,	—white .. 2 0-6 0
—Dutch, white .. 2 6-3 0	—scarlet .. 2 0-2 6
Heather, white,	—yellow .. 2 0-2 6
per doz. bun. .. 8 0-10 0	—Darwin, mauve
Iris, blue, per doz. 3 0-4 0	per bun. .. 2 0-2 6
Iris, mauve, per bun. 3 0-3 6	—Darwin, rosy
Lilac	red, per bun. 2 0-2 6
—white doz. sprays 4 0-8 0	—Darwin, pink
Lilium	per bun. .. 2 0-2 6
longiflorum, .. 10 0-12 0	—Wm. Copeland 2 6-3 6
Lily of the Valley,	Violets, doz. bun. 2 0-5 0
per doz. bun. 24 0-36 0	—Parma, per bun. 6 6-7 6

REMARKS.—Business in this department continued good up to Saturday morning. White blooms were in most demand, and there was a further rise in prices, as anticipated. Carnations were a limited supply, and Roses were not over plentiful. The later arrivals being very irregular. Richardias (Arums) and Lilium longiflorum met with the usual brisk demand. Lily-of-the-Valley was also in request. There were ample supplies of Daffodils from home growers, and also from the Channel Islands, the blooms arriving here in excellent condition. Good supplies of white Narcissus came from Guernsey; the flowers were in great demand. White and coloured Tulips found a good market. Small consignments of blue and mauve Spanish Irises are arriving in excellent condition. The quantities of good Sweet Peas available are much below the present requirements. Violets have been checked by the severe weather. With the exception of Smilax, other foliage was fairly plentiful. Smilax realised six shillings per bunch of six trails.

GARDENING APPOINTMENT.

Mr. E. Hodgson, for the past fifteen years Gardener to NEVILLE FORBES, Esq., Godden Green, as Gardener to W. SMART, Esq., Lisburn, Sevenoaks.

SCHEDULE RECEIVED.

Bradford Hospital and Convalescent Fund.—Second annual flower and vegetable show, to be held in Lister Park, on Friday and Saturday, August 4 and 5, 1922.—Secretary, 44, Horton Lane, Bradford.



THE

Gardeners' Chronicle

No. 1844.—SATURDAY, APRIL 29, 1922.

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 46.7.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, April 26, 10 a.m. Bar. 29.4; temp. 43°.—Weather.—Dull.

The tributes on p. 161 to Sir I. B. Balfour, at the moment of his retirement from official life, were necessarily, to a great extent, of a personal nature, and did not refer in detail to his administration of the Garden during the 34 years he held the post of Regius Keeper. When, in 1888, Professor Balfour, as he then was, vacated the Sherardian Chair of Botany at the University of Oxford, to succeed Dickson, who in turn had followed Professor Balfour's father, John Hutton Balfour, as Regius Keeper, the Botanic Garden at Edinburgh was under the dual control of the Treasury and the Commissioners of Works. As is so often the case where control is in two pairs of hands, the arrangement, which had been in existence for a long time, did not make for efficiency, and one of the first of the many changes of Professor Balfour's administration was the abolition of joint control. Hence it came about that, in April, 1889, less than a year after Professor Balfour's assumption of office, the Commissioners of Works assumed sole control of the Garden.

Like the holders of all political offices, first Commissioners of Works come and go; there have been no fewer than thirteen of

them during Sir I. Balfour's tenure of office, and those who appreciate the working of Government departmental machinery will realise that the maintenance of consistently harmonious relations with official headquarters in Whitehall during 34 years of political change, is a great tribute to Sir I. Balfour's administrative ability. It is probably true to say that this friendly co-operation between the Office of Works and the Regius Keeper has been responsible to a greater degree than anything else for the unique position held by the Edinburgh Garden to-day, for the spirit of co-operation carried with it that continuity of policy which is of such inestimable value where the policy is sound. One of the immediate consequences of the change in the official control of the Garden was of a nature to which—so have the times changed—but slight importance would be attached nowadays, though in those days it assumed an almost epoch-making importance. We refer to the opening of the Garden to the public on Sundays. Looking back on it now it is difficult to appreciate the nature and extent of the controversy to which the proposal gave rise or of the bitter feeling that was aroused by it. The question was ultimately raised in the House of Commons, and though eventually those who were working for the Sunday opening carried the day, it was not without strenuous opposition. Ample justification of the sanity of their view was not long in coming, but it is not generally known that for the 24 years following the Sunday opening in 1889, the attendance on all Sundays was well in excess of that on all weekdays.*

For some years before the date of Professor Balfour's appointment, the expenditure annually voted by Parliament for the upkeep of the Garden had not been liberal, and it had not been possible to maintain the place in a manner worthy of a great National Garden. A splendid opportunity, too, had been lost by the refusal of the University Authorities of an offer made by the Treasury for the maintenance of the Garden as a National Research Institute in which students of the University of Edinburgh would have a privileged place. When the Commissioners of Works assumed control of the Garden, however, work long deferred was taken in hand. The Garden was remodelled, old boundary walls, representing areas absorbed at different periods, being removed. Construction of the now famous rock garden was commenced and worn-out plant houses rebuilt. Later, an Alpine house—model to all the world—was added, and apparatus (including refrigerating machinery) provided for the propagation of plants on the lines with which Sir I. Balfour has made us familiar in the classic "Some Problems of Propagation." The remarkable results obtained by the staff propagator in the propagation of plants at the Inverleith Garden is convincing proof of the soundness of Sir I. Balfour's tenets.

During the late Viscount Harcourt's enlightened rule as First Commissioner of Works, the long-deferred reconstruction of laboratory and teaching accommodation was commenced, and though not yet complete, the buildings already erected provide opportunities second to none in this country, for research and study. The University of Edinburgh is singularly fortunate in having to its hand a great National Botanic Garden maintained by the Government, in which students can receive the practical and scientific training they desire and apply themselves to research, and no other university in Great Britain is so happily situated. The

Garden provides educational advantages in other directions, for it includes a flourishing school for the practical education of foresters, gardeners and nurserymen. This had its origin in a grant from the Board of Agriculture in 1892, and was the first systematised effort in Scotland to provide scientific instruction to practical men in forestry and gardening. It is generally known that of late years the task of marshalling and elucidating the mass of material sent home from Western China by Forrest, Farrer, Ward, and other explorers, as well as that included in the herbarium of Leveillé, has devolved on the ever-willing shoulders of Sir I. Balfour and his staff. But few realise the immensity or the arduous character of the task, or the importance of it to the present and future generations.

No sketch of the administration of the Edinburgh Garden during the past thirty years would be complete without reference to the important part it has played in the advancement of practical horticulture, and particularly in the encouragement of the amateur. The enlightened views of the late Keeper on the relation of a National Garden to horticulture in general are well known, and it cannot be doubted that the giving of practical effect to those views has had a most stimulating effect on the progress of horticulture. Generosity in the distribution of plants is an attribute of gardeners, but assuredly few have practised it so spontaneously, impartially and to such excellent national purpose as the late Regius Keeper.

As British Botanic Gardens go, that at Edinburgh is of respectable antiquity, though hardly so old as the first of them all—the Oxford University Garden, which is within ten years of its tercentenary. For the beginning of the Edinburgh Garden we must go back to the latter part of the seventeenth century, when two eminent physicians of the time, Andrew Balfour and Robert Sibbald, leased a small piece of ground south of Holyrood Palace, on which they cultivated medicinal plants, placing one James Sutherland in charge of it. That was in 1670, and a year or two later the doctors moved their plants to the Royal Garden at Holyrood, which then became a Physic Garden. In 1699, Queen Anne created the Royal office of King's Botanist in Scotland, Keeper of the Royal Garden and Professor of Botany, the aforesaid James Sutherland being appointed to all three offices. From the first, Sutherland had used the Royal Garden for giving instruction in Botany to the lieges, and except for an interval of twenty-five years following the death of Queen Anne, when Sutherland ceased to hold them, the concentration of the three offices in one pair of hands has continued to the present day. After a century of use as a Physic Garden, the Royal Garden at Holyrood became overcrowded and in 1763 the contents were transferred to more roomy quarters on a site below that occupied by Haddington Place, where they remained for sixty years. Once more the ground proved too small for the purpose and a hundred years ago, when Robert Graham was Regius Keeper, fourteen acres of the Park of Inverleith were purchased by the Exchequer. Those fourteen acres formed the nucleus of the Garden on the present site, assuredly one of the most beautiful and appropriate in the world. Subsequent purchases increased the area of the place, till, in 1876, while John Hutton Balfour was Regius Keeper, it attained its present dimensions.

We take this opportunity of publishing on the next page a portrait of the new Regius Keeper of the Garden, Professor W. Wright Smith.

* Notes from the Roy. Bot. Garden, Edinburgh, No. XXXV., p. xvi.

Messrs. Alex. Dickson and Sons' Dublin Premises Raided.—The entire seed business in Southern Ireland of Messrs. Alex. Dickson and Sons, Ltd., has been confiscated by the Boycot Department of the Irish Republican Army. On the afternoon of Tuesday, April 11, armed raiders took possession of the metropolitan establishment of the firm, situated at 61-63, Dawson Street, Dublin, carrying away all the books of the company, and ordered the business to be closed down. Orders in course of execution were not even allowed to be completed, and all the company's book debts and stock-in-trade are at the disposal of the Republican Army. The business is completely paralysed, and in a state of absolute chaos at the moment. Under these trying circumstances Messrs. Dickson ask for the kind indulgence of their customers in England, Scotland and Wales, and request that all communications pertaining to the Dublin House should be directed to the northern headquarters at Hawlmark, Belfast. A claim has been lodged with the authorities for damages, amounting to £50,000.

Flower Show Abandoned.—The Lichfield Floral and Horticultural Society, the second oldest of its kind in the country, has decided not to hold its annual exhibition in August this year owing to the financial losses experienced at the last two shows.

Royal Botanic Society's School of Gardening.—Miss M. Williamson has resigned the post of principal of the School of Practical Gardening for women under the auspices of the Royal Botanic Society. Miss Williamson was the first student to join the school when it was commenced in 1898, and in 1901 she was appointed assistant instructor. From the time when she was appointed principal, in 1913, she had the entire charge of the school. Miss Williamson has considerable artistic abilities and designed the medal of the National Sweet Pea Society, the certificate of that Society and also the Dean Memorial Medal of the National Dahlia Society.

Darwin, May-flowering and Cottage Exhibition of Tulips.—At the meeting of the Royal Horticultural Society, on May 9 and 10, collections of Darwin, May-flowering and Cottage Tulips will be considered by a special jury, and the Council will make awards according to merit on their recommendation. The undermentioned classes have been arranged by the National Tulip Society, which will make awards as in 1914. The Tulip Society will welcome exhibits of Tulip species or Tulip seedlings, to which suitable awards will be made if of sufficient merit. Class 1: Darwin Tulips, 12 varieties, 5 blooms of each; class 2, Darwin Tulips, 6 varieties, 5 blooms of each; class 3, Rembrandt or Broken Darwin Tulips, 3 varieties, distinct, 5 blooms of each; class 4, May-flowering or Cottage Tulips (not Darwins) self-coloured or Breeders, 12 varieties, 6 blooms of each; class 5, May-flowering or Cottage Tulips (not Darwin's), self-coloured or Breeders, 6 varieties, 5 blooms of each; class 6, May-flowering or Cottage Tulips, variegated or "Broken" varieties, 6 distinct varieties, 5 blooms of each; class 7, English Florist Tulips, 12 varieties, 5 blooms of each, Breeder or Broken. Entries should be forwarded to Mr. W. Peters, Farcet House, Cambridge, on or before May 2, 1922.

"Review of Applied Mycology."—The first four parts of a new publication issued by the Imperial Bureau of Mycology and entitled the *Review of Applied Mycology* have been issued. The work consists of abstracts and summaries of work published in all countries on the diseases of plants and various other aspects of economic mycology. Though the chief object of the new journal is to give an up-to-date summary of work bearing on the practical application of the study of plant diseases to the reduction of the wastage due to such diseases in agriculture, the fundamental researches on which most progress in this direction is based have a wider appeal. The *Review* will enable all those who are interested in the progress of science to follow

the development of one of its youngest branches; the student of pure science will, it is hoped, find many side-lights on the wider problems on which he is engaged; while the practical grower will be able to learn the experience in other countries with improved methods for controlling plant diseases. The subscription to the *Review* is 12s. per annum post free, payable in advance, while single parts will be sold at 1s. 4d. each. Subscriptions, orders and all communications respecting the publication should be sent to the Editor, Imperial Bureau of Mycology, Kew, Surrey.

Ghent Quinquennial Exhibition.—The Royal Horticultural and Botanical Society of Ghent will hold a great exhibition in Ghent in 1923, opening on or about April 15. We publish this information, given us at The Hague, on the authority of M. Emile Spaë, and we do it with the greatest of pleasure, as a Ghent Quinquennial Show is a great exposition of horticulture and an unique opportunity for an international gathering of horticulturists. We congratulate our Belgian confreres on their decision, as we are aware how greatly they suffered during the war and how small has been their opportunity of recovering since the war ended.



PROF. W. WRIGHT SMITH, M.A., F.R.S.E., F.L.S.
THE NEW REGIUS KEEPER OF THE ROYAL BOTANIC
GARDEN, EDINBURGH (SEE PAGES 189 AND 205).

A New Park for Derby.—Darley Abbey Park, consisting of some twenty acres on the outskirts of the town of Derby and adjoining the River Derwent, has been presented to Derby by Mr. L. G. Curtis. The gift is subject to the interest of the existing life tenant, Mrs. Walter Evans, on whose death Mr. Curtis inherits the estate under the will of the late Mr. Walter Evans, of whom he is a relative. Mr. Curtis was formerly private secretary to Lord Milner and has no interest in Derby apart from his inheritance. This is the second time within two years that the town has benefited from a private benefactor, the previous gift being one of £10,000, bequeathed by the late Mr. H. M. Gray for the purchase of a park or allotment gardens.

Annual Inspection of Edinburgh Parks.—The annual inspection of the parks and open spaces of the Edinburgh Corporation took place on April 13. There was a good attendance of the committee, including Mr. Philips-Smith, the convener; Mr. J. W. M'Hattie, the superintendent, was also present. An inspection of the different parks, bowling greens and sports grounds was made, and general gratification was expressed at the works carried out and the many

improvements effected during the year or still in progress. New bowling greens, tennis courts, cricket grounds, and improved golf courses showed that the committee had carried through much excellent work during the year, while in many other respects the condition of the parks was greatly improved. The committee had done, also, a good deal to lessen unemployment, as some 500 of the unemployed had been given work during the winter. Mr. M'Hattie and his staff are to be congratulated on the condition of the parks generally.

National Tulip Society.—The annual meeting of the National Tulip Society will be held in connection with the fortnightly meeting of the Royal Horticultural Society on May 9, at Vincent Square, Westminster, London, S.W. If the season permits, the usual exhibition will also be held in the committee tent of the Chelsea Show of the Royal Horticultural Society on May 24 and 25 next.

Appointments for the Ensuing Week.—Tuesday, May 2: Royal Caledonian Horticultural Society's meeting; Bournemouth Gardeners' Association's meeting. Wednesday, May 3: Royal Agricultural Society's Council meeting; National Viola and Pansy Society's exhibition. Thursday, May 4: Linnean Society's meeting at 5 p.m. Friday, May 5: Paisley Florists' meeting. Saturday, May 6: National Auricula Society's show (Northern Section) at the Coal Exchange, Manchester.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Torenia asiatica*.—There is now in bloom here at H. Bevan's, Esq., place, Twickenham, though rather past its best, a magnificent specimen of the comparatively new *Torenia asiatica*, a small plant of which was shown for the first time at Chiswick last year. It is upwards of three feet in height, and quite as much in diameter, trained over a wire trellis, but so that the latter is quite concealed. By this means the plant is rendered symmetrical in form, without appearing to be artificially supported, and being regularly covered all over with beautiful blossoms, which stand well up above the rather copious pale green foliage, has a very handsome appearance. This fine plant is not yet a twelvemonth old; it was raised from a cutting last summer, and was grown in a close frame without artificial heat till October, when it was placed in a stove whose temperature ranged between 55° and 60°, and in this situation it has been blooming all the winter. It was repotted in February last, and, with very little intermission, has been in bloom ever since. It strikes freely from cuttings, flowers well in a small state, and patiently bears cutting for bouquets, for which the pale blue dark purple blotched blossoms are very suitable. *Gard. Chron.*, May 1, 1847.

Publications Received.—*The Apple Tree*. By L. H. Bailey. Macmillan and Co., Ltd., St. Martin's Lane, W.C. Price 7s. net. *The Coffee Leaf Spot*.—By T. B. McClelland. Bulletin No. 28. Porto Rico Agricultural Experiment Station. Government Printing Office, Washington. *The Distribution of the Vegetation and Flora of New Zealand*. By L. Cockayne. Cawthron Lecture, 1919. Published by direction of the Trustees of the Cawthron Institute. R. W. Stiles and Co., Waimea Street, Nelson, New Zealand. *Transmission of some Wilt Diseases in Seed Potatoes*. By M. B. McKay. Reprinted from *Journal of Agricultural Research*. Government Printing Office, Washington. *Formation of Permanent Pastures*. Free on application to University College of North Wales, Bangor. *Sudan Grass and Related Plants*. By H. N. Vinall and R. E. Getty. Bulletin No. 981; *Effect of Date of Seeding on Germination, Growth, and Development of Corn*. By E. B. Brown, and H. S. Garrison. Bulletin No. 1,014; *Utilisation of Alfalfa*. By R. A. Oakley and H. L. Westover. Farmers' Bulletin, 1,229. United States Department of Agriculture. Government Printing Office, Washington. *Orchard Fruit Tree Culture*. By F. J. Fletcher. Market Nursery Work Series. Vol. V. Benn Bros., Ltd., 8, Bouverie Street, E.C.4. Price 5s., post free.

INTERNATIONAL COMMERCIAL HORTICULTURAL CONFERENCE.

As each spring comes round it becomes more and more evident that the Conference of the *Fédération Horticole Professionnelle Internationale* is becoming an increasingly important function to those horticulturists who have international commercial relations. This evidence is to be found in the larger number of delegates attending and the keen attention they give to the many matters brought forward.

This year, Mr. Ernest Krelage being the president, the conference was held in Holland, at the Hotel Wittebrug, The Hague. This hotel occupies a delightful position in the woods on the environs of The Hague, on the tram route to the fashionable seaside resort of Schevening. Here the majority of the British, French, Belgian and Luxemburg delegates, and some of the Dutch also, stayed, consequently there was little difficulty in commencing the conference sessions according to the programme.

The personnel of the conference is a matter of general interest. The officers present were Mr. Krelage, president; M. Turbat (Orleans), general secretary; M. Sauvage (Paris), treasurer; and M. Barbier (Orleans) and M. Arluison (London), national secretaries.

Holland was represented by Messrs. E. H. Krelage (Haarlem), H. C. Valetton (The Hague), H. de Lange (Rotterdam), J. C. Mensing (Aalsmeer), D. Frets (Boskoop), P. Visser (Naarden), F. Kakebeke (Goes), B. Ruys (Dedemsvaart), Jac. Smits (Naarden), T. Wezenburg (Hazerswoude), W. F. Wery (The Hague), J. M. Van Til (Lisse), W. Wanaar (Sassenheim), T. Van der Koog (Haarlem).

The Belgian representatives were Messrs. Spaë (Ghent), E. Praet and D. Kerkevoorde (Wetteren), while little Luxemburg sent Mr. J. Bintner and Mr. Ketten, the former an old Kewite, formerly representing his Government on horticultural matters, and now starting in business on a large scale.

The British delegates were Mr. H. V. Taylor, specially sent by the Ministry of Agriculture; Mr. George Monro, Mr. W. E. Wallace, Mr. J. S. Brunton, Mr. E. A. Merryweather and Mr. C. M. Matthews (secretary) from the Chamber of Horticulture; Messrs. E. A. Bunyard, G. W. Leak, Chas. E. Pearson and C. G. L. du Cann (secretary), from the Horticultural Trades' Association; and Messrs. Alfred W. White (president), and C. H. Curtis (secretary), from the British Florists' Federation; and Messrs. J. Arluison, J. K. Ramsbottom and Wardle.

France was strongly represented by Messrs. H. Graindorge (Vitry-sur-Seine), N. Levavasseur (Ussy), E. Turbat (Orleans), René Barbier (Orleans), L. Sauvage (Paris), Lecolier (St. Cloud), G. Royer (Versailles), L. Levasseur (Angers), R. Leclerc (Vitry), F. Cayeux (Paris), Emile Boullet (Bourg-la-Reine), Raverdeau (Paris), C. Souchet (Vitry), and F. Fauque (Orleans).

The representatives of each country sat together and occupied the same seats throughout the conference. The proceedings opened with an address of welcome from Mr. Ernest Krelage, the president, which was followed by an address of welcome from His Excellency the Minister of Agriculture for Belgium, and a lengthy address by Professor Treyselhuys, President of the National Horticultural Society of Holland, who made special reference to the trading difficulties which have arisen by reason of the imposition of Quarantine Order 37 by the United States Government, and expressed the hope that there might be free trade for plants between all countries.

A letter from the Queen of Holland was read wherein Her Majesty welcomed the conference to the Hague, and expressed her intention of receiving the delegates at the opening of the exhibition during the afternoon, an intention she could not, unfortunately, fulfil owing to the sudden illness of the Prince Consort's mother. A message of respect and appreciation was sent to Her Majesty by the conference.

Messrs. Arluison, H. Valetton and René Barbier were appointed secretaries to assist M. Turbat. Then the minutes of the conference held in London in 1921 were considered and accepted. Next came the reports of the Secretary and Treasurer, and these were accepted without much comment. It appeared that Italy, while not expressing a desire to remain outside the F.H.P.I., had not answered any letters forwarded by M. Turbat, nor had she paid her subscription, consequently the Conference regarded Italy's membership as ineffective.

Several minor alterations of rules were suggested, principally designed to allow application for membership. Thus, Germany is not in the F.H.P.I., and there has been some difference of opinion as to whether she should be asked to join; the alteration of rules renders invitation unnecessary, but makes application necessary. The H.T.A., through Mr. Bunyard, claimed the right to direct representation to

only eight subjects had been registered, and these represented registrations from France (Roses), Belgium (Azaleas) and England (Apples). The Conference appeared to be somewhat surprised that raisers had taken so little advantage of the Bureau to obtain international registration for their novelties. In answer to a question with regard to publication, it was stated that as so few plants had been registered, publication had not seemed worth while. The British delegation pointed out that publication was the most important part of the business, and would be the means of encouraging further registrations. Moreover, it was hardly fair to expect the British horticultural Press to publish long accumulated lists; indeed, it would be better for all concerned if publication took place at brief intervals, and to this suggestion the conference agreed, and, further, agreed that Mr. Sauvage's expenses for stationery, books, etc., be defrayed from the funds of the F.H.P.I.

Hitherto matters had progressed very smoothly; but when the next item on the agenda was reached, relating to placing trade discounts for cash on an international basis, the Dutch growers found themselves unable to agree to the proposals which the British delegation made, and only after long conferences with their own countrymen and the use of much persuasion did Belgium agree to come into line as soon as possible. Mr. Leak urged the Dutch traders to agree to the method proposed, but it was only after they had gone into committee and slept on it that they agreed, subject to confirmation by their respective associations.

The vexed question of transport was discussed with some spirit by the French and Belgian delegates, but the British section of the conference was so apathetic that the Continentals were surprised, until Mr. Leak, the British unofficial spokesman, stated that the British trade had this matter always with them, and were almost always fighting the great railway transport monopolists. He suggested every country should do its best to secure suitable facilities for the transport of horticultural produce, and, having obtained these, the international question would settle itself.

Before proceeding with the next item on the agenda, Mr. Krelage read a telegram from the Swiss horticulturists, in which regret was expressed that they found themselves unable to send delegates this year, but they sent their good wishes. M. Turbat was requested to send a suitable reply from the conference. In this connection, we may add that Sweden has not yet joined the F.H.P.I., but, nevertheless, expressed a wish that the conference should be held in Sweden in 1923, and that the official language for that year be English. In effect, the conference's reply was that Sweden should first join the F.H.P.I., and so obtain a *locus standi*. Moreover, according to rule, French is the official language of the conference.

And now a breeze arose and ruffled the placid surface of the proceedings. It was a pleasant breeze, however, because the majority of those present have met and conferred before on several occasions, hence they know how much allowance has to be made for the excitability of a Frenchman, the enthusiasm of a Belgian, the persistency of a Dutchman, the ardour of a Luxemburger, and the dour insistence of an Englishman. The subject was an international system of arbitration for the settlement of differences among horticulturists. The Dutch delegates had placed a somewhat lengthy proposal before the conference, and wanted the latter to agree out of hand. To this the British opposed a solid front, and neither the persuasiveness of Mr. Van Til nor the forcible humour of Mr. Jac. Smits—the Peter Pan of the conference—could move them. This matter occupied the conference for the remainder of the session; finally, after the breezes, came the calm, and the conference very sanely agreed that each country should have the matter discussed by its affiliated associations; that the results of such discussions should be circulated among all associations having representation to the F.H.P.I. for consideration and report; and that a committee should tabulate and reduce the several proposals for presentation to the conference of 1923.



FIG. 107.—MALE CONES OF CERATOZAMIA MEXICANA (SEE P. 209).

the F.H.P.I.; but this point was referred to the Britishers to consider. We understand the claim was made because, before the war, the H.T.A. dealt directly with the International Conference then existing, but which died of inanition several years ago.

The work of the F.H.P.I. grows yearly, and the conference, fully appreciating the amount of time M. Turbat must give, readily agreed with the suggestion of the French delegates that the secretaries, MM. Turbat and Barbier, be allowed to pay for secretarial assistance as necessary—a small matter, yet one of considerable importance, which was also a reminder of the energy M. Turbat has given unsparingly to those international matters since the F.H.P.I. was instituted in 1919.

M. Sauvage reported that the Bureau of Plant Registration was now in working order. In reply to a question, it transpired that so far

ORCHID NOTES AND GLEANINGS.

ORCHIDS AT THE WARREN HOUSE.

MRS. BISCHOFFSHEIM'S collection of Orchids at The Warren House, Stanmore, includes both species and hybrids in about equal proportions, and at times, as at the present season, the species are the more interesting. The *Odontoglossum* house is gay with a fine series of *O. crispum*, of several importations, and the plants show interesting variety of form. *O. luteo-purpureum* of the best type; *O. Hallii*, now scarce; forms of *O. Andersonianum*, from almost wholly pale yellow to densely spotted flowers; the very fragrant *O. gloriosum*; *O. Wilckeanum* and *O. Pescatorei* have all a great show of bloom, rendered more effective by the scarlet *Sophronitis* suspended overhead. Some fine specimens of *Dendrobium nobile* and other species are also well in bloom, and the scarlet *Renanthera lmschootiana* is beginning to flower.

Among the hybrids a large batch of *Cymbidiums* is bearing strong spikes, one specimen of *C. Alexandri* having nine sprays; *Brassolaelio-Cattleya* Queen of the Belgians, a fine white form; and good *Laelio-Cattleyas* were also noted.

EPIDENDRUM ENDRESII.

THE charming little specimen of this extremely rare and beautiful species of *Epidendrum*, shown by H. T. Pitt, Esq., Rosslyn, Stamford Hill (grower, Mr. Thurgood), at the meeting of the Royal Horticultural Society on April 11, is another instance of the many frail species saved from passing out of cultivation by the skill and care given to them at Rosslyn.

The plant, which is only a few inches in height, and bears a relatively large spike of pure white flowers with blue markings on the lip, was discovered by Endres when collecting for Messrs. J. Veitch and Sons in Costa Rica in 1873, but the plants died in transit. Five years later F. C. Lehmann sent plants to Europe, but only one or two plants reached their destination alive. Subsequently other collectors made the attempt to introduce the species, but with small success. Mr. Pitt's plant must have been in his collection for many years, being one of Pfans' collecting.

It was described by Reichenbach in *Gard. Chron.*, 1883, p. 432, and illustrated in *Gard. Chron.*, April 18, 1885, Fig. 91. It was used by Messrs. Veitch in crossing with *E. Wallisii* and others, and gave several pretty hybrids.

RESTING ORCHIDS.

REST is an essential to plants, as it is to animals, therefore it is advisable to give all plants a period of rest at the proper season. The resting of Orchids is a large subject, too large to be dealt with in the space at my disposal; but it will suffice for the moment to state that *Odontoglossums* usually require a short rest after flowering. Water should not be withheld entirely, but only sufficient should be given to prevent the plants shrivelling. On all bright days the newly potted plants may be sprayed lightly, only applying sufficient water to give a dew-like appearance on the foliage, which will assist the plants to become re-established quickly. These remarks also apply to *Cochlidodas*, *Odontodas*, and similar Orchids, which for cultural purposes may be treated almost precisely the same as *Odontoglossums*. B.

NEW HYBRIDS

(Continued from March 25, page 140).

Name.	Parentage.	Exhibitor.
Brasso-Cattleya Conqueror ...	B.-C. Oberon x C. Maggie Raphael alba ...	Baron Schroder.
Brasso-Cattleya Invicta ...	C. Octave Doin x B.-C. Digbyano-Mossiae ...	Stuart Low.
Brasso-Cattleya Springtide ...	B.-C. Madame Ch. Maron x C. Monica ...	Sanders.
Brasso-Laelio-Cattleya Melba ...	B.-C. Digbyano-Mossiae x L.-C. Rubens ...	Stuart Low.
Cattleya Madame Maurice Verdonck ...	Minucia x Hardyana ...	M. Verdonck.
Cattleya Minnehaha ...	Trianae alba x Lady Rowena ...	Baron Schroder.
Cattleya Omar ...	Leda x Enid ...	Stuart Low.
Cattleya Hilda ...	Dietrichiana x Dowiana aurea ...	Pantia Ralli, Esq.
Cattleya White Queen ...	Douai x Luddemanniana Empress ...	Hassall.
Cymbidium Puck ...	roseum x Alexandri ...	Sanders.
Cymbidium Pyrrhus ...	Wiganianum x Holfordianum ...	W. Waters Butler, Esq.
Cymbidium Vedio ...	Lowgrinum x insigne ...	W. Waters Butler, Esq.
Cypripedium Amberley Gem ...	Earl Tankerville x Formidabile ...	H. Green, Esq.
Cypripedium Cotswold ...	G. F. Moore x Blanche Moore ...	H. Green, Esq.
Cypripedium Ivanhoe ...	Mrs. Haywood x Gaston Bultel ...	H. Green, Esq.
Cypripedium Odin ...	Antinous x nitens-Leceanum ...	S. Gratrix, Esq.
Cypripedium Tokyo ...	Britannia x insigne Harefield Hall ...	Viscount M. Ijuin.
Cypripedium Upton Gem ...	Idina x Alcibiades ...	Flory & Black.
Cypripedium Zoroaster ...	villosum x Earl Tankerville ...	Mrs. Bruce & Miss Wrigley.
Cypripedium Ionian ...	Troilus x Eurybiades (mirum) ...	S. Gratrix, Esq.
Dendrobium Enchantress ...	Sybil x nobile nobiliss ...	Sanders.
Dendrobium variabilis ...	nobile nobiliss x Thwaitesiae ...	Sanders.
Dendrobium Dr. Hartley ...	chessingtonense x illustre ...	Dr. Hartley.
Laelio-Cattleya Aerea ...	L.-C. General Maude x C. Enid ...	Stuart Low.
Laelio-Cattleya Alpha II. ...	L.-C. warnhamensis x L. Cowanii ...	Mrs. Bruce & Miss Wrigley.
Laelio-Cattleya Avon ...	L.-C. George Woodhams x ...	Stuart Low.
Laelio-Cattleya Aquitania ...	C. Enid x L.-C. Britannia ...	Sanders.
Laelio-Cattleya Bellissima ...	C. Trianae x L. autumnalis ...	Sanders.
Laelio-Cattleya Luminous ...	C. Adula x L.-C. Luminosa ...	Sanders.
Laelio-Cattleya Rover ...	Geo. Woodhams x Luminosa ...	C. J. Lucas, Esq.
Laelio-Cattleya Sol ...	Apollo x Luminosa ...	C. J. Lucas, Esq.
Laelio-Cattleya Sunflow ...	L.-C. Ernesti x C. Suzanne Hye de Crom ...	Stuart Low.
Laelio-Cattleya Triton ...	L.-C. Tunis x C. Trianae ...	Hassall.
Laelio-Cattleya Wavrinhoe ...	C. Robert de Wavrin x L.-C. Ivanhoe ...	Stuart Low.
Laelio-Cattleya Oriana ...	L.-C. Smilax x C. Mossiae ...	McBean.
Odontioda Cicissie ...	Oda, Lambeauiana x Odm. King Arthur ...	Armstrong & Brown.
Odontioda Opal ...	Odm. eximillius Rex x Oda. Cooksoniae ...	Armstrong & Brown.
Odontioda Venus ...	Oda. Coronation x Odm. Aglaon ...	Stuart Low.
Odontioda Ultor ...	Odm. Othello x Oda. Charlesworthii ...	Sanders.
Odontioda Majestic ...	Oda. Coronation x Odm. majesticum ...	H. T. Pitt, Esq.
Odontioda Pittae ...	Oda. Juliet x Odm. St. James ...	Charlesworth & McBean.
Odontoglossum Belenus ...	amabile x Olympia ...	McBean.
Odontoglossum Amethyst var. Garnet ...	Lambeaunium x eximium ...	Stuart Low.
Odontoglossum Odin ...	Aireworth x crispum ...	H. T. Pitt, Esq.
Odontoglossum Llewellyn ...	amabile x Georgius Rex ...	Mansell & Hatcher.
Odontoglossum Rosamund ...	Rosalind x harvengtense ...	Sanders.
Odontoglossum Wadley ...	splendens x triumphans ...	Flory & Black.
Odontoglossum Lydia ...	eximillius x waltoniense ...	A. Haumer, Esq.
Odontoglossum Iphis ...	harvengtense x Queen Alexandra ...	Sanders.
Odontoglossum Royalty ...	Rolfae x Royal Monarch ...	Stuart Low.
Odontonia Ariel ...	Odm. Dixoniae x M. Bleuana ...	Stuart Low.
Oncidioda Stuart Low ...	Oncidioda Cooksoniae x Oncid. macranthum ...	Flory & Black.
Potinaera Gratixiae ...	B.-L. Mrs. Gratrix x B.-C. Mrs. J. Leemann ...	Charlesworth.
Potinaera Julietae ...	S.-L.-C. Marathon x B. C. Ena ...	Armstrong & Brown.
Rolfiera Sunrise ...	S.-C. Atrous x B.-C. Mrs. J. Leemann ...	Flory & Black.
Sophro-Cattleya Prince Shimadzu ...	S.-C. Doris x C. King George ...	Stuart Low.
Sophro-Laelio-Cattleya Argonaut ...	L.-C. Tunis x S.-L. Orpetii ...	Flory & Black.
Sophro-Laelio-Cattleya King George ...	S.-L.-C. Bletchleyflora x C. King George ...	Armstrong & Brown.
Sophro-Laelio-Cattleya Mars ...	S.-L.-C. Marathon x C. Clotho ...	Flory & Black.
Sophro-Laelio-Cattleya Prince of Orange ...	S.-L.-C. Eros x L.-C. Thyone ...	Flory & Black.

LILIES FOR GREENHOUSE DECORATION.

THE practice that so generally prevails of retarding the bulbs of several kinds of Lilies enables them to be had in bloom at nearly all times of the year. The additional cost, however, and the fact that some species, especially *Lilium auratum*, are less reliable from old bulbs than from freshly imported ones, leads many to depend upon these last named for greenhouse decoration. *Lilium longiflorum* is a general favourite, and for this purpose is treated in a variety of ways, either potted singly in six-inch pots, or three bulbs arranged triangularwise in a larger pot, while clumps or masses may be grown in pots or tubs by putting several bulbs together.

Lilium speciosum is a Lily of remarkably good constitution, and an equal favourite with *L. longiflorum* for retarding purposes. Very desirable qualities possessed by this Lily for greenhouse decoration are the readiness with which it responds to pot culture, the fact that under normal conditions it blooms towards the latter part of the summer when many of the occupants of the greenhouse are on the wane, its comparative freedom from insect pests (for aphides have to be sharply looked after in the case of *L. longiflorum*), and also in the fact that the blossoms are not powerfully scented, hence they can be employed in more confined places than certain other Lilies.

As *Lilium speciosum* is a typical example of a stem rooting Lily, as large a space as possible should be left in the pot to admit of accommodating a top dressing of good soil as the plants grow. When the bulbs are potted they may, with advantage, be stood in an ordinary garden frame, just giving them enough water to keep the soil slightly moist, the object being to encourage a steady, yet vigorous root action from the base of the bulb. In the event of severe weather, the frame may be just protected from the frost, but if mild, air should be admitted. This, of course, applies to the individuals that are required to bloom at the normal season, when their value in the greenhouse is so great, as if needed earlier, they may, when well rooted, be given a little artificial warmth. When the cold weather is past, these Lilies may, with advantage, be plunged out of doors in a bed of Coconut refuse, or some other moisture-holding material. As the pots become filled with roots, the latter are greatly benefited by an occasional application of liquid manure and soot-water mixed. They should be taken under glass just before the earliest blossoms expand.

There are several varieties of *Lilium speciosum*, but two of them, markedly distinct from each other, can be confidently recommended. They are *Kraetzeri*, a regularly reflexed, white flower with a greenish centre, and *Melpomene*, the richest coloured of all, the segments being deep carmine with a narrow white border. The difference in habit, foliage, and other particulars, of these two Lilies is remarkable. In *Kraetzeri*, the bulb is yellowish and produces, as a rule, but a single stem, whereas in *Melpomene* it is reddish, and very apt to break up into two, three, or more crowns, each of which pushes up a stem of its own.

Lilium auratum is exceedingly capricious in its behaviour, and some individuals are much later in flowering than others. A magnificent Lily though it be when at its best, the strong perfume is in a confined space far too powerful for many people.

Of the Tiger Lily (*L. tigrinum*) there are several forms, one of which succeeds in pots much better than any of the others. This is the variety *splendens* or *Leopoldii*, characterised by a smooth, dark coloured stem, and bright coloured flowers, with unusually large dark tinted blotches. Beside those above mentioned, the two Burmese species—*L. nepalense* and *L. sulphureum*—may be regarded as greenhouse species, for usually some of the blossoms develop so late that glass protection is necessary for their safety. As a rule, *L. sulphureum* is the earlier of the two, and it has adapted itself to our climate better than many other Lilies. T.

TWO USEFUL VERONICAS,

THERE are many fine varieties of *Veronica speciosa* which are more or less hardy in the south-west; they are all very useful for cultivating in pots for the autumn furnishing of the greenhouse or conservatory. With judicious stopping they make compact flowering subjects for growing in six-inch pots.

Plants rooted from cuttings inserted this spring will be ready for potting on in the first week of June, and are subsequently best grown in cold frames until they are established in their flowering pots, when the lights should be removed entirely, or the plants may be stood on an ash bed in the open. They are strong-rooting subjects and require an abundance of water at all stages; the roots should be stimulated with a concentrated fertiliser when they have filled their pots.

Veronica diosmifolia is a very dainty plant for the stages of the greenhouse, making compact little bushes, which are very pretty when covered with the pale lilac-coloured flowers. The plants should be trimmed when they have finished flowering to obtain shoots suitable for use as cuttings, which are best rooted under a bell glass in a cool propagating case in June. Compared with the *speciosa* forms, this is a slow growing plant, taking some three years before it attains a useful size. But with proper attention it lasts for many years, maintaining its compact habit without increasing much in size. J. C.

BEGONIA DREGEI.

THIS old South African species of *Begonia* is more often referred to as one of the parents of the ubiquitous *Gloire de Lorraine* than for its own intrinsic merit. It is, however, well worth consideration for its simple cultural requirements, neat, compact habit, and its great profusion of white blossoms, borne during the latter part of the summer, throughout the autumn, and well on into the winter. Another hybrid of *Begonia Dregei* is *B. Weltoniensis*, which forty years ago was a popular market plant, and to-day is well worth cultivation for its continuous flowering qualities. *Begonia Weltoniensis* has a good deal of the upright, compact habit of *B. Dregei*, but the flowers are of a pleasing shade of deep pink. W.

NEW OR NOTEWORTHY PLANTS.

CERATZAMIA MEXICANA.

SEVERAL plants of this interesting Cycad have borne male cones during this spring at Kew.

In the illustration (Fig. 107) one large and two smaller cones are shown clustered together on one plant. Development is rather slow; but just before the sporophylls (stamens) mature the cone elongates rapidly, and the scales separate from one another showing the numerous microsporangia on their lower surfaces.

Ceratozamia mexicana has a very short trunk. Its leaves are carried erect for some distance, and then they gradually droop in a very graceful manner. Small, sharp spines are borne on the petioles. Other species of *Ceratozamia* are represented at Kew.—E. N., *Kew Gardens*.

A NEW HEDYCHUM.

WITH reference to the plant illustrated on p. 163, Fig. 81, as being *H. Greenii*, it seems I have fallen into a trap concerning it, for Mr. Turrill has very kindly informed me that there are two similar plants in cultivation, which, unknown to me, had both passed through his hands.

Unfortunately I had no specimen of the plant nor any information concerning it, only the reduced photograph for identification, which was said to have yellow flowers and was named "*H. Elwesii*."

This I found it certainly could not be, and so far as I could judge from the photograph

it seemed to agree with specimens of *H. Greenii*, one of which was named "*H. Elwesii*," but quite wrongly. Mr. Turrill, however, has shown me specimens of another plant, sent to Kew by Mr. Elwes, which differs from the red-flowered *H. Greenii* by the lip of the yellow flower being broad and cordate at the base instead of wedge-shaped, and by the stamen being longer than the lip instead of about equaling it in length. These specimens I had not compared with the photograph, but now that I have seen them I agree with Mr. Turrill that the photograph represents that plant and not *H. Greenii*, as I had supposed. When comparing the photograph I had noticed that the lip of *H. Greenii* seemed to be more wedge-shaped

garden hybrid, yet it seems that it ought to have a distinctive name, therefore I give the following description of it, made from the dried specimens of Mr. Elwes' plant above-mentioned.

HEDYCHUM DECEPTUM, N. E. Br. Leaves of the specimens seen with the petiole sheathing close up to the blade, with an obtuse pubescent ligule 9-10 lines long; blade 8-8½ inches long and 1½-1¾ inch broad, lanceolate, rounded at the base, tapering from about the middle into a long, slender point. Spike 4-5 inches long, compact, many-flowered, pubescent on the axis, with oblong-ovate convolute acute or subacute bracts about 1½ inch long, pubescent at the tips. Corolla yellow, with a tube about 1¼ inch long and shorter than the bracts, with segments



FIG. 108.—*HEDYCHUM DECEPTUM*.

than shown in the flowers of the photograph, but as the upper right-hand flower in side view shows a wedge-shaped base, I mistook the more obvious cordate base of the lips of the other flowers as due to the pose or infolding of the sides of the lip. There are also differences in the size of the leaves and ligules, which I should have noticed at once if I had possessed a specimen, but which the photograph does not show.

The description given on p. 163 is correct for *H. Greenii* (which is in cultivation), except that the base of the lip should have been described as wedge-shaped.

As the plant represented by the photograph (which is reproduced in Fig. 108) cannot be identified with any known species, and as its origin is unknown so that it may even be a

about 1¼ inch long, the broad obtusely 2-lobed lip being about 1½ inch broad and somewhat cordate at the base, the two spatulate segments 5 lines broad, and the three narrower and linear. Stamen about 1½ inch long, longer than the lip.

This plant completely differs from *H. Elwesii* by its much shorter and narrower leaves, a ligule about a quarter of an inch shorter, a dense and broad instead of a lax and narrower spike, and the corolla-tube shorter than the bracts instead of much longer than them.

From *H. Greenii* the yellow flowers, narrower leaves, cordate based lip and longer stamen distinguish it so far as the dried specimens and photograph show, but probably living specimens in flower seen side by side would show other distinctions. N. E. Brown.

The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the DUKE OF MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Repotting Odontoglossums.—Many consider August and September the best months for potting these delightful Orchids, and they are right in so far as it concerns species that flower in the early spring and summer, but in an up-to-date collection of Odontoglossums there are always some of the plants in flower during most months of the year. That being so it is obvious that all the plants cannot be ready for potting at one time. I do not infer that those which were not ready for potting in the early autumn are ready now, but there are not many weeks in the year when some of the plants are not in the right condition, thus enabling the potting to be done as and where it is required. When the new growths are about three or four inches long, according to the strength of the plants, is the time to repot, irrespective of season. When the young growths are about to push forth new roots the least possible harm will accrue from disturbance. The material for repotting should consist of equal parts peat and A1 fibre, thoroughly cleaned, Sphagnum-moss and Bracken rhizome, with sufficient small crocks to render the mixture porous. The pots should be well drained, for although Odontoglossums need plenty of water whilst growing actively a stagnant soil is injurious to them. After repotting afford the roots water with great care, for any excess of moisture at that stage would cause the old roots to perish, the pseudo-bulbs to shrivel, and a general deterioration of the plants. Specimens which have flowered recently should be afforded but little water at the roots; if kept too moist they will start into growth prematurely.

Seedling Odontoglossums.—Seedling Odontoglossums should, so far as is possible, be kept growing, as a seedling does not stay long in one condition; it is either improving or going back. The general requirements of these small plants are precisely the same as for the larger ones, with the exception that the material they are grown in should be cut up finely and that they are best placed in the warmest position in the house.

THE FLOWER GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

The Shrubberies.—Most shrubs and trees are making a fine show this year with flowers, doubtlessly owing to the effects of last year's hot, dry summer, which caused the wood to become thoroughly ripened, even though it did not favour a free growth. Forsythias have been lovely, and are not yet finished; special mention should be made of *F. intermedia*, and its wonderful variety (probably the very best of them all), *F. intermedia spectabilis*, *F. suspensa*, *F. suspensa decipiens*, and *F. viridissima*. Any, or, where room permits, all of these Forsythias should be planted in the shrubberies, for during the early spring their fine golden yellow flowers always prove a welcome sight. Other groups that are doing well are the flowering Plums and Cherries, *Prunus* species. Commencing with *P. pissardi*, and its beautiful varieties, these are followed closely by such as *P. pilosiuscula barbata*, and *P. pilosiuscula media*, two charming and dainty varieties introduced by Mr. E. H. Wilson from China; *Prunus subhirtella* is just opening its blossoms, and soon will follow those beautiful Japanese varieties, such as *Prunus serrulata flore luteo pleno*, *P. s. Hisakura*, *P. s. Shirofugen*, *P. s. Veitohiana*, and *P. s. shidare-sakura*. All these are very charming varieties, and should be selected for planting in prominent positions as flowering trees. *Prunus Cerasus Sargentii* (Sargent's Cherry) is also a beautiful tree, and there are many others, including *P. tenuiflora*, that are worthy of cultivation.

Cydonias are bursting into flower, and *C. japonica*, or, as it is sometimes known, *Pyrus japonica*, is simply smothered with flower buds this season. There are many beautiful forms of this shrub, and, perhaps, the richest coloured of any is the variety Knap Hill Scarlet, whilst running this very close is the variety Simonii. A white form, named *nivalis*, promised much beauty; but, unfortunately, frost badly caught this in the bud stage, with the result that the flowers are considerably marred. *C. Maulei* is closely allied to *C. japonica*, but of much dwarfier growth, and of this there is a very pretty white form named *alba*. Various *Pyruses* are showing excellent promise, and *P. chinensis*, which makes a magnificent tree, has been literally covered with its white flowers for some time past.

Violets.—A commencement should now be made with a view to obtaining full supplies of Violets during the winter. The site for the plants should be chosen, preferably with a northern aspect, where the soil has been well trenched and enriched with well-decayed farmyard manure. After the surface has been broken down, rake it well to reduce it to a fine tilth, and, after dividing the old plants, select the strongest and healthiest crowns, planting them in rows, allowing a foot apart for the stronger growing single varieties; for double varieties, which make smaller plants, the distance may be lessened somewhat. Stir the soil occasionally, give the roots copious supplies of water, and dust the rows occasionally with a concentrated fertiliser and soot. The plants should be well syringed in the mornings and evenings, especially in very hot weather, in order to keep them from red spider. Only the best varieties should be grown, and the plants, during the whole of their career, should never be coddled.

HARDY FRUIT GARDEN.

By H. MARRHAM, Gardener to the EARL OF STRAFFORD, Wrotham Park, Barnet.

Planting Vines.—As young vines are usually sent from the nursery in pots, they may be planted much later than most other fruits, with, probably, the exception of Figs. To be successful with Grapes in the open, a warm situation and a sweet, fertile soil are needed. Thin training of the shoots is also necessary to have the wood well ripened, also the timely disbudding and removal of any useless young shoots, as the season advances. The borders need not be very wide—between 4 feet and 6 feet is ample. Good drainage is essential, and a somewhat dry, rather than a damp, position is preferable. In preparing the border for the reception of the roots, dig out the soil two feet deep and break up the bottom to allow water to pass away freely. Over the bottom layer place 6 inches of broken bricks and cover them with turves, grass side downwards. Fill the trench with a mixture of turfy loam, wood ash, old mortar, a little crushed bones and a small quantity of decayed manure. The soil should be made rather firm and allowed to settle before planting is done. If the weather is wet, a covering should be placed over the border to prevent the soil from becoming sodden. In planting, first soak the ball of roots in water, and then turn the plants out of the pots. Shake the soil from amongst the roots very carefully, prepare the stations and spread out the roots evenly and at different angles, finally covering them with some of the finer soil, which should be made firm. Spread a mulching of strawy manure over the soil, and if the latter is dry when planting, afford water to settle it, but guard against an excess of moisture until the roots are more active. In suitable situations the varieties Black Hamburg, Black Cluster, Royal Muscadine, and Sweetwater should give satisfactory results.

Protecting Fruit Blossom.—All fruit trees are very backward this season, but on warm walls the blossom of many kinds has already expanded and care must be taken to protect it from injury by frost. Tiffany hung from the top of the wall over the face of the tree will answer the purpose, or double-fish netting may be used if preferred.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER CLAY, M.P. Ford Manor, Lingfield, Surrey.

Melons in Frames.—Melons cannot have too much sun and light throughout the whole stage of their development. It is best to set the plants about 2 inches higher than the level to which the top dressing of soil will reach when the final earthing up is finished. Two plants to a light are sufficient for a 6 feet light, and three breaks from each plant will be ample. Top dress with 2 inches of warm compost as soon as the roots push through the soil, and afford water to the roots as necessary, at a temperature of 85°. Linings may be added later if the heat declines too much, and the frames should be covered with mats at night during the early stages of growth. Admit a little air when the temperature reaches 75°, and increase the amount until the maximum of 85° is reached. Do not shade the plants unless bright sunshine, after a dull period, causes the foliage to flag, and then only lightly and for a short time. Close the frames early and syringe the Melons with water at 80° to 85°, care being taken when syringing or watering to keep the small mounds upon which the plants are standing dry.

Cucumbers.—Spring-sown Cucumber plants are in full bearing, and require attention every other day or so in stopping and tying the shoots. Nothing is more wasteful or injurious to the plant than to allow the young shoots to grow after the points can be pinched at the first leaf beyond the fruit intended to swell to maturity. To secure an abundance of straight fruits with the flower attached, all crooked or imperfect specimens should be removed before the flowers open, and on no account should the fruits be allowed to attain their full size, a length of 14 inches being ample for all purposes. Some growers keep their houses closed, no matter how hot the weather may be, but 70° at night with a little air, 80° to 85° by day, and 90° to 95° after closing with sun heat and moisture is sufficient warmth for this crop.

Summer-Fruiting Cucumbers.—As the weather improves, pits and frames intended for Cucumbers should be cleared, cleansed, and made ready for planting healthy young plants which have been carefully raised for the purpose. If a little fire-heat can be utilised, much labour through May and June may be saved, but the main source of heat should be from fermenting materials. The warmth of the bed, of course, fluctuates more or less, but the soft, moist heat economises syringing on fine mornings and dull days, whilst covering the lights with mats at nights ensures an atmosphere in which the plants revel. Train the main growths outwards, pinch them before they reach the sides of the frame, and stop the laterals at the first joint beyond the fruit. Increase the supply of tepid water as the plants gain strength, ventilate the frame early on fine mornings, and close it again early in the afternoons with sun-heat and moisture in time for the temperature to rise to 90°. The soil should be of a rich nature, but practically free from manure and leaf-mould, as the roots may be fed with stimulants when the plants actually require nourishment.

THE KITCHEN GARDEN.

By JAMES F. HATHAWAY, Gardener to JOHN BRENNAND, Esq., Baldersby Park, Thirsk, Yorkshire.

Parsley.—Plants raised in boxes should be set out in rows made 1 ft. apart, on ground that has been trenched deeply. Water the seedlings if the ground is dry, and dress them overhead every fortnight with soot.

Beetroot.—The main sowing of Beet should be made on ground that has been trenched deeply but not manured. Fork the land, level it with a wooden rake, and sow the seed in drills made 18 in. apart and about 1½ in. deep. Dell's Dark Red and Blood Red are two of the best varieties. A watch must be kept for sparrows, which are sometimes troublesome to

this crop, and also for slugs. To prevent damage by the birds use nets, whilst for combating the slugs dust the roots with soot after rains. To procure extra fine roots make holes 3 ft. or more in depth with a crowbar and fill them with a rich compost consisting of old potting compost, horse droppings, leaf-mould, wood ash and lime rubble, sifted through a fine sieve.

French Beans.—Make a sowing of French Beans in a sheltered position. Plant the seeds in rows made 2 ft. apart and thin the seedlings, as soon as they are large enough to handle, to 6 in. apart. Canadian Wonder, Carter's Perpetual, and Sutton's Superlative are three of the best sorts.

Maize.—Seed of Indian Corn should be sown in small pots to raise seedlings for planting out next month. This crop must be raised in gentle warmth as Maize is very tender; it should not be planted out-of-doors until it has been well hardened and there is no fear of frost.

Herbs.—Sweet Basil, Marjoram and Chervil should be sown in rows made 1 ft. apart. As soon as the seedlings are large enough thin them to 9 in. apart.

Dandelion and Chicory.—Sow these salads in rows made 12 in. apart on ground that has been well manured the previous year. As soon as the seedlings appear thin them to 1 ft. apart.

New Zealand Spinach.—Sow this vegetable in rows made 3 ft. apart in a sunny position on a light soil. Thin the plants to 2 ft. apart as soon as they are large enough to handle.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir C. NALL-CAIN, Bart., The Node, Codicote, Welwyn, Hertfordshire.

Cuttings.—Rooted cuttings of such plants as Codiaeum (Croton), Dracena and Saintpaulia that were propagated in February require to be potted singly in small pots. Care must be taken not to break the young roots, which are very brittle. For putting use rich, open loam mixed with leaf-mould or a little peat, adding sharp sand and broken charcoal to ensure a free drainage. After potting, plunge the plants in a mild hotbed and shade them from bright sunshine for a short time.

Campanula pyramidalis.—For furnishing a cool greenhouse and for other decorative purposes, the elegant Chimney Campanula is well worthy of cultivation in pots. By introducing a few plants now into a little warmth and allowing others to remain in the cold frame, plants may be had in bloom over an extended season. There are both white and blue forms of this Campanula, and under good cultivation they make most useful plants for grouping purposes. To maintain a good stock of these plants, it is necessary to sow a few seeds annually, and now is the most suitable time to perform this operation. Sow thinly in well-prepared pots or pans, cover the seed lightly with soil, and place the seed pans in a warm greenhouse. Shade the receptacle until the seeds have germinated, and, when the seedlings are large enough to handle, prick them off into boxes. When suitably hardened, they may be planted out-of-doors in well-prepared soil and allowed to remain there until the autumn, when they should be lifted and placed in their flowering pots. Plants in pots intended for flowering this season will be greatly assisted by frequent applications of liquid manure.

Coleus thyrsoideus.—Stock plants of this Coleus may be grown in a brisk temperature with a view to obtaining cuttings for raising flowering plants for next winter. This Coleus is very easily grown, and produces its flowers in the fullest months of the year. It is useful either for supplying cut blooms or grouping purposes. As soon as cuttings become available, they may be inserted three or more in a small pot, and later either potted singly or grown on intact.

SPRING FLOWERS.

THE beauty of a flower border may easily be marred by want of forethought in the arrangement of colours. I speak advisedly, having suffered rude shocks as the result of my own inveterate habit of sticking in plants wherever there is room for them, without reckoning upon the colour or season of the bloom on their established neighbours. For instance, only two years ago, when moving some bulbs of Habranthus pratensis, I dumped them right in front of a large bush of Buddleia globosa. In the following May, when the bush and the bulbs burst into flower together, the effect was excruciating, so cruel was the clash between the flaming vermilion Habranthus and the orange of the Buddleia. Equally harsh was the discord between Berberis Darwinii, rising to a height of ten feet, alongside a crimson Rhododendron two feet higher. As they persisted in blooming simultaneously, and as each was too big to transplant, the Barberry had to be cut out. A third example out of many which might be recounted will suffice. A liberal



FIG. 109.—CROCUS VERNUS IN COLONIES IN THE GRASS.

space in the front of a border having been dressed with lime was filled with Pasque Flower (Anemone Pulsatilla), which responded with what should have been a delectable display, had not neighbouring masses of Aubrietia been overlooked, whereof the stronger purple utterly eclipsed the delicate tones of the Anemone and nullified the effect. The colours of spring flowers are so vivid, and their effect is so greatly heightened by leafless woods and naked fields, that it is well to take note of felicitous harmony, and contrast with a view to future arrangement. Here are a few early combinations which have afforded pleasure during the present spring. Winter Aconite with Scilla bifolia. These bloom together early in February. 1. Tulipa praestans (scarlet) among a wide scattering of Narcissus Bulbocodium citrinus (the pale Hoop Petticoat). 2. Narcissus Queen of Spain springing amid breadths of purple Aubrietia. The yellow of this graceful Daffodil, which is said to be a natural hybrid between N. pseudo-narcissus and N. triandrus, is of a peculiarly soft, yet luminous,

quality. 3. Anemone Pulsatilla, with Tulipa Kaufmanniana. 4. Anemone fulgens (scarlet) with Muscari conicum Heavenly Blue. 5. Bloodroot (Sanguinaria canadensis), with Grape Hyacinth (Muscari botryoides). 6. Narcissus cyclamineus with Chionodoxa Luciliae. 7. Narcissus Bulbocodium (the deep yellow Hoop Petticoat) with Scilla sibirica. 8. Erythronium Dens-canis (Dog-tooth Violet) with Ornithogalum nutans. 9. A very choice association of delicate colours is presented by the Queen of Spain Daffodil beside Primula denticulata.

Modest combinations such as these will not satisfy those who aim at regular spring bedding with gaudy breadths of Tulips, Hyacinths, etc., adapted for public parks and formal gardens, but they contribute much charm and interest to humbler parterres.

After all, I have seen nothing during this spring of such lavish beauty as the lawns round a Scottish manse, which were sheeted from end to end in February with the soft purple of Crocus vernus (see Fig. 109). The effect was enhanced in March when the common Daffodil (N. Pseudo-narcissus) came through the carpet in scattered groups. It implies no disrespect to the opulent Dutch varieties of Crocus if I extol the natural C. vernus above them. The pity is that, so far, I have failed to find any nurseryman that stocks it. Herbert Maxwell, Monreith.

THE ALPINE GARDEN.

DIANTHUS SPENCER BICKHAM.

DIANTHUS SPENCER BICKHAM, raised by the gentleman whose name it bears, and who is an authority on the genus, is an exquisite plant with close, yet graceful growth, making a pretty mat on the soil, and in summer decorated with bright crimson flowers that are borne on short stalks and look exquisite on the rock work or moraine. It is a gem for a moraine of whinstone intermixed with lime and looks exceedingly well against the grey chips, the cool green of the leaves and the bright crimson flowers presenting an object of great beauty. The plant is hardy and may be increased by means of division.

SAXIFRAGA CORIOPHYLLA.

In the Royal Botanic Garden of Edinburgh there are two fine masses of two Saxifrages bearing the above name. One is marked S. coriophylla of gardens and the other S. Rocheliana var. coriophylla. Both plants are very beautiful, though the latter is the prettier, with its close set, spiny, dainty margined foliage and good white flowers. It was delightful in early April. As with many Saxifrages there is some confusion regarding the nomenclature of these plants. The late Mr. Reginald Farrer dealt fairly thoroughly with the Saxifrages in the *English Rock Garden*, but even his views as formulated in that great work leave us in some doubt regarding the precise plants which should bear the name of coriophylla. In the first place, Mr. Farrer referred S. Rocheliana to S. marginata, and stated that "S. coriophylla is a marked form, being a high-alpine development of S. marginata, with smaller flowers on stems of an inch, which usually carries only two. The leaves also are much smaller and rounder, packed in tighter, more densely-overlapping rosettes, so that their silver margin becomes more conspicuous." Mr. Farrer also states that it is distinct from S. marginata, but that "there is no abiding character to distinguish them." According to Mr. Farrer the plant offered in catalogues as S. coriophylla or as S. Rocheliana coriophylla is only a slightly divergent form of S. marginata, but that the true S. m. cordifolia is sometimes sent out as S. scardica. All this is very unsatisfying to those who desire to have their plants correctly named. The plant labelled S. coriophylla of gardens at Edinburgh seems a trifle earlier than the other, which is in all probability the true S. m. coriophylla, and is very charming indeed. S. Arnott.

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TREES AND SHRUBS OF SAVOIE
HAUTE SAVOIE AND ISERE.*

THE densely-wooded valleys of that Highland country are of special interest, as almost all the species of trees and shrubs indigenous to Central Europe are to be found there.

In the streets, gardens and squares of the

branches had been broken off by their weight. In England the tree only produces its handsome purple flowers in the best climates of the south, and that only after a mild winter, as it sets its flower buds in the previous autumn.

In Savoy, *Sophora japonica* is the most beautiful of planted trees, and is often completely covered with its creamy blossoms, beloved of bees; *Ailanthus glandulosa* also flowers and sets seed freely (see Fig. 110). Roadside avenues of *Gleditsia triacanthos* and of the silver-leaved Lime (*Tilia argentea*) are frequent. The latter, the habitat of which is south-east Europe, I noticed had suffered more in Savoy from the drought of last summer than the two native species, *T. platyphyllos* and *T. parvifolia*. The black Walnut of North America (*Juglans nigra*) is occasionally planted, and at Montiers I noticed a fine specimen planted in the middle of the town. The Nettle-tree or "micoculier de Provence" (*Celtis australis*) is planted occasionally; at Annecy by the side of the lake it was bearing its small black fruits profusely. I know of no trees of it in England, and the other member of the genus, *Celtis occidentalis*, from eastern North America, is a very rare tree with us.

monly made from Pear wood and evergreen Oak (*Quercus ilex*), though the latter is not native in the district. Sweet Chestnut (*Castanea sativa*) is not thought so highly of as Oak for furniture-making or other purposes, but is regarded as valuable timber. Trees of this species are not grown so frequently as on the Italian side of the Alps, and I saw none that would compare with the great sweet Chestnuts of England.

As one ascends from the valleys to 1,500 feet and over, in all parts of Savoy, pedunculate Oak forms the scrub forest growth, often mixed with and gradually giving place to Hornbeam. During the drought of last summer these species became so withered on much of the shallower soil overlying the limestone that I fear they have been killed outright.

Walnut and Robinia, though, of course, not natives, may be seen coming up from natural regeneration in many of the lower woodlands. Higher still the natural woods are so varied in the number of species they contain, and, in the case of certain forests, such as those of the valleys of the Grande Charreuse, the timber itself is so superb as to



FIG. 110.—FOLIAGE AND FRUITS OF *AILANTHUS GLANDULOSA*.

principal towns, such as Chambéry, Aix-les-Bains and Annecy many exotic trees grow to greater perfection than in the most favoured parts of Great Britain. At Chambéry I saw the finest Maiden-hair tree (*Salisburia adiantifolia*) I know of in Europe, larger even than the examples in the old Botanic Garden of Montpellier in Provence. It grows behind the old citadel, and is a female tree which last summer was covered with fruit. Specially fine specimens of Paulownia, Catalpa, *Gleditsia*, *Sophora*, *Ailanthus*, *Tilia argentea*, *Acer Negundo*, Chinese Persimmon, *Morus alba*, and others of the more uncommon broad-leaved species are also to be seen. There are many remarkable avenues of Planes, notably that at the north end of the Lake of Annecy, and near Annecy an avenue of Walnuts. By the way, why is it that in Great Britain, so far as I am aware, there are no Walnut avenues, despite the many merits of the tree? I saw Paulownias at Chambéry and Brides-les-Bains of great size, and so laden with fruits that

The fields and lower hillsides are dotted with Walnuts, the wood of which is used throughout the country for the making of better-class furniture; the shop fronts and their variously panelled shutters are invariably of Walnut, often of considerable antiquity. I found that it commanded a higher price than the wood of "cerisier" and "merisier," though these are much in request for such articles as the small tables of restaurants and shop counters. So far as I can find out "cerisier" is the name given loosely to the timber of cultivated Cherries, and "merisier" to that of the wild Gean (*Prunus Avium*), though I think the latter name is also applied to the woods of *P. Mahaleb* and *P. Padus*. I found in Savoy, as in other parts of France, that the material used for such special purposes as joiners' adjustable "plough" planes and sash-fellisters, where great hardness, rigidity and closeness of grain are required, is the wood of "sorbier" (*Sorbus domestica*); I wonder why this admirable tree is so seldom planted in Britain. "Jack," "trying" and hand-planes as used in Savoy are most com-

recall the wonderful and fast-diminishing virgin forests of Arkansas. Of the broad-leaved species I saw in these valleys, Beech, Ash, Lime (*Tilia platyphyllos*), Sycamore and Wych Elm were the finest, while, except for the Yew, the only Conifers were Silver Fir and Spruce. The last two are felled carefully and peeled before being hauled out of incredibly difficult and inaccessible places. At the roadside they are loaded, six or eight to the timber wagon, generally drawn by a string of five to six mules, and taken down to the nearest railway. Each stem is from 75 feet upwards long, and has less taper than any timber I have seen except in western America.

The woods are largely owned by the peasants, though there are extensive state and communal forests; in consequence, the peasantry of the better timbered districts are exceedingly well off, and are only partly dependent on their tillage.

Of the rarer trees I saw in the woods of Savoy, two Maples, neither of which is in common cultivation in this country, were frequent, these being *Acer Opalus* and *A. mons-*

*Reprinted, with permission, from the *Journal* of the Royal Scottish Arboricultural Society.

THE MONTEREY CYPRESS.

NOWHERE is the Monterey or large-fruited Cypress (*Cupressus macrocarpa*) to be seen in better condition than at Point Lobos, a rocky promontory that extends into the Pacific from the mainland of California. There, growing amongst broken granite rocks interspersed with dark brown earth and fully exposed to the long-continued and fierce ocean storms, this beautiful Cypress is to be seen at its best. Where fully exposed, as on the summit of the peninsula, the tree assumes a dwarf, tortuous appearance, the stems grow Carrot-shaped and buttressed, and the branches and foliage become strangely arranged in flat, shelf-like tiers. Many of the exposed trees have the appearance of being centuries old, the stems twisted and gnarled, the branches shortened and directed away from the prevailing wind and assuming sharp, angular forms, as if to offer the smallest amount of resistance to the storm.

Further inland, where the tree is found in quantity, this Cypress may be seen of perfect shape and with foliage of the richest shade of green.

The noble specimens at Penrhyn Castle, in Carnarvonshire, growing on broken shale

CHINESE SHRUBS AT ALDENHAM.

(Concluded from page 199.)

RIBES LAURIFOLIUM (see Fig. 111) is a very distinct evergreen with fairly large, dark green foliage. It is most interesting in early winter, when the flower buds commence to expand, these being of a beautiful ruby-red colour. When this low-growing evergreen is out of flower I know of no plant which less resembles a member of the Currant family. Mr. Gibbs informed me that when Mr. Wilson paid a visit to Aldenham several years ago—when the seedlings of Wilson's collection were just beginning to show their characters—Mr. Gibbs was himself completely deceived by this plant. Calling attention to a box of these seedling Ribes he invited Mr. Wilson to admit that seeds of some completely different plant had been sent in error under the name of Ribes. Another evergreen Chinese Ribes grown at Aldenham, which bears considerable resemblance to this one, is *R. Henryi*. Another remarkable shrub is *R. longracemosum*, one foot to eighteen inches long, which has racemes of fruits like Black Currants. *R. Maximowiczii* is a strong-growing bush, which flowers and fruits abundantly; the berries are bright red when ripe and are said

pecculanum. The grey Alder (*Alnus incana*) is commoner in the woodlands than our own Alder (*A. glutinosa*), though both are general in the river valleys. The White-beam (*Sorbus Aria*) is thoroughly at home on the limestone of Savoy, but the Rowan (*S. Aucuparia*) I did not often see. The two Limes, *Tilia platyphyllos* and *T. parvifolia*, our only British species, Norway Maple, field Maple, commonly used for vine-posts, and Aspen-Poplar all occur frequently. Tree Willows of many species, accompanied doubtless by many natural hybrids, flourish by the streams. The most distinct is *Salix incana*, often wrongly but not unnaturally called *S. rosmarinifolia*. The dwarf-creeping Willows, *S. reticulata*, *S. herbacea*, *S. repens* and *S. retusa*, may be found among the rocks above timber-level. Birch of the warty-twigged weeping form (*Betula verrucosa*) is frequent but local; at a distance it is often difficult to distinguish its white stems from those of the Aspen (*Populus tremula*). The woolly-twigged Birch (*B. pubescens*) and intermediate forms also doubtless occur, though I did not see them.

Of the smaller trees the following are universal—Hawthorn, Hazel, "Scotch" Laburnum (*L. alpinum*), Prunus Mahaleb, Blackthorn (*P. spinosa*), the Wayfaring Tree (*Viburnum lantana*), and Guelder Rose (*V. Opulus*). The commonest shrubs are Dogwood (*Cornus sanguinea*), Privet (*Ligustrum vulgare*), common Elder (*Sambucus nigra*), and scarlet-berried Elder (*S. racemosa*), a shrub which has become our worst forest weed in Tweeddale, though it is not a native of Great Britain. On the hill-sides below the denser woodlands Juniper and Box mix with the scrub Oak and, like it, were often dead or moribund this summer.

In the higher valleys of the Isère and Doron, which take their rise in the Alpine range of the Vanoise, Larch woods cling to the rocks at timber-level of 6,000-7,500 feet. Scots Pine is usually at a somewhat lower altitude, and, though *Pinus Cembra* occurs, I saw none but scattered trees. Much of the Larch appeared to be of great age, though I saw no really large trees. From many of the mountains of Savoy *Pinus montana* appears to be absent; further south, in Dauphiny, I believe the erect form (*P. uncinata*) is found. In the higher country the Alpine Elder (*A. viridis*) flourishes as a bush on the margins of the woods, often mingled with the two Alpine *Rhododendrons* (*R. hirsutum* and *R. ferrugineum*).

Several shrubs, seldom seen in British gardens, abound in the sub-alpine regions; two shrubby Honeysuckles (*Lonicera coerulea* and *L. alpigena*), the former with purple fruit and the latter with its scarlet Cherry-like fruits are common; neither has flowers of much merit.

Cotoneaster vulgaris, whose native habitat in Great Britain is confined to the Great Orme's Head, its near relative *Cotoneaster tomentosus*, *Rosa alpina*, *R. rubrifolia*, *Rhamnus alpina*, and, at about 5,000 feet, *Rubus saxatilis*, which bears its scarlet fruit in great profusion and replaces the Raspberry (*R. Idaeus*), common at lower altitudes; these are perhaps the shrubs best worth mentioning, though I know my list is incomplete. In the valleys among river boulders the common Barberry (*Berberis vulgaris*) and Sea Buckthorn (*Hippophae rhamnoides*) are laden in August with their berries, and "Old Man's Beard" (*Clematis Vitalba*) festoons the underwood.

It is curious that while on the western side of the Little St. Bernard Pass pure Spruce forms the timber-level at nearly 7,000 feet, on the eastern or Italian side of the pass Larch is the only tree to be seen at the corresponding altitude. Larch, however, is usually absent from calcareous rock formations, while Spruce is found on both calcareous and granitic rocks, and the great line of demarcation between the two is in this region.

To those who delight in Alpine plants Savoy offers, perhaps, the best field in Europe. The limestone mountains at the head of the Val d'Isère are particularly rich in Gentians, Saxifrages, Sedums and many other Alpine genera. F. R. S. Balfour.



FIG. 111.—*RIBES LAURIFOLIUM*.

rock, are as perfect in shape and beauty of foliage tint as any that could be found amongst the forests of the tree that may be seen within a short distance of the mission of San Carlos di Rio, on the mainland of California. Cones are abundantly produced by this Cypress after middle age is attained, and seedlings spring up freely wherever shelter and soil are provided.

It is to be regretted that this Cypress is in England only suited for seaside sheltered situations and that it is readily uprooted by the wind. A. D. Webster.

GIANT LARCHES.

As you have published numerous notes from correspondents concerning very fine specimens of *Cedrus Libani*, it occurred to me that there must be some very fine specimens of the Larch in this country. It is supposed that the specimens at Dunkeld were among the first to be planted in Scotland. We have several specimens on this estate and I have just completed the measurements of two. No. 1, at 3 ft. from the ground, is 8 ft. 11 in. in circumference with a branch spread of 65 ft.; height 85 ft. No. 2 has a circumference of 8 ft. 4 in., a spread of 66 ft. and height of 106 ft. Can any of your readers give me any idea when such trees were planted? Mark Mills, The Gardens, Coombe House, Croydon.

to be edible. A fine specimen at Aldenham is ten feet high and eight feet in width.

SARCOCOCCAS.—Although one cannot claim that these plants are of special value at Aldenham, as they suffer during hard winters, there are many gardens in which they would prove useful for planting in shady places, and produce the same general effect as the Butcher's Brooms. The white flowers are not showy, but those of *S. humilis* and *S. ruscifolia* are desirable on account of their fragrance. The bright, evergreen foliage is very pleasing where it remains in good condition. It is very interesting to know from Mr. Bean that the Chinese form of *S. saligna*, sent home by Wilson, has proved "quite hardy and a vigorous grower."

STRANVAESIA DAVIDIANA is a handsome evergreen, similar to a Photinia, with large dark green foliage, and corymbs of white flowers. The blossoms are succeeded by brilliant red fruits, which remain in good condition well into the winter. The tree is particularly good when grown as a standard. There is a variety at Aldenham that bears yellow fruit; it has no advantage over the type except that of rarity. *S. undulata* is another fine species which makes a spreading bush about eight feet across and almost as much in height. The leaves are smaller and lighter in colour than those of *S. Davidiana*, but the bright red fruits are produced in greater abundance, and in autumn few shrubs are more beautiful. A. E. Thatcher.

MESEMBRYANTHEMUM AND SOME NEW GENERA SEPARATED FROM IT.

(Continued from page 198.)

In the descriptions which follow it will always be necessary to take the smaller dimensions given as more nearly indicating the size of the growths as they occur in South Africa. The time at which the flowers are stated to expand is Greenwich time, not the so-called "summer-time."

As in the case of the genera previously dealt with, the name *Mesembryanthemum* is indicated by the letter M in the synonymy.

The groups under which I have arranged the species in most cases are purely artificial, and do not admit of a proper sequence of the nearest allied species.

In the descriptions the breadth of the growths is the greater diameter, and the thickness the lesser diameter across the top.

CONOPHYTUM.

KEY TO THE GROUPS.

I. Growths globose, ovoid, obovoid, obconic, obcordate, or rarely subcylindric, not compressed as if pinched between the finger and thumb and two-lobed at the top. Types A to Q of Fig. 112. Species 1-49.

Surface pubescent, minutely puberulous or covered with minute points scarcely amounting to hairs, as viewed with a lens.

A, Species 1-5.

Surface glabrous except at the minutely puberulous orifice. C. oviforme is minutely tuberculate all over, and a few species have raised dots, all the others are quite smooth.

AA, Species 6-49.

Growths uniformly green or more or less tinted with purple, without dots or markings, except sometimes in 8, C. jucundum; 11, C. Wettsteinii; 12, C. minutum; 14, C. saxetanum; and 15, C. viridicatum (see also 18, C. translucens). B, Species 6-15.

Flowers yellow. C, Species 6-7.

Flowers of some shade of red or perhaps whitish in 14, C. saxetanum. Colour unknown in 10, C. subrisum. CC, Species 8-14.

Flowers white (see also 14, C. saxetanum. and 18, C. translucens). CCC, Species 15.

Growths marked with dots or lines.

BB, Species 16-49.

Dots all scattered and separate (see also 14, C. saxetanum; 27, C. Nevillei; and 30, C. parvipetalum). D, Species 16-22.

Some or all of the dots confluent into lines or the growths marked with lines not formed of confluent dots.

DD, Species 23-49.

Top of the growths flattish or with a broad and shallow, trough-like transverse depression, or slightly excavated and shallowly cup-shaped (see also 33, C. leviculum, and 37, C. signatum). E, Species 23-31.

Top of the growths more or less convex (flattish in species 33 and 37), or convex on each side of the central notch, which does not spread out over the whole of the top as in some of those under E.

EE, Species 32-44.

Top of the growths obcordate, with or without a slight ridge or keel extending from the orifice to the top of the convex lobule on each side of it. Types O-Q of Fig. 112.

EEE, Species 45-49.

II. Growths two-lobed at the top, and the lobes or top of the growth compressed and keeled as if pinched between the finger and thumb, with flat sides to the notch separating the lobes, except in 57, C. turrigerum, which has cylindric lobes, convex or subtruncate at the top.

Types R to T of Fig. 112.

Surface covered with minute points viewed

with a lens, slightly and harshly puberulous to the touch.

F, Species 50-51.

Surface quite glabrous, smooth to the touch.

FF, Species 52-57.

I.

Growths globose, ovoid, obovoid or obconic in form, circular, elliptic, or rarely slightly angular on outline, viewed from above, and not compressed as if pinched between the finger and thumb at the upper part, with the top convex, flat, depressed, obcordately notched so as to form two very short and broadly-rounded lobes, or with a broad V-shaped trough extending from margin to margin all across the top, as represented in the outlines Fig. 112. Types A-Q (Species 1-49).

A.

Surface either distinctly pubescent or (as seen under a lens) minutely puberulous or covered with minute points scarcely amounting to hairs. (Species 1-5).

1. C. PILOSULUM, N. E. Br. Growths obcordately obovoid (type N) in nature, but under cultivation with me becoming elongated-ovoid and more or less pointed at the top (type B), $\frac{1}{2}$ - $\frac{3}{4}$ in. in diameter, softly pubescent with fine outstanding hairs, dull purple where exposed to the sun, uniformly light green on other parts, without spots or markings. Flowers not seen, but

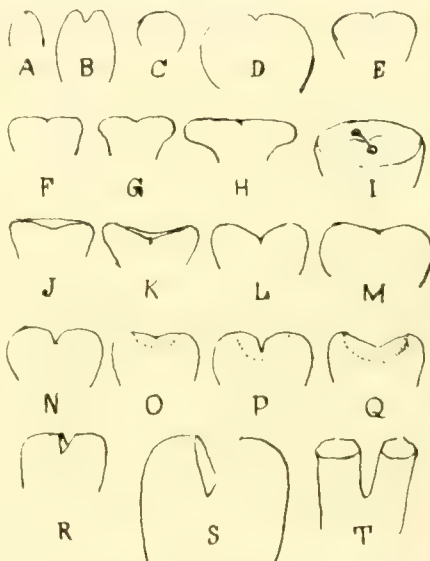


FIG. 112.—OUTLINE SECTIONS OF TYPES OF GROWTH OF CONOPHYTUM. (SEE TEXT.)

according to a photograph the flower is about eight lines in diameter with about thirty recurved-spreading petals, and stated to be bright purple. M. pilosulum, N. E. Br. in *Journ. Linn. Soc. Bot.*, Vol. 45, p. 98. Ladysmith Div. near Towsberg Mountains, in a clayey subsoil covered with sand, flowering in May, Pole Evans, 6927.

2. C. LEIPOLDTII, N. E. Br. (Fig. 113). Growths globose (type C), about a quarter of an inch in diameter, covered with an adpressed pubescence of fine hairs all pointing downwards, pale brownish, tinted with reddish, not dotted. Flower not seen, stated to be magenta and not to close when once expanded until it withers.

Clanwilliam Div., near Clanwilliam, Leipoldt. I have much pleasure in naming this very distinct species after Dr. C. L. Leipoldt, who has discovered a considerable number of interesting South African plants. The flower is probably usually more symmetrical than represented in the figure, which is from a photograph sent to me by Mr. Leslie.

3. C. FIBULIFORME, N. E. Br. Growths obconic, flattened at the top, slightly pubescent, whitish or hoary, without spots. Flowers unknown. M. fibuliforme, Haw, *Misc. Nat.*, p. 22 (1803), and *Rev. Pl. Succ.*, p. 83.

Locality unknown. Introduced by Masson in

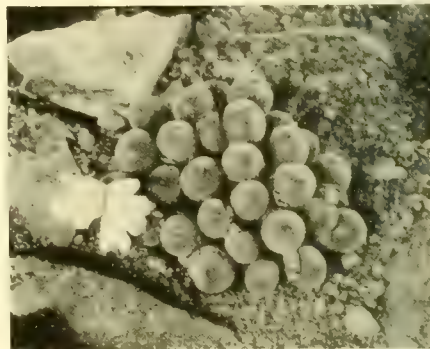
1795, but soon died out of cultivation, and does not appear to have been rediscovered.

Haworth states that it is of the size of M. truncatellum and resembles that species in form, but is more depressed and more evenly truncated. The description given by Sonder (*Fl. Cap.*, Vol. 2, p. 393) is evidently partly based upon Haworth's description and partly upon a plant collected by Zeyher. It is certainly a mixed description of two species, and must, therefore, be discredited. The above account contains all that is known of the plant at present.

4. C. FIMBRIATUM, N. E. Br. Growths obconic, apparently flattish or slightly convex on the top, minutely puberulous. Calyx five-lobed, gland-dotted. Corolla with a tube about $\frac{1}{2}$ line long, and narrowly linear acute petals about $\frac{2}{3}$ lines long, marked (in the dried state) with numerous linear immersed glands along their entire length. Style short, with five filiform stigmas, gland-dotted like the petals.—M. fimbriatum, Sond. in *Fl. Cap.*, Vol. 3, p. 393.

Near the Gamka River in either Beaufort West Div. or Prince Albert Div., Burke! Zeyher 693!

The gland-dotted flowers distinguish this from every other species known to me. Sonder describes the species as glabrous, from specimens collected by Zeyher. I have not seen Zeyher's specimens, from which Sonder described, but as Burke and Zeyher travelled together, and in most cases collected the same species, the specimens collected by Burke at the same locality are probably identical with those of Zeyher, and are decidedly minutely puberulous, as in Zeyher 693, which Sonder wrongly quotes as being M. minutum, Haw.



Photograph by T. N. Leslie.

FIG. 113.—CONOPHYTUM LEIPOLDTII, N. E. BR. NATURAL SIZE.

5. C. PISINNUM, N. E. Br. Growths obconic or subglobose, $\frac{2}{3}$ - $\frac{3}{4}$ lines in diameter, convex on the top (type E), slightly velvety to the touch from being covered with very minute points, scarcely amounting to pubescence, only visible under a lens and best seen on the old withered sheaths, of a slightly greyish-green, often more or less tinged with purple on the sides, and inconspicuously marked with scattered dots on the top. Flowers unknown.

Locality unknown. Karoo, Marloth.

M. pisinum, N. E. Br. in *Journ. Linn. Soc. Bot.*, v. 45, p. 98.

AA.

Surface glabrous, except at the orifice, which is usually minutely puberulous, minutely tuberculate all over in C. oviforme, and in a few species with the dots raised and tubercle-like, but in all the others quite smooth. (Species 6-49.)

B.

Growths uniformly green, or green with the sides or sometimes the top or around the orifice purple, usually without dots or markings, but in C. jucundum, C. minutum, C. saxetanum, C. viridicatum and C. Wettsteinii there are sometimes a few indistinct dots on different plants or even on the same plant in different years. (Species 6-15.) N. E. Brown.

(To be continued.)

THE GRAPE VINE.*

It is the general belief that the vine was introduced into England by the Romans, A.D. 10, in the reign of Emperor Augustus. At an earlier period the Romans planted great vineyards in Italy. They trained the vines to tall trees, and it is said that the vines out-topped the highest Elms. There are various records of vineyards in different parts of Britain, attached to castles and monasteries, but, owing to our moist climate, little progress was made with the vine in this country until it was cultivated under glass. Since that time no branch of horticulture has received more care and attention than the cultivation of the Grape, and in no country in the world do Grapes compare in flavour, at least—with those grown in this country.

The construction of vineries, like all horticultural buildings, made great progress during the latter half of the nineteenth century, and although the details of a vinery must be left largely in the hands of the builder, there are certain things which must be considered essential. The elevation, exposure and shelter, must be considered in choosing the site, and the situation should be high enough to ensure perfect drainage in all seasons. The aspect should, for preference, be due south, in order that the vines may receive the full benefit of the sun's rays from dawn to dusk. All the protection required is from the east. The best protection of all is provided by raised ground some distance away, so as not to obscure the morning sun, failing this a fairly high wall or belt of trees will afford the necessary shelter from cold east winds. Some growers object to the early morning sun reaching the vines, but this is, I consider, a mistake, for I would rather have one hour of sunshine in the morning than two in the afternoon. The best type of vinery for all purposes, in Scotland at all events, is what is known as the "semi-span." This is to be preferred to the "lean-to"—except, perhaps, for early forcing—more especially for mid-season and late varieties, because colouring and ripening of the fruit is aided considerably by the sun reaching the bunches through the back or hip roof.

A liberal heating system must be provided; the more heating surface the better: one foot of four-inch piping is required for every twenty-five cubic feet of space in the house. For early forcing and houses in exposed positions this amount may be increased, for it is false economy to fire so hard that the water in the pipes comes near to boiling point when the temperature is low outside, besides, the heat given off from very hot pipes parches the atmosphere of the house, and a dry atmosphere is detrimental to all plant life. What should be aimed at is to have enough heating surface to ensure the desired temperature in the house without overheating the pipes, even in severe weather. It is also an advantage, when a central heating arrangement is in use, to have the feeding pipes inside (return and flow) instead of outside, as is often the case, by which a considerable amount of heat is lost.

A trellis for training the vines is best made of galvanised wire, fixed not less than thirty inches from the glass and nine inches between the wires, running from end to end of the house and supported below each rafter by light iron bars. At one time, ten inches was considered the most suitable distance between the wires and the glass, but during the past forty years, it has been the practice to keep the leaves further and further away from the glass to prevent them becoming chilled by sudden changes in the weather and from being scorched by strong sunshine.

Thorough ventilation—top and bottom—is essential; the ventilators should run the full length of the house and be hinged at the top to open outwards, with suitable gearing or levers attached, so that the ventilators may be

opened either an half inch or a foot, as desired. Fresh air plays an important part in keeping the vines in health.

Drainage is of paramount importance, for the vines cannot thrive in a stagnant border. The bottom of the border should be concreted and have a gentle slope from the back to the front of the house, say a fall of a quarter of an inch to the foot. Formerly, the roots were allowed to work through arches into a border made outside the vinery, but this is not suitable for growing good Grapes in Scotland.

In the south of England, where the growing season is longer and cold in winter less severe, this practice is quite sound, but in the north, where heavy frosts are experienced in the late spring and early autumn—causing a big difference in the temperature between the outside and inside borders—making it impossible for the roots in the different temperatures to work in harmony, the vines break unevenly in the spring and the fruit do not finish well in the autumn.

In 1918 we planted a vinery at Scone Palace, details of which may be of interest. Muscat varieties were planted. The soil of the old border was taken out to a depth of three feet. A thin layer of concrete was laid on the bottom and the arches in front built in, leaving a single drain pipe just under the level of the concrete. The border was divided into compartments by building a single brick wall from back to front seven feet apart, which makes the wall on an average two feet four inches in height. (Building from the concrete to the height of the border.) A drain-pipe was laid in the centre of each division, connected with a pipe going through the front wall and taken into the main drain in front of the range. There were also a few short tiles laid at each side of the centre pipe in each division. The great advantage of this system of separate compartments in a vine border is that the roots of the individual vine are entirely under control and may be given the treatment most suited to the requirements of the different varieties. Water may be given to one vine and withheld from another; stimulants may also be given or withheld at will—which is impossible when the roots of all the vines in the border are allowed to ramify amongst one another; moreover, a vine may be taken out and replaced without interfering in any way with the others.

The drainage material consists of rough stones and brick-bats with coarse lime rubble on the top, to the depth of six inches in all. The lime keeps the fine particles of soil from washing into the drainage.

The soil used for making up the border consists of good, stiff loam taken from land under fairly old pasture; the grass, or as much as possible, was removed from the turf before it was lifted, to the depth of six inches. The turf was chopped up into squares of three inches and it was mixed with about equal parts of rough charcoal, rough lime rubble, old brick-bats—broken with a hammer into pieces about the size of road metal—and wood ash to the extent of one-third to the whole.

To make the soil more calcareous I gave a light dressing of carbonate of lime—air-slaked ground lime.

I am not in favour of having too much fibre in the soil for making up permanent vine borders, or any kind of organic matter which only lasts a limited period at the best, and when used up or washed away there is little left to sustain the plant, if what is left does not run together and become, more or less, a sour, sodden mass. Fibrous loam is undoubtedly the best rooting medium for growing pot plants, as the soil is renewed periodically, at a limit of two or three years, but a vine border is required to furnish food for the vines for a period of at least forty years. The compost recommended is sufficient to keep the vines growing in health and vigour for years.

The roots of the vine ramify through rough material and nothing seems to suit it better than an old stone and lime wall. All soils, or almost all soils, have iron present in sufficient quantity to meet the needs of all fruit-bearing plants but, like all other soil constituents, it is not always present in a suitable or available form. This want may be made good by apply-

ing sulphate of iron periodically; every four years is generally sufficient.

One hundredweight of vine manure was added to every five tons of compost in all the divisions of the border except one. In this division I gave a slight dressing of basic slag instead of vine manure, and strange to say, it has produced the best vine in the house so far, though the others are excellent.

In making up the border place a layer of thin turf grass downwards over the drainage, and use turves for building the retaining wall. Do not complete the border forthwith; a width of four feet is quite sufficient to begin with and should suffice for three or four years. It can be added to as the roots extend. With these additions the drainage should be a foot or so beyond the border. When adding to the border, remove the turf wall, and also the drainage down to the floor; add fresh drainage and extend the border three to four feet in the same way, and with similar material to that used for the original border. Have no scruples about cutting the roots of young vines, or vines of any age, for in a year's time there will be ten roots for every one cut. As the soil is being placed in the border, see that it is made firm, and it should be in position a month before planting in order that it may have time to settle. A depth of twenty inches of soil is ample above the drainage. The plants I used and those which I prefer are green canes, struck from eyes inserted in February, and grown on in the usual way in a warm house until the first of June. By that date, those planted were about six feet long; young vines grow with more vigour once they reach the trellis and are past the eaves of the house. One cane was planted in each division, two feet from the front wall, taking care not to injure the roots, which were made firm and copiously supplied with warm water. The house was kept close until growth was apparent. Should the weather be very hot soon after vines are planted, it may be necessary to shade the house during the middle of the day; this may be done by placing mats over the glass above the plants. As soon as the growth has fairly commenced admit air freely, using both top and bottom ventilators, thereby encouraging the development of strong, healthy leaves and firm wood, and insuring a good break for the following year. The leading shoot should be stopped, also all the side laterals except two, one at either side about 2½ feet from the ground; these again should be pinched at four feet to make the laterals break strongly, then allowed to grow on for the season. The temperature in the house was not high at any time, the top and bottom ventilators were practically always in use day and night, the air being reduced late in the evening, the temperature falling to 60° at night during August and 50° in September with very little heat in the pipes. Water was supplied to the roots as required. By the end of September the vines had made splendid growth and the wood was well ripened. In the winter, when the leaves had fallen, the centre shoot was taken out and the two—one at either side—cut back to a joint or two below where they were pinched, and a little above the first wire on the trellis. Care should be taken in the pruning of young double rods that the two rods on each vine are cut to the same level, otherwise the higher of the two will break into growth first and, as a rule, strongest.

(To be continued.)

THE BULB GARDEN.

GALTONIA CANDICANS.

It is usual to lift the bulbs of *Galtonia candicans* in the autumn and replant them in the spring, but in late districts it is not wise to do so, as the opening of the flowers is too long delayed. Planting the bulbs permanently necessitates a thorough preparation of the soil and attention to efficient drainage. Light, annual mulchings of rich manure, applied in spring, are beneficial to plants in permanent beds, and liquid manure may be applied to the roots freely in summer. S. L.

* A lecture delivered by Mr. Malcolm Macnaughton, Scone Palace Gardens, Perth, in the Technical College, Dundee, before the members of the Dundee Horticultural Association.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

Do Plants Know Time?—The article in last week's issue, "Do Plants Know Time?" is very instructive and also, from the botanical side, very useful. Yet the explanations given are more or less on the floral organs and their cause of opening and closing. *J. F.* is quite correct when he states the more observations made the more complicated the subject becomes. We will consider *J. F.*'s explanation on Gentians, Anemones, Daisies, and other Composites; this correspondent concludes that the opening and closing of the flowers of these types are due to incomplete growth, and he particularly refers to anthocyanin acted upon by the sun's rays. The opening and closing of the flowers of *Tragopogon pratensis*, he says, are autonomous (i.e., "self-governing") and also hereditary. Do not all flowers open through heredity? *J. F.* must admit that the incomplete growth must refer to the flower only, not to the plants of the four types; a plant has not completed its growth immediately the flower is closed or opened. That only applies to the gaiety of the petals or the beauty of the flower. Then it either drops, fades, or withers. There must be time for reproduction in most cases. When I flowered the first specimen of *Dracaena Goldieana* I propagated several offsets that had sprung from the base of its cone-like inflorescence and raised a useful stock of plants. The second specimen that flowered belonged to this stock, and this would at once suggest heredity, for *Dracaena Goldieana* did open its flowers, whether the day was bright or dull. A few years ago I made some observations of an Evening Primrose (*Oenothera biennis*), growing under the shade of a large Horse Chestnut tree. On a dull day several flowers would remain open all day; again, on bright days, occasionally one or two flowers would remain open. In this case the "day and night shifts" must have been greatly disorganised and not working correctly. The probability is that the heavy shade of the tree was a false indication to the plant that twilight was near. Still, the plant was not out of time in ripening its seed and dying down. I do not take it that because a flower opens at a given time that the plant (as we understand it) knows the time of day, but rather that the plant has a limited time to develop all its functions and understands that, whatever the conditions may be, it must either retard or hurry growth accordingly. *Mark Mills, Coombe House Gardens, Croydon.*

Roofing of Garden "Fruit Cages."—For some thirteen or fourteen years I have had personal experience in the cultivation of soft fruits in a wired-in enclosure. For ten years only Currants and Gooseberries were grown under that system, and I am quite certain that there were no detrimental effects on the Gooseberries or Currants in either their growth or cropping. This particular fruit cage was completely wired in, and the only means of access for birds was through two small gates, one at either side. In these gardens, during my first year here, a fruit cage was erected in which Gooseberries, Currants, Raspberries and Cherries are grown, and during that season Cauliflower and Lettuce were planted between the rows of fruit bushes and did remarkably well. Whether zinc salts are dissolved or not, I have nothing to show that anything harmful has happened, but rather the contrary, for all bushes have cropped well, and their growth is all one can desire. I do not like the method of a complete enclosure, for these reasons: (1) That there is not sufficient access for birds; and (2) not enough air is admitted after the crops are gathered. This, to me, seems to confirm the idea that temperature in the cage is affected. The method I have adopted here is to have a fixed wire-netting roof with the sides open, so long as it is safe to have them so, then a string netting is suspended from the roof frame-work by means of hooks screwed in at frequent intervals. It has the desired effect, is easy to manipulate, and just as easy to dismantle. *G. H. Preece, Heathlands Gardens, Kinner, Staffordshire.*

SOCIETIES.

NATIONAL ROSE.

APRIL 21.—The spring show of this society, which was held in the London Scottish Drill Hall, Westminster, attracted the customary large number of enthusiasts that attend all the society's functions, and, as usual, the new Roses were the chief objective. These were not so numerous as usual, nor were they of such high quality as at most of these spring shows, so only three Certificates of Merit were awarded. But the general quality of the show was very good, and it is pleasant to be able to record that the very best Roses were shown by amateurs.

The Silver Medal for the best bloom in the nurserymen's classes was won by Mr. A. T. GOODWIN with one of his magnificent blooms of *Maréchal Niel*, while Mr. HAMMOND won the honour in the amateurs' section with a beautiful bloom of *G. Amédée Hammond*.

Besides the competitive collections there were groups of excellent Polyantha varieties by Messrs. W. H. CUTBUSH AND SON, and H.T. varieties by Mr. W. EASLEA; Carnations by Messrs. ALLWOOD BROS. and Mr. C. ENGELMANN; Alpines by Messrs. J. CHEAL AND SONS; and St. Bridgid Anemones by Messrs. REAMSBOTTOM AND CO.

CERTIFICATES OF MERIT.

Sovereign.—This is a gorgeous Pernetiana seedling of rich golden yellow colour, heavily flushed with dull carmine on the buds and half-open flowers. The blooms are fully double, of flattish, globular shape, and have a pleasing fragrance. The foliage is luxuriant and of lustrous rich green colour. It is recommended for general garden purposes. Shown by Messrs. B. R. CANT AND SONS.

Elsie Beckwith (see Fig. 114).—A deep rose-pink H.T. variety, much resembling Richmond, and, like that variety, it produces long, moderately stout stems that are so valued for decorative purposes. The foliage is good, and it seems a variety that will have a great future as an early market Rose, as well as in the private garden. Shown by Messrs. G. BECKWITH AND SON.

Mrs. Hornby Lewis.—A dwarf, vigorous, H.T. Rose that carries its blooms well above the luxuriant, dark-green leaves on stout, erect stems. It is a globular, fully double bloom of chrome-yellow colour, shaded with Malmaison pink in the centre. Shown by Mr. ELISHA J. HICKS.

OTHER NOVELTIES.

Dorcas, a floriferous Wichuraiana seedling, stated to be a cross between Minnehaha and Orleans, was shown by Messrs. ENGLISH AND SON. It bears large trusses of rather more than semi-double flowers that are midway in colour between Blush Rambler and Mrs. W. H. CUTBUSH. The soft pink blooms have a pale, nearly white, eye. *Mrs. T. English*, shown by the same growers, is a vigorous H.T. variety of apricot-fawn colour, shaded with salmon pink. The foliage was good, but the variety was scarcely of certificate quality.

NURSERYMEN'S CLASSES.

The only group of Roses in Class 1 was by Mr. ELISHA J. HICKS, and this was awarded the first prize. He confined himself to pot plants, and of these the young examples of *Gorgeous*, *Mrs. E. Hicks*, and *Columbia* were very good. Of the taller plants *Paul's Scarlet Climber* and *Opelia* were the best. Mr. HICKS was also the only exhibitor in the classes for sixty Pillar Roses and for a group of Polyantha Roses, and in each case he was awarded the first prize. He included good examples of *White Tausendschon*, *Orleans*, and *Ellen Poulsen*.

There were two groups of cut Roses on staging, and these made admirable displays. The first prize was won by Messrs. B. R. CANT AND SONS with a good representative collection, which included beautiful vases of *Sovereign*, *Phoebe*, and an unnamed seedling of rich yellow colour, shaded with orange buff. Amongst the tall

stands *Goldfinch*, *Paul's Scarlet Climber*, *Constance Cassoon*, and *Covent Garden* were excellent. In the second-prize exhibit by Mr. GEORGE PRINCE, there were tall stands of *Sadie* and *C. E. Shea*, and beautiful vases of *Mrs. C. Lamplugh* and *Muriel Wilson*.

Although the competition was limited, the exhibition Roses were very good indeed. The first prize was won by Mr. E. J. HICKS with a very even collection of such sorts as *Gladys Holland*, *Mrs. Foley Hobbs*, *Crusader*, *Mrs. E. J. Hicks*, and *George Dickson*. In the second-prize collection of Messrs. B. R. CANT AND SONS there were splendid blooms of the *Rev. F. Page Roberts* and *Mrs. Edward Mawley*, but this high quality was unfortunately not sustained. Mr. A. T. GOODWIN staged a dozen magnificent blooms of *Maréchal Niel*, which was deservedly awarded the first prize.

In the class for three baskets of cut Roses there was only one exhibitor—Mr. E. J. HICKS and he was awarded the first prize; *Mrs. Curdock Sawday* and *Lady Hillingdon* were very handsome varieties. Mr. A. T. GOODWIN showed super-excellent *Maréchal Niel* Roses in the class for one basket, and Mr. PRINCE was second with very good blooms of *The Padre*. The open class for a decorated dinner table did not induce much competition, but *Mrs. A. R. Bide*, who won the first prize, arranged a very beautiful table with *Columbia* Roses and sprays of *Japanese Maple* and *Asparagus plumosus*. *Mrs. L. R. May*, *Waltham Cross*, was second with a tasteful arrangement of *Sunburst* Roses and *Japanese Maple* foliage.

The bowls of Roses in this section were not very noteworthy. Mr. HICKS was placed first with a bowl of *Joanna Bridge*, which was very thin and had over-much foliage; while *Mrs. A. R. Bide* was second with a rather formal arrangement of *Madame Butterfly*.

New Roses put into commerce since the beginning of last year were limited to an exhibit of six varieties by Mr. E. J. HICKS, who received the first prize for good blooms of such sorts as *Earl Haig*, *Premier*, *Crusader*, and *Glory of Steinfurth*.

AMATEURS' CLASSES.

The two groups of cut Roses arranged on staging were highly creditable. Mr. E. J. HOLLAND, Sutton, was first with an excellent collection which included beautiful blooms of *Wm. Shean*, *Mrs. Foley Hobbs* and *Caroline Testout*. Mr. G. A. HAMMOND, Burgess Hill, was second, and he had very good vases of *Rev. F. Page Roberts* and *Mrs. Foley Hobbs*.

The twelve exhibition blooms with which Mr. E. J. HOLLAND won the first prize formed the best collection in the show, and were equal in quality to the premier blooms at a summer show. His chief varieties were *Louise Crette*, *Mrs. Foley Hobbs*, and *Wm. Shean*. Mr. G. A. HAMMOND was an exceedingly good second, and he only lost first place by the slightly more even quality of his competitor's blooms. Mr. HAMMOND had splendid examples of *J. L. Mock*, *Mrs. Foley Hobbs*, *G. Amédée Holland*, and *Mrs. R. K. McClure*.

The first prize six exhibition blooms, by Mr. H. L. WETTERN, Oxted, were also of high quality. His best blooms were of *Melanie Soupet*, *Mrs. E. Mawley*, and *Wm. Shean*. With a pretty arrangement Mr. WETTERN was also first in the class for a basket of mixed varieties, while Mr. HAMMOND was placed similarly with an excellent basket of *G. Amédée Hammond*, a delicately perfumed Rose like a pale *Maréchal Niel*.

The amateurs' decorative classes were particularly successful, and there was a great competition of dinner tables, where the first prize was won by *Mrs. OAKLEY FISHER*, Sudbury, with a pretty table of *Sunburst*, and *Mrs. CHARLTON*, Viewsey, was second with *Madame Butterfly*. The best bowl of cut Roses was by *Mrs. CHARLTON*, who used the variety *Richmond*. *Miss ETHEL JAMES*, Abingdon, beat four competitors with a beautiful vase of *Madame Butterfly* Roses.

MIDLAND DAFFODIL.

APRIL 20, 21.—The extent of this society's annual show, held at the Birmingham Botanical Gardens on the above dates, suffered much from the very cold—almost arctic—weather experienced over the greater part of these isles during the past few weeks. It was, therefore, not to be wondered at that Midland and Northern growers were only sparsely represented, the biggest number of the seventeen competitors coming from the warmer parts of the country and Ireland. Nevertheless, the large exhibition hall and adjacent glass-roofed building were well filled with flowers of good quality. It was a show of Daffodils only, there being no other flowers or exhibits of any sort on this occasion. J. LIONEL RICHARDSON, Esq., a new exhibitor from Ireland, is to be congratulated upon his first appearance at Birmingham. His flowers were of first-rate quality.

At the annual general meeting, held during the afternoon of the first day of the show, Dr N. Y. LOWER, an enthusiastic amateur grower and regular exhibitor, was elected president for the ensuing year; the other officers and committee were re-elected. Later in the day a number of Daffodil lovers met at the Grand Hotel, Birmingham, under the genial chairmanship of the Rev. T. BUNCOMBE, and took part in an impromptu discussion on eel worm, improving the Society's schedule of prizes, and other matters. Mr. and Mrs. W. CAREY-HILL, of Christchurch, New Zealand, visited the show, and in the evening Mr CAREY-HILL gave his impressions of the show and referred to the improving position of the Daffodil in New Zealand. It was arranged to send a letter of sympathy to the Rev. JOSEPH JACOB, chairman of the Society, in his long and serious illness, together with an expression of joy at his steadily improving health. This is the first Midland Daffodil Show Mr. Jacob has missed since the inception of the Society. We were glad, however, to see Mr. Jacob at the meeting of the Royal Horticultural Society on Tuesday last.

OPEN CLASSES.

The biggest class in the open division was for 36 varieties, representing the different types of the Daffodil. The schedule called for one vase of three stems of each variety. There were two exhibits, and the first prize was awarded to J. LIONEL RICHARDSON, Esq., Waterford; 2nd, the Rev. T. BUNCOMBE, Black Torrington, Devon. The flowers in the first-prize collection were beautifully fresh and well set up. A few of the best varieties were Firetail, Macebearer, Glorious, Whitewell, Cleopatra, Noble, Victory, Herod, Lord Kitchener, Bernardino, and Mrs. Robert Sydenham. The Rev. T. BUNCOMBE's best flowers were Noble, Coeur de Lion, Bernardino, and Great Warley.

The DONARD NURSERY Co., Newcastle, Co. Down, won first prizes in classes for (1) 12 *Trumpet Daffodils*, with splendid blooms of White Emperor, Comely, Everest, Mrs. Robert Sydenham, and Lady Primrose; (2) 6 *white Trumpet Daffodils*, with grand examples of Everest, White Emperor, Mrs. Krelage, and White Knight; 2nd, Mr. F. H. CHAPMAN, Rye; (3) 6 *bi-colour Trumpets*, in which Moira O'Neill, Selina Malone, and Florence Pearson were of outstanding merit; 2nd, Rev. T. BUNCOMBE; and (4) 6 *yellow Incomparabilis* with good blooms of Leonte, Croesus, Noble, Donax Dingo, and 283; 2nd, Rev. T. BUNCOMBE.

Mr. F. H. CHAPMAN excelled in the class for 6 *yellow Trumpet varieties*, with uncommonly good flowers of Regel, Roughcast, Apotheosis, Millenium, Rampart, and Cinema. The Rev. T. BUNCOMBE and the DONARD NURSERY Co. were bracketed equal 2nd, with Mr. J. MALLENDER, Scrooby. 4th, Mr. F. H. CHAPMAN also won first prizes in classes for (1) 6 *yellow Barrii varieties*, (2) 6 *bi-colour Barrii varieties*, and (3) 6 *Leedsii 4a*. J. LIONEL RICHARDSON, Esq., was placed second in each of the two last-named classes, and first for (1) 6 *bi-colour Incomparabilis*, with choice flowers of Pedestal, Whitewell, Great Warley, Bernardino, Victory, and Lady Boscawen, and (2) 6 *Poeticus varieties*. The Rev. T. BUNCOMBE won the first prize in the class for 6 *Leedsii 4b*.

SINGLE BLOSSOMS.

Yellow Trumpet.—1st, H. G. HAWKER, Esq., Ivybridge, with a magnificent bloom of Cleopatra; 2nd, J. LIONEL RICHARDSON, Esq., also with Cleopatra. *White Trumpet*.—1st, J. L. RICHARDSON, with White Knight; 2nd, the DONARD NURSERY Co., with White Emperor. *Bi-colour Trumpet*.—1st, the DONARD NURSERY Co., with Lady Primrose. *Yellow Incomparabilis*.—1st, Mr. W. A. WATTS, St. Asaph, with Brightling. *Bi-colour Incomparabilis*.—1st W. F. M. COPELAND, Esq., with a seedling, No. 1,015. *Barrii*.—1st, F. H. CHAPMAN, Esq., with 3 G.17. *Bi-colour Barrii*.—Mr. J. MALLENDER, with Jessie.

of his own raising were of great merit, particularly Nero, Mrs. Lower, Beauty of Radnor, Ingot, and Clarion; 2nd, F. H. CHAPMAN, Esq., who had exquisite flowers of Spellbinder, Eminent, and Postmaster.

The Cartwright Challenge Cup was offered for twelve varieties, but the schedule did not require them to be raised by the exhibitor. The first prize was won by Mr. CHAPMAN, with grand flowers of Robin Redbreast, Fortune, Salcote, Robin Adair, Magnolia, and Pilgrim Father; 2nd, the DONARD NURSERY Co., with beautiful specimens of Festive and Leontes; 3rd, Dr. N. Y. LOWER.

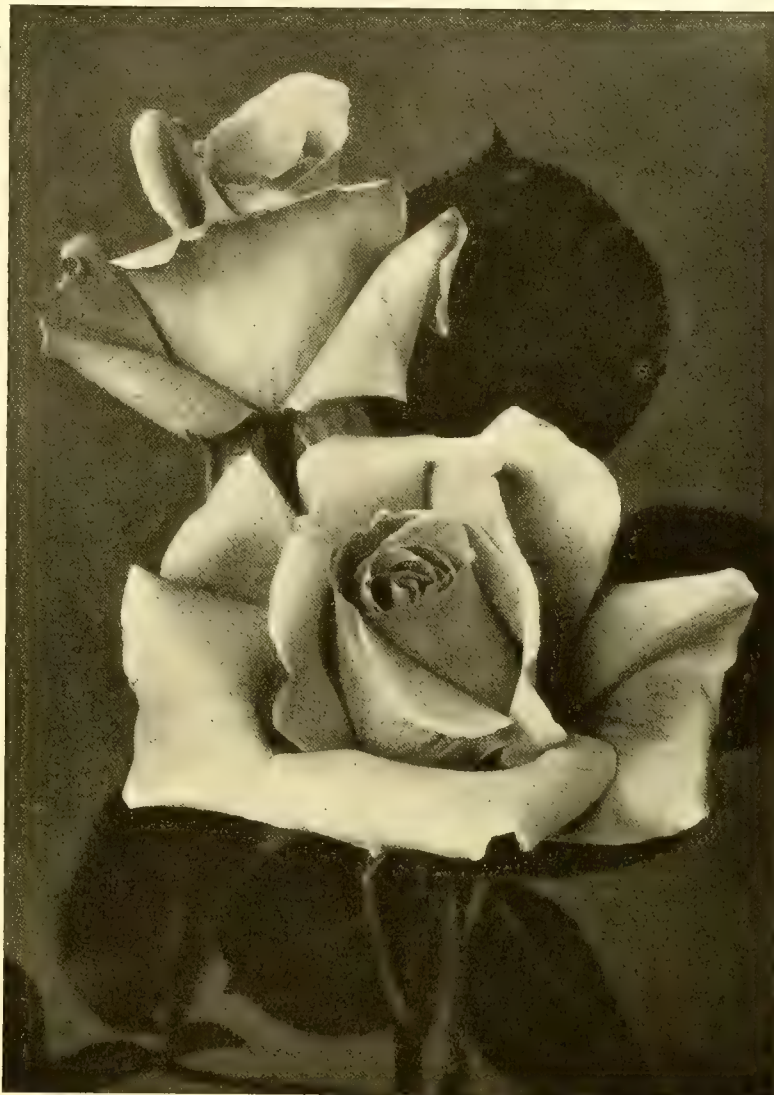


FIG. 114.—ROSE ELSIE BECKWITH; SEE AWARDS OF THE NATIONAL ROSE SOCIETY, P. 216.

Leedsii 4a.—1st, the DONARD NURSERY Co., with Tenedos; 2nd, F. H. CHAPMAN, Esq., with Magnolia. *Leedsii 4b*.—1st, J. LIONEL RICHARDSON, Esq., with Ivorine; 2nd, H. G. HAWKER, Esq., with Roster. *Triandrus hybrid*.—1st, W. F. M. COPELAND, Esq., with T.25; 2nd, the DONARD NURSERY Co., with Harvest Moon. *Cyclamineus hybrid*.—1st, F. H. CHAPMAN, Esq., with L. E.15. *Jonquilla hybrid*.—1st, J. LIONEL RICHARDSON, Esq., with Glorious. *Poeticus*.—1st, H. G. HAWKER, Esq., with Snow King. *Double*.—1st, W. F. M. COPELAND, Esq., with a seedling, No. 1,011; 2nd, Miss HINCHCLIFF, with Golden Rose.

SEEDLINGS AND NEW VARIETIES.

There was a good competition in the class for the Bourne Challenge Cup, and last year's winner, Dr. N. Y. LOWER, Presteign, retains the cup for another season. The twelve varieties

The Walter Ware Challenge Cup, offered for three varieties of Daffodils bunched for market was won by the DONARD NURSERY Co., which showed large rather loose bunches; 2nd, W. A. WATTS, Esq., with smaller and more compact examples.

The "White" Daffodil Trophy was offered for six varieties of white Trumpet Daffodils. First, the DONARD NURSERY Co., with delightfully fresh flowers of Mrs. Robert Sydenham, Mrs. Krelage, Everest, White Emperor, White Knight, and 73; 2nd, F. H. CHAPMAN, Esq.; 3rd, Dr. N. Y. LOWER.

The following exhibitors were awarded first prizes in small classes for seedling Daffodils, viz.: MESSRS. WATTS, THURSTAN, RICHARDSON, and the DONARD NURSERY Co.

[Our remarks on the Amateurs' Classes will be published in the next issue.—EDS.]

EXHIBITION AT THE HAGUE.

NOTWITHSTANDING the lateness of the season in Holland, an exhibition of considerable size and beauty was arranged in connection with the meeting of the Fédération Horticole Professionnelle Internationale, at the Zoological-Botanical Gardens, The Hague, where a large and handsome concert hall with wide stage, spacious galleries and several annexes was filled with plants, flowers and horticultural sundries.

As in the case of so many other Continental exhibitions, the individual exhibitor had to fall into line with the conditions laid down by the director of the exhibition, and did so for the sake of assisting to make the exhibition a beautiful picture. We believe that if the council of the Royal Horticultural Society would provide a design for one of its fortnightly shows, and allow its exhibitors to fill certain spaces under a few general conditions, the appearance would be so vastly improved that the long rows of tabling would seldom be requisitioned again.

The show at The Hague presented a picture designed by an artist and executed by horticulturists. The width of the hall did not permit the breadth of design characteristic of Ghent and Antwerp, but, nevertheless, the view on entering the main hall was a perfect one of its kind. Vantage points were occupied by great vases of Lilac, pillars were draped with tall palms and big Rhododendrons and Azaleas, while down the centre a restful lawn of grass led the eye between masses of Hydrangeas and great groups of Lilacs, to the gorgeous colouring of Anthuriums and the grace of Orchids, and beyond, to a garden of delight on the ample stage, where, in a setting of greensward, Rhododendrons, Azaleas, Cherries, and other early flowers were grouped in the most charming manner possible.

Daffodils and Hyacinths were conspicuous by their absence in the general scheme and only two or three exhibits of the former were to be found in the galleries.

We make no pretence to report all the exhibits, and refer only to those which appealed to us by reason of their beauty of form or colour, their rarity or their novelty.

The mention of novelties brings us at once to consider the exhibit from Messrs. JAN BOER AND SON, Boskoop. This filled the side entrance lobby with banks of Rhododendrons, Pyrus, Cerasus, Thorns, Wistaria, and Guelder Roses, most charmingly and harmoniously displayed. But of even greater interest was the semi-circular group of new Hydrangeas. Of these, the one with the deepest rose coloured heads of fringed bracts was named Elmar, and it is a grand variety, and wonderfully distinct; Lorely has larger heads and bracts of rose-pink colour; Helga has pink, white-centred "flowers"; Westfalenkind has enormous heads of immense "flowers" of a pink shade, often tinged with green when young; Parsifal is of intense rose colour, small as to individual bracts and deeply fringed, but making up big heads of bloom. This was probably the most striking novelty exhibited, but we cannot agree with the exhibitor's colour description of "blood red." Messrs. J. BOER AND SON received numerous awards.

THE DUTCH PLANT EXPORTERS' ASSOCIATION (Mr. W. F. WERY), The Hague, showed a rich salmon-orange coloured Mollis Azalea named Herr G. Van Noordest; a most effective variety. Larger flowered and more in accord with British tastes was the one named Legaticraad Greist. He also displayed two big vases of a new white Lilac named Jan van Tol, which has longer segments than is usual with individual flowers; the latter are borne in very large thyrid panicles. Mr. WERY also filled one annexe with an elegant and brilliant display of Mollis Azaleas associated with Japanese Maples in variety, Rhododendrons, Ghent Azaleas, Cytisus praecox, Pyrus floribunda, Laburnums, Viburnum Carlesi, Cerasus Hisakura and very fine (but we beg leave to doubt the correctness of the name), Wistarias, and the bright polyantha Rose Jessie, the whole backed by columnar Yews. A group of Rose Jessie in a big earthenware occupied a prominent position and was a centre of admiration.

Two of the handsomest groups in the great hall were staged by Messrs. BIER AND ANKERSMIT, Ghent, and consisted of well grown plants of hybrids of *Cymbidium* insigne, of the Paulwelsi, Gottianum and Dryad types (Gold Medal). This firm also exhibited an enormous specimen of *Cymbidium Lowianum*, and one, we believe, we have seen before at Ghent and Antwerp. It carried about thirty spikes of its green and red-marked flowers. Four large groups of white Hydrangeas, each plant a large specimen and one carrying 36 heads, were at the corners of a small lawn; these were edged with Ferns, chiefly *Nephrolepis*, but the display also included two beds of *Selaginella Watsoni* and two huge vases of white Lilac. This contribution was set up by Mr. R. EGGINK, Voorschoten.

It was pleasing to discover two groups of the graceful *Adiantum Farleyense* var. *Roem van Moordrecht*, shown by Mr. J. BIER, Moordrecht. Close by were two oval beds of superb Lily-of-the-Valley, from Messrs. C. J. SPEELMAN AND SONS, flanked by banks of finely-flowered plants of the best broad-spathed forms of the Scarlet *Anthurium Scherzerianum*, shown by Mr. G. J. BIER, Nieuwerkerk, for which a Gold Medal and other awards were granted.

A gigantic *Alsophila Scheidei*, a big *Cycas revoluta* and a huge specimen of *Philodendron odoratum*, with a few well flowered *Vanda suavis* served to fill a big corner near the stage; these were set in a little lawn, with a very few *Gloxinias* and *Primula obconica* to give a touch of colour. In the opposite corner, a huge *Pandanus*, another *Philodendron*, various *Nidulariums* and other *Bromeliads* and *Vandas* were grouped, and each group was presented by the DIRECTOR OF THE BOTANICAL GARDENS.

Lovers of succulent plants and particularly those of our readers who are following Mr. N. E. Brown's articles with close intent, would have been greatly interested in the collection staged by Mr. T. JANSEN, The Hague, in the gallery. The various species of *Opuntia*, *Euphorbia*, and *Pilocereus* and even the fine, flowering example of *Cereus flagelliformis*, may be passed over without further comment, because for us interest centred in the collection of stones flung together—apparently without purpose—in the centre of the group. We confess that some moments had elapsed ere we grasped the true design of Mr. Jansen, but presently we espied a little plant of *Mesembryanthemum Lesliei*, almost like the stones around it; and then, interest awakened, we searched for and found we specimens of *M. Bolusii*, *M. pallidum*, *M. pusillum*, *M. karasmontanum*, and *M. pseudo-truncatellum*. A little later Mr. Jansen became interested in our close scrutiny of his bit of stony desert, and in conversation with him we found he was a correspondent of Mr. N. E. Brown, and indeed, it was from the collection of the latter that Mr. Jansen received his examples of *M. Lesliei*—so we have been to The Hague to see some of the interesting South African species Mr. Brown has written about, whereas half an hour's walk from our home would suffice to bring us to Mr. Brown's private collection!

Mr. A. J. STEMERDING, a Hague florist, filled the back of the wide stage in charming fashion. Rhododendrons, chiefly Pink Pearl, were set in front of big *Kentias* and *Phoenix Roebelinii*, while two groups of pink Azalea occupied positions on the lawn. At one corner Ghent Azaleas were grouped with pale mauve Irises of the pallida type, and at the opposite corner there was a somewhat similar arrangement, with *Cinerarias* and *Cherries* in perfect harmony. A semi-circular lawn filled the front part of the stage, leaving ample room to promenade between it and the group just referred to. Here, however, Azaleas were disposed in a couple of groups, whilst red-leaved *Cordylines* with *Azalea indica* and *Aralia Veitchii* rising over a ground work of *Saxifraga sarmentosa variegata* were other fine features. The whole stage was thus occupied by Mr. STEMERDING, and a Gold Medal was deservedly awarded.

A glorious exhibit of forced Lilac from Mr. W. G. TAS AND SON, Aalsmeer, arrested the attention of the Britishers. The Lilac was

arranged in three bold masses, each from 8 to 12 ft. wide, set in a ground work of Azaleas, *Genista fragrans* and giant *Mignonette*. Some of the Lilac plants carried eighteen splendid heads of bloom. White, blush and deep mauve-purple varieties were exhibited and a Gold Medal was one of the several awards granted.

Numerous presentations of floral art were made, and a combination of *Ophelia* Roses and deep mauve Lilac in a big basket was capital, but Tulips with the three outer segments turned back were monstrous. Floral designs, with flowering and foliage plants, set so as to show their usefulness in certain positions and colour surroundings, were made a feature by M. W. de HAAN, The Hague. The Scarlet *Cineraria* Matador was grandly shown by M. A. MAARSE, Aalsmeer, who also showed small Azaleas finely flowered.

A fair sized and somewhat thinly arranged group of Orchids from Mr. J. W. VAN DE GRAAF, Bennekom, contained an assortment of *Odontoglossum* hybrids, and *Odontodas*, with a few examples of *Odontoglossum crispum* xanthotes, but the whole display would have secured only a small award at an ordinary R.H.S. meeting.

The only exhibit of Carnations was the one submitted by Mr. H. V. CLINGENAALSCHKE, Kweekerij, and it included good flowers of such well-known British grown sorts as White Pearl, Nigger, Saffron, Circe, Mrs. Raphael, Jessie Allwood, Laddie and Eileen Low. The RYSWYK SCHOOL OF HORTICULTURE sent a capital selection of early vegetables and salads, some forced Strawberries, and some of the finest spikes of white and mauve Stocks we have ever seen.

Daffodils were represented by two small groups in one of the galleries, arranged respectively by Messrs. MELOCK HOUSON AND Co., Zierikzee, and Mr. G. TUBBE, Oegstgees. Icicle, Pharaoh, Cygnet, and Mount Everest, were a few outstanding varieties. In addition to these, Messrs R. H. BATH, Wisbech, showed a few dozen very fine and brilliant coloured flowers of Bath's Flame, which attracted considerable attention.

An interesting exhibit of winter-flowering Sweet Peas set up by Mr. H. CARLEE, Kweekerij, contained fair-sized, bright blooms of varieties named Glitters, Lavender King, Father Christmas, Fire King, Early Blue and Enchantress. The same firm showed a few coloured *Freesias*, but these were eclipsed by the vases of splendid flowers of *Apothéose*, and of *Daffodil*, a large-flowered yellow, orange-yellow throated variety, exhibited by Mr. C. J. VAN TUBERGEN. The alpine gardening exhibits were not especially good, if we except M. REISER's group, but somewhat regular planting rather spoiled the general effect.

Near the tea room, Messrs. H. WARMBON AND SON, Hillegom, showed a grand lot of *Hippeastrums*, including a splendid strain of rich orange-scarlet flowered forms; some pure white; white, feathered with pink; and white grounds, flamed with orange-scarlet. This was a most effective and satisfying display and gorgeous in the extreme.

Altogether we have to congratulate our Dutch friends upon the attendance at the show, its interesting horticultural features and, particularly, upon its delightful arrangement.

ROYAL HORTICULTURAL.

APRIL 25 AND 26.—A very fine exhibition was held on these days, and those who could not find ample interest in it, and especially in the large number of novelties which gained awards, would be hard to please. It was also a bright display wherein Daffodils, Rhododendrons, Roses, flowering shrubs, Orchids and Carnations were leading features. In addition to the Orchids, there were about four dozen groups in the hall.

Orchid Committee.

Present: Sir Jeremiah Colman, Bart. (in the chair), Messrs. James O'Brien (hon. secretary), R. Brooman White, Arthur Dye, C. J. Lucas, Fred. K. Sander, H. T. Pitt, Thomas Armstrong, A. McBean, W. J. Kaye, E. R. Ashton, Pantia

Ralli, Gurney Wilson, Richard G. Thwaites, C. H. Curtis and S. W. Flory.

AWARDS.

AWARD OF MERIT.

Aéranthus (Angraecum) Leonis from Sir HERBERT LEON, Bart., Blechley Park, Bucks. A fine specimen of the plant originally illustrated in *Gard. Chron.*, July 13, 1885, pp. 80-81, from one of the earliest importations from the Comoro Islands, and which received a First-Class Certificate when shown by Sir TREVOR LAWRENCE and other exhibitors at the R.H.S. meeting on August 25, 1885, as *Angraecum Humblotii*, a more generally accepted name commemorating the discovery by the collector Humblot. The plant is unique in form, with hard, compressed, equitant foliage, and sprays of fragrant white flowers with remarkable long and twisted spurs.

Catasetum Trulla, Dovercourt variety, from Dr. F. BEDFORD, Esq., Esleford, Marden, Kent. A remarkable variety, differing from the type in having flowers with sepals and petals coloured entirely dark maroon purple, and trowel-shaped, fleshy, yellow lip.

Brasso-Laelio-Cattleya Truffautiana, Low's variety (B.-C. Mrs. J. Leemann × L.-C. *luminosa*), from Messrs. STUART LOW AND CO., Bush Hill Park, Enfield, and Crowborough, Sussex. A fine and distinct hybrid, with large flowers having yellow sepals and petals, tinged with emerald green, and a broad, magenta-rose coloured lip, with light yellow lines from the base.

GROUPS.

Messrs. SANDERS, St. Albans, were awarded a Silver Flora Medal for an artistically arranged group with a fine specimen of *Vanda suavis* in the middle, *Cymbidium insigne Sanderi*, *Phalaenopsis amabilis* and *Rimestadiana*, and many showy *Dendrobiums*, *Odontodas* and *Odontoglossums* being displayed on either side. Among the rare species noted were *Trias picta* with its singular red flowers nestled among the little pseudo-bulbs, the true *Xylobium leontoglossum* and various *Coelogynes*. Messrs. STUART LOW AND CO., Crowborough, Sussex, were awarded a Silver Flora Medal for a good group, in which *Odontodas*, *Odontoglossums* and *Laelio-Cattleyas* were the principal features. The new *Brasso-Cattleya Medea* (C. Dusseldorf × *Undine* × B.-C. *Digbyano-Mossiae* Queen Alexandra) had good, rosy-lilac tinted flowers, which did not, in this instance, carry on the albino characters of the parents. A choice selection of species included *Saccolabium ampullaceum*, *Dendrobium triphyllum*, various *Cirrhopetalums* and *Bulbophyllums*, the charming white *Disa sagittalis* and a selection of *Cattleya Schröderae*. Messrs. J. and A. McBRAN, Cooksbridge, were awarded a Silver Flora Medal for a pretty group, in which their charming *Laelio-Cattleya Eunice* varieties were prominent, with splendid, branched-spiked white *Odontoglossum Pescatorei*, and many richly coloured hybrids, the best of which was the deep claret-red *Odm. Lambearianum* var. *Mars*, and *Odm. Theo.* (*Othello* × Queen Alexandra). The finest dark *Odm. Hartmann* and a good *Odm. Waltoniense* were also shown. H. T. PRY, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), was awarded a Silver Banksian Medal for a small, but very select group, including the famous *Miltonia vexillaria* Princess Elizabeth, M. *Bleuana Hesse* variety, two grand forms of *M. Venus* and some pretty species. Messrs. FLORY AND BLACK, Slough, were awarded a Silver Banksian Medal for a group of fine hybrids, including the handsome *Sophr-Laelio-Cattleya Joseph Charlesworth* and the new *Laelio-Cattleya Wiswynne* (C. Mossaie × L.-C. *Bellatrix*), rose coloured with claret lip.

OTHER EXHIBITS.

Dr. F. BEDFORD, Esleford, Marden, Kent, showed the extremely rare New Guinea *Dendrobium Ashworthiae*, originally imported by Messrs. Sanders through their collector, Micholitz. It is of the *D. atro-violeaceum* class, the sepals being primrose yellow and the lip and petals white, the lip having small purple lines at the base. RICHARD G. THWAITES, Esq., Chessington, Streatham Hill, showed the clear white *Cattleya Mary Sander*, Thwaites' variety.

Floral Committee.

Present: Messrs. H. B. May (in the chair), H. V. Warrender, W. P. Thomson, Sydney Morris, R. C. Notcutt, W. B. Gingell, Arthur Turner, J. F. McLeod, H. J. Jones, W. Howe, G. Harrow, W. J. Bean, G. Reuthe, Donald Allan, John Heal, C. R. Fielder, Chas. E. Pearson, Thos. Stevenson, John Dickson, Hugh Dickson, Chas. E. Shea, D. B. Crane, W. R. Dykes, J. W. Barr, Clarence Elliott, W. B. Cranfield, Reginald Cory and James Hudson.

NOVELTIES.

AWARDS OF MERIT.

Azalea Fraternite.—This and the following varieties represent a new strain known as the Kersbergen Azaleas. They are characterised by flowers of large size and exquisite shades of colour; in short, they are somewhat glorified *Mollis* sorts. *Fraternite* has light salmon-coloured flowers with yellow markings on the upper segment.

Azalea Thomas More.—Flowers of wonderful size, light salmon pink, with fawn suffusion, and yellow markings on the upper segment and on the upper halves of the next segments. A very fine Azalea.

Azalea Chicago.—The deepest coloured variety shown; rich orange-copper, with deep orange markings on the upper segment.

Azalea Frederick Engels.—Not so shapely as other sorts, but of rich salmon-rose colour suffused and marked with orange. The above four varieties were all shown by Messrs. R. WALLACE AND CO., Tunbridge Wells.

Rhododendron Souv. de D. A. Koster.—A free-flowering and brilliant variety bearing large trusses of rounded flowers. The colour is light crimson scarlet, with spottings of crimson brown on the upper segment. Shown by Messrs. WM. CUTBUSH AND SON, Highgate.

Rhododendron Aurora.—A grand hybrid obtained by crossing R. kewensis with R. Thomsonii. The wide-spreading flowers are of a bright and rich rose-cerise shade, the buds being deep red; thus the influence of R. Thomsonii is seen in the colour (and also the leaves), while the form of the flower is more like that of R. kewensis. Shown by Mr. LIONEL DE ROTHSCHILD, Exbury, Hants.

Aubrietia Maurice Prichard.—In this large-flowered variety the yellow-edged flowers are of a pleasing shade of lavender-mauve. Shown by Mr. MAURICE PRICHARD, Christchurch.

Streptocarpus Sutton's Giant Blue.—The flowers, of enormous size, are of fine form and carried erect on stiff stems. The colour is a pleasing shade of medium blue, with white throat. A truly giant flower, and most effective. Shown by Messrs. SUTTON AND SONS, Reading.

GROUPS.

A large and interesting collection of alpinas of the type suitable for growing in a cool house was shown by the VISCOUNTESS NORTHCLIFFE, Brickthorn Hill, Crowborough. The many different sorts included useful plants of *Saxifrages*, *Sedums*, various alpine *Auriculas* and *Primulas*, *Armeria caespitosa* and *Gentiana verna*, and all illustrated good cultivation (Silver-Gilt Banksian Medal).

Many *Polyanthuses* of great merit and attractively arranged with moss in the form of a gentle sloping bank were contributed by Mrs. BERKELEY, of Spetchley (Silver Flora Medal). The REDEN'S SCHOOL OF GARDENING and Mr. G. W. MILLER also showed many *Polyanthuses*. Mr. Miller included various other spring flowers, including *Crown Imperials* (Silver Banksian Medal).

Alpinas were contributed by Mr. M. PRICHARD, Messrs. R. TUCKER AND SON (Silver Banksian Medals), Messrs. B. LADHAMS, LTD., Messrs. SKELTON AND KIRBY (Bronze Flora Medals), Messrs. MAXWELL AND BEALE, and Messrs. WATERER, SONS and CRISP (Bronze Banksian Medals), while small informal but pleasing rockeries, suitably planted, were exhibited by Messrs. WM. CUTBUSH AND SON, and Messrs. G. G. WHITELEGG, who included varieties of *Iris Buchanica* (Silver Banksian Medal).

A very large and attractive group of flowering shrubs was arranged on a floor space by Messrs. WALLACE AND CO. *Rhododendrons* were very prominent, and included excellent examples of

Princess Juliana, a bluish variety, which has pretty crimped margins, and Hugo de Vries, said to be a cross between Pink Pearl and Doncaster, but it favours the former greatly and is very handsome. *Mollis* and Ghent Azaleas were also largely shown (Silver-Gilt Banksian Medal).

Some early hybrid *Rhododendrons* and other shrubs were included by Mr. G. REUTHE with his customary exhibit of new and rare plants. The border plants included some interesting hardy *Cyclamen*, *Anemone fulgens* and *Crown Imperials* (Bronze Flora Medal).

In a corner space Mr. R. C. NOTCUTT had a charming group of spring-flowering shrubs, including standard *Cytisuses*, profusely-flowered bushes of *Double Peach*, many Azaleas of the *Kaempferi* type and other spring-flowering shrubs (Silver Banksian Medal).

With various other shrubs Messrs. J. PIPER AND SON showed flowering examples of *Corokia virgata*, which attracted much attention. The massed plants of *Azalea Hinomayo* (*Kaempferi* variety) were exceedingly effective. Amongst many border plants there were examples of *Ethionema Warley Hybrid* and many long-spurred *Aquilegias* (Silver Banksian Medal).

Various *Prunuses*, Azaleas and *Rhododendrons* with excellent little plants of *Pieris floribunda* were well arranged by Messrs. J. CHEAL AND SONS, who, in another place, had many interesting alpinas (Bronze Flora Medal). Well-flowered sprays of *Forsythia spectabilis* with other shrubs and alpinas were staged by Messrs. W. H. ROGERS AND SON (Bronze Flora Medal), while Messrs. REAMSBOTTOM AND CO. showed their *St. Brigid Anemones* (Bronze Banksian Medal), and Mr. CLARENCE ELLIOTT had a good batch of *Polyanthus* Scarlet Bedder.

Just inside the entrance Messrs. WM. CUTBUSH AND SON arranged a charming group of *Polyantha* Roses. The principal varieties so well disposed were *Glory of Steinfurth*, *Greta Klaus*, *Ellen Poulsen*, *Echo* and *Pink Delight*. Adjoining the Roses were several pot plants of three new *Rhododendrons*, *Souvenir de D. A. Koster* (see Awards), Mrs. T. Wezenberg, a slightly smaller and darker coloured flower, and *Barnet Glory*, which is much like *Doncaster* (Silver Flora Medal).

Excellent cut Roses, similar to those shown at the recent spring show of the National Rose Society, were displayed by Messrs. B. R. CANT AND SONS and Mr. E. J. HICKS (Silver Flora Medal). The new varieties, *Elsie Beckwith* (see Fig. 114) and Mrs. Hornby Lewis, were again excellent, while Paul's Scarlet Climber, *Una* and *Phoebe* were also very beautiful.

Carnations, equal to the high quality of some time past, were again exhibited in generous quantities by Messrs. ALLWOOD BROS. (Silver Flora Medal), Mr. C. ENGELMANN (Silver Flora Medal), and Messrs. STUART LOW AND CO. (Silver Flora Medal).

An excellent group of *Schizanthus* Dr. Baxter's Strain was contributed by Messrs. DOBBIE AND CO. The plants were all perfect broad pyramids and carried enormous quantities of large blooms in a great variety of colours (Silver-Gilt Banksian Medal).

Mimosas in variety, and associated with *Epa-crises*, *Anthuriums* and other stove and greenhouse plants, were arranged by Messrs. STUART LOW AND CO. on a table space adjoining their Carnations. A small collection of *Hippeastrums* with spring-flowering shrubs was shown by Messrs. L. R. RUSSELL, LTD. (Bronze Banksian Medal). *Gloxinias* and *Streptocarpus*, illustrating excellent strains, were displayed by Messrs. SUTTON AND SONS (Bronze Banksian Medal).

RHODODENDRONS.

The special show of *Rhododendrons* attracted a number of enthusiasts, but for the most part their exhibits were arranged in a very elementary manner and the names of the varieties were difficult of access. A special committee inspected the exhibits and made awards.

An exception to the above remark was the large collection by Messrs. R. GILL AND SON, which was exceedingly attractive. This contained a large number of the beautiful half-hardy sorts that Messrs. GILL AND SON annually bring from the Falmouth district, and of these such brilliant varieties as *Ernest Gill*, *Shilsoni* and *Gill's Triumph* found many admirers. Various ar-

boreum seedlings, *R. ciliatum* and *R. cilicalix*, with a central mass of *Azalea amoena*, were delightful (Silver Flora Medal).

Many *Rhododendrons* in large pots were sent by Mr. T. H. LOWINSKY from Tittenhurst, Sunninghill. For the most part, these were very beautiful hybrids of *R. Aucklandii*, but all were shown under their seedling numbers (Silver-Gilt Flora Medal).

To the enthusiast the exhibit of single trusses of a large variety of *Rhododendrons* by Mr. E. J. P. MAGOR, Lanellan, St. Tudy, Cornwall, was full of interest, and there were some very beautiful flowers amongst them. The sparkling white, erect bells of *R. calophytum*, each containing a crimson-lake spot, were very charming, as also were the blooms of *R. barbatum* and *R. Blood Red arboreum*. *R. Smithii* was interesting on account of the densely barbed leaf stalks. Along the front there was a collection of the pigmy blue-flowered species, which are so valuable when massed. Of these, *R. hippophaeoides*, *R. fastnup*, *R. prostigiatum* and *R. impeditum* may be quoted. This valuable exhibit received a Certificate of Appreciation (Silver-Gilt Flora Medal).

From Exbury, Mr. Lionel de Rothschild's Hampshire garden, some attractive *Rhododendrons* were exhibited. In the front of the collection there were good trusses of the bright ruby-red *Horsham*, with their characteristic long styles extending beyond the blooms. *R. nepalense*, *R. Iverianum* and *R. Queen Wilhelmina* were also very showy sorts of very bright colour. A cross between *R. kewensis* and *R. Thomsonii* (see Awards), raised by Mr. Gill, is a most beautiful rose-pink bloom (Silver Flora Medal).

A smaller collection was shown by G. W. LODER, Esq., Ardingley. The blooms of *R. eximium* and *R. oreodora*, as well as several seedlings, attracted a great deal of attention. Sir JOHN RAMSDEN, Bulstrode, Gerrard's Cross, exhibited such species as *R. niveum*, *R. Thomsonii*, a pink form of *R. Falconeri*, *R. campylocarpum* and several interesting crosses from it, and other sorts (Silver Banksian Medal). A few trusses of bloom, from LADY ABERCONWAY, Bodnant, Tal-y-cafn, were displayed on tabling.

Narcissus and Tulip Committee.

Present: E. A. Bowles (in the chair), Miss Willmott, Messrs. G. W. Leak, W. Poupard, H. V. Warrender, F. Barchard, J. de Graaff, Peter R. Barr, W. B. Cranfield, C. Fowler, J. Jacob, H. Smith, G. Reuthe, Reginald Cory, J. W. Jones, W. F. M. Copeland, F. H. Chapman, J. W. Pearson, W. R. Dykes and Charles H. Curtis (Hon. Secretary).

There were several splendid groups before this Committee, and no fewer than seven *Daffodils* were granted Awards of Merit.

Narcissus Orange Glow.—A glorious incomparabilis variety with shapely, soft yellow perianth of large size and a rich orange gold, heavily frilled short trumpet. A handsome novelty, and one of the many brilliant seedlings raised by the late Mrs. Backhouse. Shown by Messrs. R. H. BATH, LTD.

Narcissus Magnolia.—A striking Giant Leedsii variety of large size and with solid white perianth segments, which have suggested the varietal name. The trumpet has the faintest possible tint of buff and has a frilled margin. Shown by Messrs. GEORGE MONRO, LTD.

Narcissus Rob. Berkeley.—One of the most refined of the white Trumpet *Daffodils*. The overlapping segments of the perianth stand out well in a fully opened flower, but have a tendency to point forward in younger blooms. Shown by Mrs. BERKELEY, of Spetchley.

Narcissus Chinita.—This showy poetaz variety promises to be very useful for garden and cutting purposes. Two or three flowers are borne on each stem, and they are straw-yellow, with a red-edged crown. Raised by Mr. F. H. Chapman. Shown by LIONEL DE ROTHSCHILD, Esq., Exbury.

Narcissus Xenophon.—A very large-flowered Tazetta form, the yellow flowers being almost as large as those of a Barrii form. The cup is vivid orange. This also was raised by the late

Mrs. R. O. Backhouse, and it usually has two flowers on a stem. Shown by the ANGLESEX BULB GROWERS' ASSOCIATION.

Narcissus Brightling.—An incomparabilis variety with an almost perfect pale sulphur yellow perianth and a short crown, of richest orange and finely frilled. Raised by the late Mrs. R. O. Backhouse. Shown by the ANGLESEX BULB GROWERS' ASSOCIATION.

Narcissus Mountaineer.—A bold and shapely Trumpet *Daffodil* of fine substance and rich golden yellow colour. It was raised by the Rev. G. H. Engleheart, and has a deeply frilled recurving rim to the large trumpet. Shown by Mr. W. B. CRANFIELD, Enfield.

GROUPS.

A large and very comprehensive collection of *Narcissi* was arranged by Messrs. BARR AND SONS. Of the many sorts on view it was those with brightly coloured coronas that attracted most attention, and these included Best Man, King's Pirate, Nyssa, Ruby and several very promising seedlings. The large Trumpet *Daffodils* were also prominent in this good exhibit, and of these Polemon, Adelgar, Anteope, St. Gawain and Tityus are the names of characteristic varieties. Along the front there was a vase of the dainty *Lavender*, a Barrii flower, which has a pale apricot corona (Gold Medal).

Incomparabilis and Barrii varieties, with exceptionally bright coronas, were also a feature in the collection by Messrs. R. H. BATH, LTD. The central place was given to a large quantity of excellent blooms of *Flame*. Near by there were vases of *Orange Sir Watkin* and *Bernardino*. Other noteworthy varieties were *Scarlet Gem*, a Tazetta variety of rich colour, *Lady Superior*, a Barrii with a fiery orange rim to a golden corona. A number of seedlings of various types were of more than average merit (Silver-Gilt Flora Medal).

The great decorative value of *Daffodils* was well illustrated by Messrs. SUTTON AND SONS in a delightfully arranged exhibit. For the most part the varieties used were those in general cultivation, such as *Acme*, *Dixie*, *Olympia*, *St. Vincent* and *Rosalie* (Silver-Gilt Banksian Medal).

A smaller exhibit by Messrs. F. H. CHAPMAN, LTD., was composed largely of seedlings, but of the named sorts, *Acme* (poeticus), *Corregio*, an incomparabilis with a large orange-flushed corona, and *Robin Redbreast*, an orange-cupped incomparabilis, were particularly handsome (Silver-Gilt Banksian Medal).

Such decorative varieties as *Bernardino*, *Melyn*, *Derwin* and *Lucifer* were displayed in wicker-covered jars by the ANGLESEX BULB GROWERS' ASSOCIATION, and a small collection of seedlings of merit was arranged by Mr. W. F. M. COPELAND.

Fruit and Vegetable Committee.

Present: Messrs. J. Cheal (in the chair), E. A. Bunyard, Geo. F. Tinley, S. B. Dicks, W. F. Giles, G. Reynolds, A. Bullock, P. C. M. Veitch, E. Neal, Ed. Beckett, W. Bates, A. Metcalfe, W. H. Divers and G. Berry.

There were only a few exhibits in this section. Fruits of the Madras Citron were shown by Mr. HOWARD FOX from his garden at Grove Hill, Falmouth.

Messrs. SUTTON AND SONS exhibited seeds of a number of seedling French Beans, to show the great variation in the colour of the seed coats. The varieties *Evergreen*, with light dun-coloured testa, and *Satisfaction*, with brown and white coloured testa, when crossed, gave rise to a Bean with a mottled coat, and seedlings from this gave progeny with seeds, some pure white, others mottled or striped, and through all shades wholly brown to deep mahogany colour.

Obituary.

Osgood H. Mackenzie.—Our readers will learn with regret of the death, on April 15, of Mr. Osgood H. Mackenzie, of Inverewe, Poolewe, Ross-shire, where he died. Mr. Mackenzie was the owner of a remarkable garden in

a favoured district on the west coast of Scotland, where he succeeded in cultivating with success many rare shrubs, trees, and other plants which gardeners much further south could not establish. At Inverewe the mild sea air and the shelter of the trees give opportunities for the cultivation of tender plants—opportunities seized with profit by Mr. Mackenzie, who had formed a collection of many rare and beautiful subjects from many parts of the world, and which succeeded splendidly under the genial conditions of this favoured district, enhanced by the skilful planting of Mr. Mackenzie. His notes were always interesting and frequently highly informative to others interested in such plants. Mr. Mackenzie, who was in his eightieth year, was the youngest and only surviving son of the late Sir Francis Mackenzie of Gairloch, and the uncle of the present baronet, Sir Kenneth Mackenzie. Gardening was Mr. Mackenzie's chief pursuit, but he took a deep interest in county and parish affairs, and was held in high esteem as an able member of several public bodies. He was also keenly interested in the antiquities of the Highlands, as was evidenced by a volume from his pen which was published last year. It was entitled *A Hundred Years in the Highlands*, and, besides much other information, contains numerous references to his garden and the plants which grow there. His funeral took place at Gairloch on the 19th inst.

Walter Cobb.—With extreme regret we have to announce the death of Mr. Walter Cobb, Normanhurst, Rusper, at the advanced age of 86 years. Mr. Cobb, who was a keen business man and great lover of Orchids, retained his faculties to the last, and had attended recent meetings of the Orchid Committee of the Royal Horticultural Society, of which he has been a member for a great number of years. At Silverdale, Sydenham, and later at his home at Normanhurst, Rusper, Mr. Cobb made his garden his chief hobby, and took especial interest in his excellent collection of Orchids. In business and in horticultural circles Mr. Cobb was generally much esteemed, and was always ready to place his great experience at the service of other horticulturists. A number of fine species are named in his honour.

ANSWERS TO CORRESPONDENTS.

DAHLIAS FOR GARDEN DECORATION: J. H. The following varieties in their respective sections will be suitable for your purpose: Decorative—*Delicé*, pink; *Crimson Flag*, crimson; *Queenie*, golden amber; *Reginald Cory*, crimson, tipped white; *Apricot*, salmon-apricot; *Brentwood*, yellow. *Collette*: Admiral, maroon, white collar; *Bonfire*, orange-scarlet, scarlet collar; *Dora Fisher*, pink, white collar; *Scarlet Queen*, scarlet, yellow collar; *Ustane*, salmon-scarlet, yellow collar; *Mrs. O. M. Courage*, deep carmine, white collar. *Cactus*: *Mary Purrier*, rich crimson; *Mrs. F. Paton*, scarlet; *Richard Box*, yellow; *Rose Queen*, rose; *Coral*, coral red; and *Mrs. Landale*, yellow, edged rose.

NAMES OF FRUIT: C. D. 1, Schoolmaster; 2, Hambleton Deux Ans.—H. W. A. Allen's Everlasting.

SHAMROCK: T. A. S. The specimens you send are those of *Trifolium minus*, the species that has been adopted in Ireland within the last thirty years or so as the true Shamrock. It is only an annual, and if it did not flower last year it had been prevented from doing so by the drought. On the contrary, it may have bloomed, and the present plants would be seedlings from the original. It is showing its flower heads now, the colour being yellow. You can grow the plant in the garden if you firmly tread a piece of ground for it. The Shamrock is common to the British Islands, and you could doubtless find it not far away if you look on banks or pastures where the grass is not very rank.

Communications Received.—Erin—C. H. P. T. A. W.—M. G.—R. H. L.—M. M.—A. D. F. H. P.—W. W.—I. H. & S.—J. D. C.—W. H. D.

THE

Gardeners' Chronicle

No. 1845.—SATURDAY MAY, 6, 1922.

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 49.6.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, May 3, 10 a.m. Bar, 30.0, temp. 54°. Weather—Dull.

From observation of the **A Late Spring**, vegetation in different parts of the country, it would appear that plants generally are in a very backward state. The cold winds and low temperature of the past month are, of course, mainly responsible for the delay of growth, but the heavy rains which fell recently on successive nights have doubtless also helped to increase the backwardness; for the rains have helped to chill the slowly-warming earth, and root action has been retarded. In exceptionally sheltered spots in well-worked gardens ground crops are fairly forward, but in exposed situations they are behind-hand. Fruit trees in particular are slow in breaking into flower. The buds of Pears in a fairly advanced state remained stationary or almost so for nearly two weeks and even the Sloe of the hedgerows came into flower only grudgingly. It has been suggested that last season's drought is producing its aftermath in this slow development and that the long persistence of the leaves last autumn was an indication that ripening of the wood was checked by the abnormal season. It may be so, but for our part we are inclined to wait and see. The blossom buds of fruit trees are there in plenty so far as the gardens under our observation show, whereas had last year's wood failed to ripen, failure and not belatedness of blossom would have been expected. At the same time, it seems to be true that plants, such as Roses, which flourished exceedingly last year in heavy soils, were as early as usual in showing growth. Too early, indeed, and in low-lying

ground they have suffered from frosts. Those—if any there be—who were too hasty with the pruning of these plants partially have cause to regret it. It is indeed curious how slow some amateurs are to learn the value of late pruning for Roses as well as other things. Needless to say it is too early yet to make any confident prediction as to garden crops. The lateness of the season is all to the good so far as top fruit is concerned, but the yields must, of course, remain for some weeks at the mercy of the weather. If late frosts do not spoil the setting it seems at all events likely that the fruit crops may prove good. Of small fruit, Raspberries, as was to be expected, have suffered severely from last season's drought. Except in well-established gardens, the canes have an impoverished appearance and do not bid fair to produce much of a crop. Any comments on season are apt to be belied by sudden weather changes and the still air and warm sun which have followed the boisterous and chilly Easter have already caused vegetation to assume a less wintry aspect. The trees already "in the fire of spring, the winter garment of repentance fling"; the mauve haze of commencing growth envelops the tops of the Larches and over the Oaks a yellow orange hue heralds the verdure that is to be. It is generally supposed that after the enforced, and, as may be said, deliberate arrest of growth to which plants subject themselves in autumn and early winter, vegetation in spring awaits passively favourable external conditions and responds to them automatically, but this can scarcely be the truth, for after a period of enforced idleness, as, for example, that through which vegetation checked by bad weather has recently passed, a few warm days makes such a wonderful transformation as to compel the belief that the energies of plants pent up during untoward days find exuberant expression when the sun at last shines upon them. Vegetable physiology is as yet a long way from explaining to us all the fine details of plant behaviour.

Experiments and Demonstrations at Kirton.—From Mr. Wallace, Secretary to the Holland County Council's Agricultural Education Committee, we have received a copy of the *Guide to Experiments and Demonstrations*, on the Agricultural Institute Farm, Kirton, during 1922. We find these are trials of nineteen varieties of Spring Cabbages—to test earliness, yield, and hardness—of new varieties of Barley, of Potatoes and of Peas, in addition to manual experiments and an experiment on the preparation of seed land for Potatoes. Arrangements are made for visitors to be shown the experiments at Kirton on Thursday afternoons and evenings; other days by appointment only. Reports of the Kirton experiments are issued from time to time and may be had free of cost on application to the Institute Farm.

The Ramparts of Ypres.—All lovers of trees and shrubs will be pleased to know that the famous "Ramparts" at Ypres have now been replanted with trees and shrubs. The work of grubbing out and removing the old shell-shattered trunks has been no easy task, and the Ypres town authorities are to be congratulated on getting the place ready for planting at such an early date, taking into consideration the fact that for a considerable time no labour could be spared for such purposes as planting ornamental trees. Now, out of the ruins and debris has arisen a new Ypres. The Belgians are fond of their trees and realise their value for beautifying the country. Mr. E. H. Biggs, Superintendent of War Graves at Ypres, informs us that from the Porte de Menin to the Porte de Lille, on the Ramparts, have been planted such well-known favourites as *Fagus purpurea*, *Acers* in variety, *Liquidambar styraciflua*, *Liriodendron tulipifera*, *Robinia hispida*, *Robinia pseudacacia*, *Quercus palustris*, *Quercus coccinea splendens*, *Limes* in

variety, *Laburnums*, *Poplars* in variety, *Elms*, *Weeping Ash* and *Willows*, and, amongst Conifers, *Abies*, *Taxus*, *Ginkgo biloba* and *Taxodium distichum*. These have been advantageously planted, some in bold clumps, others as specimens the whole length of the Ramparts, finishing up at the Porte de Lille with an avenue of *Tilia argentea*. A few of the more common shrubs still exist and are quite restful to the eye after so much new brick and mortar; these include the old *Ribes*, which is now in full flower, *Berberis vulgaris*, *Symphoricarpos*, *Lycium formosum*, a few clumps of *Castanea sativa*, and the cut-leaved *Elder*, *Sambucus tennifolia*, which covers the deeper slopes. It is also interesting to learn that the famous Menin Road has also been planted, from the Menin Gate, past Hell Fire Corner, to Hooge Crater, while beyond, miles of avenue trees, chiefly *Limes*, *Oaks*, *Acers* and *Elms*, are being planted on this route.

Royal Gift of Flowers to a Hospital.—The King and Queen have forwarded to the patients of the Royal Northern Hospital, Holloway, a magnificent supply of fine Daffodils from the Royal Gardens, Windsor.

Destruction of Charlock by Spraying.—The University College of North Wales, Bangor, in association with the County Councils of Anglesey, Carnarvonshire, Denbighshire and Flintshire, has conducted experiments to test the effects of spraying Charlock with a solution of sulphate of ammonia. Experiments were conducted on three stations and both copper sulphate and sulphate of ammonia were used. It was found that the copper sulphate is more rapid in its action, and whereas the sulphate of ammonia solution mainly attacks the leaves and only to a less extent the flowers, copper sulphate destroys the leaves, flowers and stems. It was also found that a strong solution of sulphate of ammonia checks the corn just as much as copper sulphate, and destroys Beans, which are hardly affected by copper sulphate. Moreover, it was found that the use of sulphate of ammonia is much more expensive than copper sulphate, although there is considerable value in the ammonia salt as a manure; but the corn would not be benefited by a nitrogenous fertiliser at a time when the Charlock was sufficiently advanced for spraying, as it would prolong the growing period too much, and, in the case of a dry season, it would have little or no effect on the corn crop and would be washed out of the soil in the autumn.

Horticultural Show at Darwen.—For the first time in its history the Darwen and District Agricultural Association is including a horticultural section in its annual exhibition, which will be held this year on Saturday, June 3, at Darwen. The secretary has forwarded us a preliminary list of the prizes in the horticultural section; but other classes and prizes will probably be added, and the secretary, Mr. Richard Leach, 26, Railway Road, Darwen, will be pleased to send copies of the complete schedule when it is ready to those who make application to him. Medals and diplomas will be placed at the disposal of the judges for awards to non-competitive exhibits.

Taxation Concessions.—The reduction in the taxation of land announced in the new Budget will, according to the Chancellor of the Exchequer, put the agricultural industry on the same footing as the other industries in this country in considering the proper burdens which they ought to bear. The basis of taxation on land before the war was one-third of the annual value, but, during the war, when profits on farming rose very considerably, the basis of assessment was raised to twice the annual value. The present Budget makes provision for a reduction of this assessment to the annual value. This concession is estimated to entail a loss to the Treasury on amenity lands in the present year of £150,000 and £200,000 in a full year; in the case of agricultural land the loss to the State will be about £950,000 and £2,150,000 in a full year. Farmers will thus obtain a substantial relief from taxation, but it is recognised that in the present unsatisfactory condition of

agriculture the land owning and agricultural industry is entitled to some relief. The removal of this large amount of taxation on land, together with the reduction in income tax, should indirectly benefit horticulture and give a greater stimulus to trade generally.

British Horticulture and Quarantine Order No. 37.—The much discussed Quarantine Order No. 37, imposed by the United States Government as a measure for preventing the importation of plant diseases and pests into America, will be considered at a Plant Conference to be held at Washington on May 15. At the request of British horticultural traders the Ministry of Agriculture has sent its Controller of Horticulture, Mr. W. J. Lobjoit, to the conference to protest against a proposed extension of the Order. Mr. Lobjoit sailed from Southampton on Friday, April 28, by the s.s. Lapland; among those who gathered at Waterloo Station to wish him *bon voyage* and success in his efforts to secure free exchange of horticultural produce between Great Britain and the U.S.A., were Mr. H. V. Taylor, Deputy-Controller of Horticulture, and Mr. C. H. Curtis (*Gardeners' Chronicle*). Belgium will be represented at the Washington Conference by Mr. Chas. Pynaert, of Ghent, and Mr. L. Sander, of Bruges; and Holland's delegates are Mr. Van Poeteren, of the Dutch phytopathological service, and Dr. Slogterem. It is hoped, as a result of this Conference, that Quarantine Order No. 37 will be so modified as to allow the admission of plants from Europe without those restrictions which at present amount to prohibition, and which are so adversely affecting the horticultural trade of our own land as well as of Belgium, Holland and France. Moreover, there is considerable evidence to show that many horticulturists in the United States would welcome imports of many kinds of plants from the British Isles.

Jubilee of the Netherlands Horticultural and Botanic Society.—On the occasion of its fiftieth anniversary, on September 27, 1923, the Netherlands Horticultural and Botanic Society will hold an International Horticultural Congress at Amsterdam. Papers will be read on such subjects as Horticultural Education, Landscape Architecture, Plant Breeding, and Scientific Research in Horticulture. The Organising Committee, of which Jhr. G. F. van Tets is president and Dr. M. J. Sirks, 55, Bergweg, Wageningen, Holland, the secretary, proposes to arrange visits to the more important centres of horticulture in Holland in connection with this conference, while the Amsterdam section of the Society will organise a great horticultural exhibition.

Royal Gardeners' Orphan Fund.—The annual festival dinner of the Royal Gardeners' Orphan Fund, which is to be held on Tuesday next, and at which Mr. Lionel de Rothschild, O.B.E., M.P., will preside, promises to be one of the most successful of the series, and it only needs the hearty co-operation and support of all interested in the Fund to make the receipts a record for these gatherings. The Connaught Rooms, where the dinner will be held, is very central and not far from Covent Garden; these public rooms have become very popular for the holding of social functions, and many notable gatherings have been held in them in recent times. We strongly urge the claim of this excellent gardening charity to the notice of our readers. The Secretary is Mr. B. Wynne, 19, Bedford Chambers, W.C.2.

Birds in Town Gardens.—The amount of damage that birds cause in the garden compared with the amount of good they do is often a subject of debate by gardeners, but our experience this season is that they are an unmitigated nuisance. We know of one town garden in which birds, principally sparrows, have destroyed almost the whole of the buds of Gooseberries, Red and White Currants and Plum trees. Besides this damage, they also ruined the fruit blossom of Pear trees wholesale before the trusses expanded. At first sight, the small amount of growth and blossom on the Plum trees was put down to the effect of last summer's drought, as most of the branches have the appearance of being dead, but an examination

proved that the bark is quite green and that almost the whole of the buds have been picked out by birds.

Mr. Ernst H. Krelage.—As head of the firm of Messrs. E. Krelage and Son, of Haarlem, Mr. E. H. Krelage is widely known in the horticultural world, and especially in that section chiefly concerned with the cultivation of bulbous plants. He is recognised among bulb specialists as an expert in all that pertains to Tulips and Tulip history, and many book lovers are aware that he is the fortunate possessor of a wonderful library dealing with floricultural matters. A week or so ago Mr. Krelage concluded his year of office as president of the *Fédération Horticole Professionnelle Internationale*; but this is only one of the very many high positions he has held or holds, and it is of interest to observe that he is president of the General Bulb Growers' Society, president of the Central Bulb Committee of Holland (a committee composed of the presidents, vice-presidents and secretaries of three great bulb organisations in Holland), vice-president of the Netherlands Horticultural Federation, president of the Chamber of Commerce of the Haarlem district, and hon. secretary of the board of directors of the private phytopathological laboratory at Baarn. In pre-



MR. ERNST H. KRELAGE.

vious years he has been president of the Dutch Bulb Exporters' Association and of the Dutch Horticultural Trades' Association, and has held the position of president of the Dutch committees at the horticultural exhibitions held at Berlin, 1909; London, 1912; and San Francisco, 1916; while he has been an official delegate or member of the jury at nearly all international horticultural shows since 1893. Mr. Krelage has strong literary tastes and instincts, and from 1895-1900 was co-editor of the *Florilegium Hartemense*, and until the year 1899 he was co-editor of *Jijdschrift voor Tuinbouw* (a Dutch monthly magazine). In 1910 he produced the Jubilee Book of the General Bulb Growers' Society, and a year later, on the occasion of the centenary of his firm, he wrote *A Century of Bulb Growing*, which was published in Dutch. Mr. Krelage has received many honours from his own and other countries, including that of Officer of the Orange-Nassau Order, and Knight of the Order of the Prince of Orange. Officer of the Order of the Crown of Belgium, and Knight of the Russian Order of St. Stanislaus. Mr. Krelage is a frequent visitor to this country, and is a splendid English linguist; but his visits are invariably of very brief duration, as his business interests are so wide that he cannot absent himself for long from his beloved Holland.

Prizes for Potatoes.—Taking time by the forelock, Messrs. W. Cotter and Co., Corporation Market, Dublin, have offered to provide three classes for Potatoes at the spring show of the Royal Horticultural Society of Ireland, to be held in 1923. These classes are respectively for fifty, twenty-five and twelve tubers of Mahon's Fingallian Potato, and in each of the classes three of the tubers must be boiled. The prizes for fifty tubers are £4, £3 and £2 respectively, and proportionate amounts are offered in the other two classes.

A Bird's Method of Obtaining Nectar.—Mr. P. M. Debbarman, of the Royal Botanic Gardens, Sibpur, Calcutta, in a communication to *Nature*, records that the flowers of *Castanospermum australe* are visited by a nectar-sipping bird, *Mirafra assamica*, in India. As the beak of the bird is not sufficiently long to reach the nectar in the calyx, it has adopted the practice of biting off the fleshy petals which obstruct it. The tree is a native of Australia, and not of India, so that the bird probably plays no part in the pollinisation of the flowers.

Appointments for the Ensuing Week. Monday, May 8.—United Horticultural Benefit and Provident Society's meeting; Purley Horticultural Society's meetings. Thursday, May 9.—Royal Horticultural Society's Committee meetings (two days); Royal Gardeners' Orphan Fund festival dinner at the Connaught Rooms, Great Queen Street, W.C.2. Wednesday, May 10.—East Anglian Horticultural Society's meeting; Sheffield Chrysanthemum Society's meeting. Thursday, May 11.—Manchester and North of England Orchid Society's annual meeting; Bristol and District Gardeners' Association's meeting; Hornsey and District Chrysanthemum Society's Committee meeting. Saturday, May 13.—Ringwood Society's meeting.

"The Gardeners' Chronicle" Seventy-five Years Ago.—*Tropaeolum Lobianum*. To those who cultivate plants for floral display during the winter months this *Tropaeolum* may be regarded as a plant of the greatest importance, whether the easy mode of its cultivation, the great beauty of its flowers, the peculiarity of their structure, or the prodigality with which they are produced, be taken into consideration; they form, too, an article of some use as an ingredient for mixing into, or ornamenting a dressed salad. Last midsummer a cutting was taken from a plant growing on a verandah in the open air, where it failed to produce its flowers; it was struck in a cold frame, and shifted and pinched in the usual way until it reached a twelve-inch pot and covered a pyramidal trellis some four feet high; it was then placed in a cool stove, where the night heat seldom exceeded 60 deg., when it began to flower in the early part of December, and continued a dense mass for upwards of four months, forming a striking contrast to the Orchids and other plants then in a state of hybernation. *James Duncan, Basing Park, May 1. Gard. Chron., May 6, 1847.*

Publications Received.—*The Painted Hickory Borer*. By E. H. Dusham. Bulletin 407; *Decomposition of Green Manures at Different Stages of Growth*. By Thomas Lysons Martin. Bulletin 406; *An Economic Study of Farm Tractors in New York*. By W. I. Myers. Bulletin 405; *The Inheritance of Salmon Silk Colour in Maize*. By E. G. Anderson. Memoir 48; *Typha Insects; Their Ecological Relationships*. By P. W. Claassen. Memoir 47; *The Botrytis Blight of Tulips*. By Edwin F. Hopkins. Memoir 45; *Attachment of the Abdomen to the Thorax in Diptera*. By Benjamin P. Young. Memoir 44; *Variations in Bacteria Counts from Milk as Affected by Media and Incubation Temperature*. By G. C. Supplee, W. A. Whiting and P. A. Downs. Memoir 43; *Bean Anthracnose*. By Mortier F. Barrus. Memoir 42; *Lysimeter Experiments; records for tanks 13 to 16 during the years 1913 to 1917 inclusive*. By T. Lyttleton Lyon and James A. Bizzell. Memoir 41; *Liberation of Organic Matter by Roots of Growing Plants*. By T. L. Lyon and J. K. Wilson. Memoir 40. All published by the Cornell University Agricultural Experiment Station, Ithaca, New York.

NOTICES OF BOOKS.

Rose Annual, 1922.

THE National Rose Society is to be congratulated on being able to publish such a splendid volume, comprising the *Rose Annual* for 1922,* on Rose matters, and the editor, Mr. Courtney Page, is to be equally congratulated on the excellent choice of subjects dealt with. The work forms a valuable addition to Rose literature and is freely illustrated, some of the pictures being in colour. It is a wise policy on the part of any society which is able to afford it to make its "annual" as complete and variable as possible, for publications of this kind are valued by those members who are unable to attend the exhibitions and serve to keep them in touch with events concerning the particular flower in which they are especially interested. For instance, the excellent notes dealing with the spring show, the metropolitan exhibition at Regent's Park, the provincial show at Ipswich, and the autumn show at Vincent Square, by Messrs. H. Oppenheimer, H. H. Thomas, A. C. Bartlett and the Rev. J. Jacobs respectively, are not merely catalogues of the prize winners and the varieties shown, but chatty articles touching on special features and noteworthy varieties as they appeal to Rose lovers.

The frontispiece is a portrait of Mr. Samuel McGredy, one of the most successful raisers of new Roses in Great Britain; he raises about 17,000 seedlings each year. Mr. McGredy has won fifty-two medals and twenty-nine certificates for new varieties and each exhibition adds more to the number. A useful article by the President, Mr. E. J. Holland, entitled "Roses in Pots," gives first-hand experience of growing the plants indoors. The compost recommended by this amateur grower is good loam enriched with a small quantity of thoroughly well-decayed manure from a spent hot-bed and a little bone meal, with sufficient sand or grit to render the mixture porous. Mr. Holland recommends that the soil should be on the light side rather than heavy, and he states that in stodgy or over-rich soil pot Roses are a failure. It may be useful for amateurs to know that excellent results may be obtained by potting the plants in ordinary, light, sweet garden soil, and if the medium lacks sufficient nourishment, stimulants may be easily supplied at a time when the plants are best able to make use of them.

Another valuable contribution is on "Bedding Roses" by Mr. H. R. Darlington. As only a select few cultivate Roses specially for exhibition, this article will appeal to the majority of Rose growers, as a knowledge of the best varieties for garden purposes is very valuable. Mr. Darlington has enlisted the services of Rose growers living in the west and east coast of Scotland respectively; the Thames Valley and West Surrey; the Surrey and Kent border; and Sussex, while in addition he gives his own observations from his garden on the borders of Middlesex and Hertfordshire, about fifteen miles from London. It is interesting to know that all the contributors included the yellow variety, Mrs. Wemyss Quin, in their lists of the best varieties; General McArthur, Lady Pirrie, and Ophelia were recommended by six out of the eight contributors, while four each recommended Lady Hillingdon, Los Angeles, and Red Letter Day, and three Mme. Abel Chatenay, and Mme. Edouard Herriot. These nine varieties may therefore be said to represent the pick of the Roses for garden purposes, while those who live in the special district of the special contributor will be able to select other equally beautiful Roses for their gardens. A lengthy description of each of the nine premier varieties is given, and there are a few notes dealing with the merits or any defect of each of the other varieties mentioned by the contributors. Mr. Darlington's list should be studied in conjunction with an article by Mr. J. Parkin on "The Imperfection of Modern Roses with Special Reference to Bedding Varieties." Mr. Parkin's ideal bedding Rose is one "which is in constant bloom from June until put to rest by winter's frosts," and with regard to floriferousness Mr. Parkin states

that the hybrid Teas and hybrid Austrian Briars greatly excel the older hybrid perpetuals, also, taking the Rose bush throughout the flowering season, the H. T. habit of growth is on the whole better adapted for bedding than that of the H. P. Those who wish for fragrance in Roses, which some of the modern varieties lack, are recommended to include General McArthur in their collections. Mr. Parkin's article is a very complete one, and deals not only with form, colour, fragrance, floriferousness, habit, and the flowering season, but also with the Rose as a cut flower and varieties especially prone to attacks of insect pests and diseases.

A useful article on Climbing Hybrid Tea, Tea and Noisette Roses is contributed by Mr. Walter

by the Editor; and New Roses at Bagatelle Trials by Madame Charles Siret. Descriptions of the new Roses of 1921 and the Rose Analysis for 1921, both by the Editor, show the direction in which progress is being made and the most popular sorts for the exhibition table.

The numerous black and white illustrations are exceedingly well reproduced.

Orchard Fruit Tree Culture.*

THE title of this book suggests that it deals generally with the commercial culture of hardy fruit. This is misleading. Though the author does offer a few remarks on planting, pruning, and marketing, his main object has evidently been to describe the propagation of fruit trees



FIG. 115.—ROSE SOVEREIGN; CERTIFICATE OF MERIT, N.R.S., APRIL 21 (SEE P. 216).

Easlea, who regrets the loss of some of the beautiful old climbing Roses, such as Climbing Devonensis, Celine Forestier, Lamarque and Jaune Desprez. The present-day tendency is to plant the Wichuraiana varieties extensively and neglect the valuable old climbers which were the former pride of gardens and still to be found in some of the old Rose nurseries. Many of our most beautiful Tea and hybrid Tea varieties, including Mme. Abel Chatenay, Ophelia, Lady Hillingdon, Richmond and Caroline Testout have given climbing forms as sports and, as Mr. Easlea states, there is a very rich collection to select from. Other articles include notes on the History of the Moss Rose by Major Hurst, Chemical Manuring with Inorganic Fertilisers by Major A. D. G. Shelley, Budding of Roses

and bushes and their treatment whilst in the nursery. Even so, it is difficult to see what object the book is intended to fulfil. The experienced man will find nothing in it that is new to him; and it does not go sufficiently into detail to teach a beginner budding and grafting. Two methods of propagating trees are dealt with—shield budding and whip grafting; but these operations are not actually described in words. The reader is referred to the illustrations. The raising of bush fruits by cuttings is treated rather more fully, but there are omissions. M. G.

* *Orchard Fruit Tree Culture*. Market Nursery Work Series. Vol. v. By F. J. Fletcher. London: Benn Bros. pp. 71. Illustrated. Price 4s. 6d. net.

* *The Rose Annual* for 1922 of the National Rose Society. Edited by Mr. Courtney Page, National Rose Society, 23, Victoria Street, Westminster.

PASSPORTS FOR PLANTS.*

HORTICULTURE has suffered a great deal from war conditions, but another evil is troubling and handicapping its development nowadays. This consists of regulations and rules which different countries have adopted for the importation of nursery stock, seeds, bulbs, etc., so as to minimise the carrying of fungus parasites and insects from one country to another.

The passport, which to-day a plant needs to travel from one part of the world to the other, is more complicated and requires more work and trouble to secure than does that for a human being. The control or disinfection, and the inspection of its growing district, involve a large amount of work and give rise to many difficulties. However, anyone studying phytopathology knows that many of these rules are comprehensible.

We all know that many plant parasites have travelled from the U.S.A. to Europe, from Europe to the U.S.A., from Asia to the U.S.A., from Asia to Europe, and so on. We know that the Phylloxera and the American Gooseberry Mildew came over here; that the White Pine Blister Rust and the Brown Tail Moth went from Europe to the other side of the Atlantic; and that the San Jose Scale was a passenger from China to the U.S.A. We know that sometimes diseases obtain a different aspect in another climate, but as to this matter, we are all in the same condition on this and on the other side of the Atlantic, or anywhere.

The transport of the above mentioned examples happened when we knew very little of phytopathology; when this science was in its childhood, and when hardly any phytopathological control existed. However, these questions have taken quite another aspect, because of the broader knowledge and the better control of the different diseases, therefore, now we are more able to separate the dangerous from the harmless, and the more refined our methods of disinfecting are, then the import restrictions should diminish. Instead of this, we see different countries reinforcing and strengthening their quarantine regulations; Western Europe is beginning in the same way as the U.S.A., the movement takes a more hysterical aspect, and the end will be an isolation of each country's plant products.

The scientists acknowledge that there is a danger of transporting parasites. Science and practice have to work hand in hand concerning these problems, but they must never lose touch with each other. But the scientists are also aware that the danger is on both sides, in Europe as in America. I think that this fact has not had sufficient attention drawn to it.

I want by this address to try and answer two questions for you:

1. What are the immediate and possible dangers for Western Europe if it does not quarantine products from the U.S.A.?

2. Are the dangers as large, with our modern methods of control, as the quarantine laws from the U.S.A. indicate?

I shall restrict myself to the fungal and bacterial diseases as my time is limited and the insects are not quite in my line of work.

In answering the first question, I would point out the diseases which, up to this time, have not been found in Western Europe, and which may be brought over from America. I will also refer to diseases already known here, but which are commonly found on American products, because the U.S.A. also quarantines against diseases which are already spread in their own country. However, in my opinion, some of these American conclusions go too far. We must put the "possibility" case of diseases changing their force, as the U.S.A. does, but we must avoid falling into speculations with regard to harmless saprophytes becoming parasites under other conditions, or of host plants changing their susceptibility. We hardly know anything of the scientific basis of such changes.

We do not know whether the host plant of the fungus is changed; we only know that their relations have a different aspect.

We accept the possibility that fungi and bacteria which cause severe trouble in the U.S.A., may cause as severe an epidemic here in Western Europe.

I propose to follow the lists of plant products imported into Rotterdam harbour, for my conclusions, and to refer to the parasites of plant products for propagation as well as for consumption.

The importation of fruit is becoming larger and larger. Apples were imported into the harbour of Rotterdam: 5,000 kg. in 1920, 208,000 kg. in 1921; Nuts increased from 238,000 kg. in 1920 to 590,000 kg. in 1921.

A severe Apple disease, the Bitter Rot, caused by *Glomerella cingulata* (syn. *Gloeosporium fructigenum*) exists in America. This fungus also lives in Europe, without doing harm. But we also know by the researches of Krüger, that in Europe the strain (as we call it in mycology) of the fungus is different from the American strain, as well in morphology as in virulence. It is possible that the virulent strain will be carried from America as small spots on the Apple, and it may possibly cause epidemics here as severe as in the U.S.A. I would also draw your attention to a disease of Nuts, common in California, the Walnut Blight, caused by *Pseudomonas juglandis*. When young, the Nuts are exposed to a severe rot, and an attack actually kills them. But the late infections (after the researches of C. O. Smith and H. Ramsay) only give "a very shallow, superficial development of the disease." I am well aware that these Nuts imported are not used for propagation, but they may carry the bacteria, and this case is comparable to the many cases of the American pathologists.

As to seeds, we know that Clover seed has always been imported from the U.S. to Western Europe (15,000 kg. in 1920, 11,000 kg. in 1921). In scientific phytopathological publications the question of parasite importation on this seed is often mentioned, as we know that American Red Clover seed is mixed with European in the market. Merchants generally advertise their seed as being unmixtured with American varieties, as they know it is often attacked by *Anthraxnose* (*Gloeosporium caulivorum*). I do not think it was quite proved on a scientific base, though it is highly probable that it has been imported. In Germany it has been found often on crops from American seeds, and the general opinion is that American varieties are more susceptible.

The importation of Wheat, Maize, Rye, Barley, Oats and Buckwheat is of the greatest importance, especially as foodstuffs. Through the latest agricultural quarantines of the U.S.A. we know that America is afraid of importing fungus parasites through grain seeds "imported for consumption." Quarantine Order No. 37 is an example. It demands a certificate that the seeds imported were grown in a place free from *Ophiobolus graminis* ("take-all" disease), which they find mentioned in Japan, Australia, France, Italy, Germany, Great Britain, Ireland, Belgium and Brazil. This "take-all" disease is caused by a soil parasite, *Ophiobolus*, which attacks the plant at the stem base, and which has no flying conidia which might infect the seed. The ascospores of the fungus are liberated during the winter or early spring, and remain in the soil until the required amount of moisture and temperature induces germination. Mangin observed the germ tubes enter the Wheat plant through the root hairs. I do not think it possible that seeds could carry or transmit any propagating organisms of the fungus. If they were carried, it could only be by the straw, though it will probably remain in the stubble, but certainly not with the seed, even in an uncleaned state. Americans state that the disease is not yet widely prevalent or distributed within and throughout the U.S. Are they sure that it is "prevalent" in the countries mentioned above? I know that our knowledge of the *Ophiobolus* is very small indeed, and that there is more than one *Ophiobolus* disease. The economic importance of the disease is not large, it has been studied insufficiently, and the

transmission of the disease by seed is highly improbable. Besides, the disease *does* occur in the United States. In recent American phytopathological literature another disease of grains in the U.S.A. is mentioned, which, unfortunately, has the same name, "take-all," but of which the cause is undetermined. It is described in *Farmers' Bulletin* 1226 of the U.S. Department of Agriculture. In 1920 it was found in Illinois. It is supposed that a *Helminthosporium* is connected with it. If Europe is going to be afraid of this "unknown" disease, we will probably get into a muddle about the name "take-all," and before we really know what it is. As Quarantine Order No. 37 was established in 1919, and the new "take-all" disease only appeared in 1920, this name should be abolished by scientists. We cannot yet make out what the danger is of the "Illinois take-all" for Europe. The large shipments of cereals, even when used as a foodstuff only, will probably put European agriculture on the look-out.

(To be continued.)

NOTES FROM WISLEY.

As a consequence of the cold weather the flowering of fruit trees and of ornamental varieties of Plum, Pear and Apple has been considerably delayed in most parts of the country; Wisley shares the common experience.

One of the most beautiful sights to be seen at the R.H.S. gardens is the flowering of the large, weeping, Chinese Cherry (*Prunus cerasus pendula*), and it is remarkable how profusely this and the smaller specimen on the rock garden blossom every year.

Another striking but less graceful tree is *Pyrus niedzwetzkyana*. The wood is very dark in colour and shows up the reddish shoots and reddish-pink flowers. *Pyrus floribunda purpurea* is also fine. Another ornamental fruit tree deserving particular mention is *Prunus subhirtella autumnalis*, which has been in blossom for a considerable time. It should have flowered in the latter part of last year, but the drought is probably responsible for its present behaviour. The flowers are very pale pink and their delicacy is enhanced by the tender green of the young shoots.

All the aforementioned are to be seen in the newly formed shrub borders in "Seven Acres," which promises to be a successful and highly interesting addition to the gardens. Large numbers of the shrubs planted here are comparatively unknown, and we can only make guesses as to their future value. A shrub now in flower, and one that seems likely to be a good thing, is *Prinsepia uniflora* with white flowers and a habit reminding one of *Spiraea arguta*.

In the American garden there is plenty to be seen, including *Rhodora canadensis* and *Vaccinium pennsylvanicum*; the latter is very conspicuous in dark places in the woods at this time of the year, as the foliage and stems are light yellow-green.

Narcissus triandrus is exceptionally good this year, and occurs in large patches in the grassy glade near the round ponds. After flowering, the stems bearing the seed vessels are cut down with the grass, which is deposited so that the seeds may drop out wherever it is wished to establish this charming plant.

In the rock garden *Arabis* and *Aubrietias* are chiefly in evidence. By the side of one of the rock pools, what appears to be *Aubrietia* Mrs. Lloyd Edwards, on closer examination, however, proves to be partly *Primula juliae*.

At the present time there are quite a number of little shrubs flowering in pans in the Alpine House. Amongst others there is a dwarf specimen of *Amelanchier canadensis*, barely a foot high, but with normal sized flowers. There is also *Veronica hulkeana*, a loose growing plant with pale lavender flowers; the bluish-flowered *Rhododendron fastigiatum* and *Azalea amoena*. Perhaps the prettiest plant to be seen in flower in this house is *Asperula suberosa*, with its silvery-pink cascade of trumpet-like flowers and its downy foliage.—J. E. G. White.

* An address given by Prof. (Miss) Westerdijk, at Utrecht and Baarn, at the Conference of the Federation Horticulture Professionnelle Internationale, at the Hague, on April 21.

THE BULB GARDEN.

A NEGLECTED BULB.

THE delicate beauty of *Ornithogalum nutans* entitles it to more esteem than it appears to receive, judging from the infrequency with which one sees it in cultivation. This may be owing to want of experience of its merit as a cut flower, whereof I confess to having been in ignorance till lately. A couple of the flower spikes were placed in water just a fortnight ago, when half the blossoms were expanded; the others have now opened and the earlier blossoms remain perfectly fresh, and the spike is a column eight inches high, of a dozen stars, each two inches across. The texture of the blossoms is satiny, their colour milky-white streaked outside with grass green, the segments of the perianth opening star-wise round the close column of anthers, whereof the silvery-white filaments are flattened into the semblance of petals, adding much to the richness of the flower. I feel sure that this *Ornithogalum* would be more frequently planted if the quality of its blooms was more generally known, for it is as hardy as a Dandelion, the bulbs are very cheap and thrive as vigorously when planted out in grass as when grown in a border. This *Ornithogalum* does not conform to the provoking habit of the common Star of Bethlehem (*O. umbellatum*), which closes its flowers punctually at 4 p.m. (Greenwich, not summer, time). That species reminds one of the trap into which the translators of the authorised version were led in the narrative of the siege of Samaria. We are told in 2 Kings. vi., 25, that the famine in the besieged city was so severe that "an ass's head was sold for four-score pieces of silver and the fourth part of a cab of dove's dung for five pieces of silver." Now it is conceivable that the head of an ass might form stock for tolerable soup; but, for the life of me, I never could comprehend what nutriment could be had out of dove's dung, until the late Dr. Tristram, of Durham, Oriental traveller and author of *The Land of Moab*, solved the mystery for me. He explained how in spring the plains of Syria are sheeted with the white blossoms the Star of Bethlehem. The Arab name for this flower signifies "dove's dung," which the Greeks more elegantly rendered as "*ornithogalum*"—bird's milk. The bulbs, being commonly used in normal times as an article of food, naturally brought a high price during the siege. In the Revised Version of the Old Testament, the only alteration made in the passage in Kings consists of "cab" being changed to "kab." *Herbert Maxwell, Monreith.*

PLANT NOTES.

SOME OLD FAVOURITE GARDEN PLANTS.

THERE are a few old plants that I have lost sight of that are worth noting. One is *Eranthemum pulchellum*, an inmate of the stove, which produces its pretty blue flowers in profusion during the dull months. It roots readily from cuttings at this season, which make good specimens if grown in five-inch pots in a loamy medium and stopped once or twice to make them bushy. Requiring similar treatment with the addition of a neat stake for support is *Thysanacanthus rutilans*, which produces long, drooping sprays at the same season. The colour is dull red. *Clerodendron fallax* is better known, and strong plants throw brilliant racemes which make quite a glow for some months. Seedlings

like a *Fuchsia* at all, but though the flowers are almost minute, it is, notwithstanding, a plant to be desired. It is hardy in some parts, but here it has to be lifted annually and stored during winter. The best way to increase it is to pull an old plant in pieces, as it is so slow in growth from cuttings that it is a long time before these form decorative material. *Fuchsia Riccartonii* is another fine variety, hardy here, where the plants grow to a height of 10 feet.—*R. P. Brotherston.*

EPIGAEA REPENS.

THE Mayflower of North America was introduced to this country in 1736, and a red-flowered variety exactly a century later; yet little success has attended the cultivation of either. I have seen *Epigaea repens* flowered in a pan of peaty soil, but never so freely as in the gardens of the Royal Horticultural Society at Wisley. It



FIG. 116.—NARCISSUS EVEREST: AWARD OF MERIT, MIDLAND DAFFODIL SOCIETY. (SEE P. 234.)

THE ALPINE GARDEN.

SAXIFRAGA ASPERA.

It cannot be said that this *Saxifrage* is a general favourite, and it remains unrepresented in numerous gardens, where the *Saxifrages* are highly cherished. It is a member of the mossy section, but is distinct-looking in its foliage. It makes spreading mats of bristly green leaves, on branches which spread about in a manner likened to those of some of the Mossy *Phloxes*. They are quite distinct, however, and those who have once seen *S. aspera* are not likely to forget its general appearance. Its one fault with me has always been its shyness of flowering. It is a disappointment to grow it for some years and to be rarely ever rewarded with a sight of its delicate bronzy stems and butter-yellow flowers, growing deeper in colour towards the centre and freckled with orange. The allied *S. bryoides* is quite as deserving of growth, but with me had always the same tantalising shy-flowering habit as *S. aspera*. It comes from higher altitudes than *S. aspera*, and has a denser habit of growth. Its little shoots and close habit give it a strong resemblance to some of the Mosses. It also has yellowish flowers, brighter than those of *S. aspera* and more deeply freckled. Both these *Saxifrages* are easy to grow in ordinary rock garden soil. *S. Arnott.*

produce the best flowering material, the seeds to be sown early in the year and the plants potted finally into six-inch pots in loam. Cut-over plants form larger flowering specimens, but in my experience the heads of flowers are not nearly so fine, and it is perhaps better to keep a plant or two to bear seed than to preserve them over one year for flowering.

All the above plants require a stove temperature, and flower in the winter and spring months. *Fuchsia* Mme. Cornelliison, on the contrary, is a summer and autumn flowering plant, good alike for the greenhouse and the open-air border. It is a very old variety, perhaps 70 years old, of a peculiarly straight growing habit and producing quantities of red and white flowers of medium size, being probably one of the first white corolla *Fuchsias* to be distributed. I have not seen it for many years, but it is hardly possible so desirable a variety should have gone out of cultivation. *Fuchsia minimus* is scarcely

seems perfectly happy on the side of a shallow ditch, facing north, but shaded on that side by trees. The soil of these gardens is naturally peaty and that is entirely to the plants' liking, as in the case of many shrubs belonging to the *Ericaceae*. The shade and the congenial medium for the healthy growth of mycorrhiza are, no doubt, the principal reasons for the success of this desirable little shrub. April is the average month for flowering, but it was in bloom for some time at Wisley before the end of March. One factor that helps for the continued success of the plant is a cool position that will delay growth till the worst of the late frosts are no longer to be feared; while a mild winter is liable to start the plant into growth too soon. It is perfectly hardy while at rest, but the young growth is tender. I have proved this in the case of *Salix myrsinites*, which grows at high elevations on the mountains, and a mild spring will start it into growth, while a late frost will completely blacken the leaves. *J. F.*

The Week's Work.

THE ORCHID HOUSES.

By J. T. BAKER, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Cymbidium.—The large, ivory-white *Cymbidium eburneum* still holds its own amongst this most popular family of Orchids, and is deserving of a place in any collection. Plants that require more root room should receive attention as they pass out of flower. The thick, fleshy roots of these Orchids require a larger space to ramble in than is generally afforded them. The pots should be well drained, and the compost consist of one half good turfy loam, the other half fibrous peat, or *Osmunda* fibre and moss, to which may be added a little leaf-mould and broken crocks in sufficient quantities to render the compost porous. These plants should be potted in much the same manner as ordinary plants, keeping the soil at least half an inch below the rim of the pot. During the growing season water should be given the roots freely, and at other times in sufficient quantity to keep the roots moist. *Cymbidiums* do not appreciate dryness, either at the root or in the air, as it causes loss of foliage, greatly to the disfigurement of the plants. Other species to which the above remarks apply are *C. elegans*, *C. Mastersii*, *C. affine*, *C. aloifolium*, *C. ensifolium*, *C. chloranthum*, *C. longifolium* and *C. insigne* (Sanderæ). *C. Lowianum* does not require so large an amount of pot room as *C. eburneum*, and, when properly potted and well cared for, may be allowed to remain undisturbed for many years, for it produces its long, arching spikes more freely when kept in a pot-bound condition. The whole of these plants, both species and hybrids, produce flowers more freely when the roots are cramped. An occasional dose of weak liquid cow manure will greatly benefit the plants when they are throwing up their flower spikes.

Other Species.—*C. Traceyanum*, *C. giganteum*, *C. pendulum* and *C. Hookerianum*, should be treated as advised for *C. Lowianum*. *C. Devonianum* produces its pendulous racemes from the base of the young growths, and is best grown in a wooden basket. All the above-mentioned *Cymbidiums* grow well in a cool, intermediate house. One of the great features of these interesting plants is the length of time their flowers last, either on the plants or in a cut state. These plants should be sprayed overhead occasionally to help keep down attacks of red spider, and other insect pests.

THE FLOWER GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

Herbaceous Borders.—Examine the plants in the borders now, and where the growth is congested remove some of the shoots in order to give those that remain plenty of space to develop, as this will result in finer flowers. This attention is particularly necessary in the case of plants that have been in the same position for more than one season, such as *Michaelmas Daisies*, *Heleniums*, *Amellus Asters*, *Phloxes*, and similar close-growing subjects.

Annuals.—The more tender kinds of annuals may be sown with comparative safety in the open, remembering the previous caution to sow thinly. Also, to maintain a succession of those sown as previously directed, further batches should now be sown. The *Mignonette* is one of the greatest favourites amongst annuals, and we endeavour at Aldenham to ensure as long a season for this fragrant plant as possible. The earliest plants are raised in pots in a cool house, where they are safe from frost. We raise a later batch in 60-sized pots in cold frames for planting out to bloom early in borders, and again later, from the first week in May, we

make three sowings at intervals to carry on the succession. *Matchet* and *Miles' Spiral* are the two principal varieties employed, as we find these sorts very reliable for all kind of work. *Mignonette* does best in well-dug, enriched ground, into which a good quantity of mortar rubble has been worked. Thin the seedlings out in stages until they are finally left from 4 inches to 6 inches apart.

Mildew on Roses.—Mildew is one of the unsightly pests to which Roses are subject, and various causes are assigned for its appearance, but the general view now held is that it is caused by quick variations in the temperature. If the disease is observed it should be treated at once with a spray containing sulphur, and one of the best I have used is "Seeride," which destroys it very effectively.



FIG. 117.—A PYRAMIDAL ELM AT ALDENHAM (SEE P. 227).

Weeds on Gravel Paths.—After April rains weeds appear rapidly on gravel walks, paths and drives, but are easily destroyed with weed killer. Weed killers should be most carefully handled and used. The utensils employed for mixing the solution and for applying it should be reserved solely for such work, and not employed for general operations, otherwise serious results may occur and other plants may be seriously damaged, if not killed.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir C. NALL-CAIN, Bart., The Node, Codicote, Welwyn, Hertfordshire.

Humea elegans.—This plant should be ready for the final potting. Use rich, open loam, mixed with manure from a spent mushroom bed, and grit. I do not favour the use of very large receptacles for *Humeas*, pots of 7 inches diameter being the most suitable

size. After potting the plants, water them carefully until the roots become active again.

Coleus Seedlings.—These should be potted on into larger receptacles as required. Rich, open loam, with leaf mould and sand added, forms a suitable compost for these plants. When these are well established in their final pots, a little concentrated fertiliser will be very beneficial to them. Pinch the growths to induce them to form bushy specimens.

Celosia pyramidalis.—Seeds of this *Celosia* and also of *C. cristata* may be sown now to raise plants for summer flowering. To be successful with these plants, it is necessary to obtain a quick growth; it is a mistake to allow them to suffer from lack of root space in their early stage. The soil should be of a rich, open nature. Red spider is one of the worst pests of these plants, therefore it will be necessary to syringe the growths frequently to keep the spider in check, but not so heavily as to cause the surface soil to become sour.

Clivia.—It is not necessary to repot these plants each year, but where they have been allowed to remain in large pots for several seasons and the growths have become crowded it will be necessary to overhaul them now that the flowering season is over. Rich, open loam, to which leaf-mould, bone meal, and grit have been added, will provide a suitable compost. Do not use very large receptacles for these plants, as they produce flowers more freely when the root space is restricted.

Acalypha.—Old plants of *Acalypha* that have become leggy may have their tops taken off and inserted in small pots. Place one cutting in each pot, and plunge the latter in the propagating frame, using a good open compost as a rooting medium. The old plants may be pruned as desired and grown on again for another season if necessary.

THE KITCHEN GARDEN.

By JAMES E. HATHAWAY, Gardener to JOHN BRENNAND, Esq., Baldersby Park, Thirsk, Yorkshire.

Potatoes.—Early planted Potatoes are pushing their shoots through the soil. The haulm should be covered for so long a time as possible by drawing fine soil over it with the hoe every evening. When the growths are too big for this kind of protection, use old tiffany or Bracken Fern if the weather is still very cold.

Brussels Sprouts.—Early plants of Brussels Sprouts, raised in boxes, should be planted in ground that has been well manured. Allow plenty of space for these plants—not less than 3 ft. between the rows, and 2 ft. 6 in. between the plants in the rows. Where land is scarce, Potatoes planted 1 ft. apart, with dwarf tops, may have Brussels Sprouts planted between the rows. If the Potatoes are lifted early they will not affect the Brussels Sprouts to any extent.

Cardoon.—This vegetable should be grown in trenches made 18 in. wide and 2 ft. deep, and filled with well-decayed manure to within about 4 in. of the surface, covering the dung with about 3 in. of soil. Sow about four seeds in stations about 18 in. apart, and as soon as the seedlings are large enough thin them to one. The trenches should be 4 ft. 6 in. apart.

Celery.—The early batch of Celery should be hardened off ready for planting out. Plants comprising the main batch are ready for pricking out 3 in. apart in a good mixture of loam, leaf-soil and sand. The seedlings should be kept close and shaded for a few days after they are transplanted, and well syringed.

Salsify.—Grow this crop in light, sandy soil that was well manured last year and has been deeply trenched. Sow the seed in drills made 18 in. apart. Salsify is a useful vegetable, but if sown too early the plants run to flower and become useless. As soon as they are large enough, thin the seedlings to 10 inches apart. *Scorzonera* requires similar treatment.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

Strawberries.—Peach houses and vineries will now be clear of the early batches of pot Strawberries, and the shelves should be washed carefully to prevent spider or mildew attacking the vines when syringing is discontinued. The later stock of pot Strawberries may be placed together in a light, roomy, and well-ventilated house or pit to set and ripen their fruit, where the different batches may be regularly syringed and watered until the plants come into flower, as healthy plants set their berries freely, the flowers may be well thinned before they open. After the fruit is set, syringing should be resumed and clear, weak liquid manure used at every watering. As strawberries will swell in the hottest plant stove, batches may be forced if it is necessary to do this to keep up the supply, but not otherwise, as Strawberries grown in a temperature ranging from 60° to 65° at night, and 75° to 80° by day, are superior in quality, if not quite so large as those grown in very hot houses. Most forced Strawberries, like early Grapes, are consumed before they are absolutely ripe, yet the berries may be kept in an improving condition on the plants in a dry, airy house for a week or ten days after they have coloured.

Young Figs in Pots.—Young trees growing in pots and intended for forcing later should be pinched when 1 ft. in height, to favour the formation of side shoots. The trees should be potted on before the roots become too pot-bound. The pyramid being the best type of tree, the leaders should be trained and pinched as often as they require it. It is not necessary to keep the roots in bottom-heat; the pots may be raised by degrees to the surface and the trees grown on in a warm, well-ventilated house or pit where plenty of heat and light are available.

HARDY FRUIT GARDEN.

By H. MARRHAM, Gardener to the EARL OF STRAFFORD, Wrotham Park, Barnet.

Late-planted Fruit Trees.—Young Peach and other trees that were planted very late in the season, and which, so far, have been left unpruned and not finally secured to the wall or trellis, should now receive attention. First tread the soil firmly about the roots, and then prune the shoots, more or less, according to their length and strength. If the shoots are of medium size and thoroughly matured, little, if any, shortening will be necessary. Spread out the branches at equal distances to form an evenly balanced head, and, as the young growth extends, preserve those best situated for filling bare spaces and gradually remove any that are ill-placed or too numerous. This work should be carefully carried out throughout the growing season, so that a well formed head is obtained the first season after planting. Keep a watchful eye on the small, tender shoots for insects, such as green and black aphids, which may be expected at any time now, and, if not immediately checked, would cause much harm. A nicotine insecticide, Quassia extract, or Abol will destroy the pests, and the trees should be syringed with one or other of these specifics in the afternoons, and again with clean water applied with moderate force the following morning.

Roots of Fruit Trees.—A careful examination should be made of all kinds of fruit trees to ascertain whether the roots have been buried too deeply, and especially where the soil is rather heavy and cold, for nothing is more detrimental to the welfare of the trees than burying the roots far below the surface. In the vegetable garden and on borders the soil is apt to get shifted and placed over the roots from time to time, until the stems of the trees are covered with soil several inches higher than they should be. If this is found to be the case, shift some of the top soil from the roots, so that the warmth of the sun may reach them.

TREES AND SHRUBS.

ULMUS CAMPESTRIS PYRAMIDALIS.

In Mr. Bean's admirable work, *Trees and Shrubs Hardy in the British Isles*, he mentions that he has never come across a fastigate form of *Ulmus campestris*, although, as anyone who has studied Elms knows, it is comparatively easy to find such varieties of *U. montana*, and *U. stricta* *Wheatleyi* with its stiffly erect branches is also fairly well known under its popular name of the Jersey Elm. The passage in Mr. Bean's book to which I refer reads as follows: "The fact that fastigate as well as weeping trees originate only as seedling variations will explain the absence of any fastigate common Elm" (Vol. I, p. 66).

When Mr. Bean wrote thus, his attention had not been called to a fastigate form of the common Elm at Aldenham (see Fig. 117), which, in spite of his dictum, did not originate as a seedling variation, but was undoubtedly a "bud" sport! When I call it "fastigate," I mean that its branches all grow vertically, and not at right angles to the trunk, as is the normal way of broad-leaved trees, but as this word usually suggests trees that are more or less the same size all the way up, like the upright form of Black Poplar, commonly called Lombardy, I prefer to describe it as "pyra-

The ultimate result has, however, proved eminently satisfactory. The tree, deprived of any other outlet for its energies, devoted itself exclusively to the development of the sport, so that in a few years this latter grew rapidly both in height and girth, and before long any marked difference in girth between the top of the stem and the bottom of the sport disappeared, and we now possess a striking and shapely tree of a height of 85-90 feet, in which anyone standing on the ground can hardly detect any break of continuity, or could guess without being told that the tree had ever had any other form than the one which it now presents. I should add, in conclusion, that at the time when I operated on it so drastically and successfully, I also removed any adjacent trees.

On the same page of Mr. Bean's book he mentions that he has never seen a fastigate Linden or Lime tree, but since he wrote that I have had the pleasure of showing him one at Aldenham, which I obtained about a dozen years ago from a foreign nurseryman, *Vicary Gibbs, Aldenham*.

RHODODENDRON SUTCHUENENSE.

THE photograph reproduced in Fig. 118, taken on March 23, 1922, shows a fine plant of *Rhododendron sutchuenense* with 80 trusses of bloom, each carrying about 20 flowers 3 inches across.



FIG. 118.—RHODODENDRON SUTCHUENENSE IN A SCOTTISH GARDEN.

midalis," for the base of this variety is materially broader than the apex, and in outline it more resembles a deciduous Cypress than a Lombardy Poplar.

The origin of this variety is curious, and well illustrates how much can be done by judicious surgical operation entirely to transform, and vastly to improve, the outward appearance of a tree.

Some thirty years ago, when I first noticed this specimen, it was a mean, ill-grown example of the common hedgerow Elm, which with us, as in most parts of southern England, is by far the commonest field tree. It was then, I should judge, about thirty years old, and having been dominated by a big neighbour, it had, at about 15 feet above the ground, bent away in search of light, and carried an ill-shaped, rather starved crown. It would have been remorselessly condemned had I not observed that it had sent up a small, upright shoot, then, I think, between two and three feet high, just at the point where the trunk began to turn from the vertical. Accordingly, instead of ordering the tree's removal, I got the woodman to behead it just above the point where the abnormal growth started, and further, to remove all boughs below the said growth. No doubt the immediate effect was grotesque, and such as would have raised a great Press outcry if a tree in a public park had been in question.

The blooms are lightly speckled on the inside and of a good pink colour. The leaves are long and leathery. *R. sutchuenense* is a woodland species from China. Owing to its early habit of flowering this *Rhododendron* does best planted where the morning sun does not reach it. Here, on the west coast of Scotland, it has flowered regularly in March for some years past, and is now a specimen over 5 feet high and 9 feet through. *Kenneth McDonald, Logan, Stranraer*.

PINUS PATULA.

THIS beautiful Mexican Pine closely resembles *Pinus longifolia* in general appearance, but being more hardy than *P. longifolia*, it is most suitable for planting in the warmer counties of England and the south of Ireland. The horizontal growth of the branches and the dense, fringe-like growth of the leaves gives the tree a very attractive appearance. It has principally been planted in the southwest of England and the south of Ireland, but I have also found specimens of it in Sussex. *Pinus patula* is not always found planted in suitable positions, but it is worthy of a place where its distinctive beauty can be seen to advantage. One may frequently see examples of errors in planting, and fail to understand why some trees are so planted; there is often no consideration for what such trees may become thirty or forty years hence. *Paul More*.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 5, Tavistock Street, Covent Garden, W.C.2.

LILIES IN 1921.

FEW gardeners seem to regard the most remarkable year of the present generation—1921—in quite the same light. So much depends upon the point of view, and that in turn depends on local conditions of aspect and soil, humidity of the atmosphere, and, above all, water supply.

The gardener whose camp is pitched—shall we say—in an arid country in East Anglia, with a water supply which ceases to be adequate when the rainfall is much below the normal, would not take the same view of 1921 as the individual whose garden is on generous land in a valley among the Welsh hills. But there seems a general agreement that by the end of August more than a few gardeners had come to the conclusion that it was possible to have too much of a good thing.

A point that emerges from a consideration of experiences is that, where the water supply held out, as it did in a surprising number of places, and was used intelligently, garden vegetation was almost sub-tropical in growth. It has to be recognised, however, that in the ordinary way there is so little need for irrigation of gardens in this country that only the enthusiast will go to the trouble of it on the chance of a deficiency of rain now and again.

In such a season as that of last year, the grower of Lilies who is able to irrigate the ground has an immense advantage over those who have to take things as they come. In the case of the more difficult species, which need a higher summer temperature than our climate normally affords them, but dwindle in sun-baked places, the effect of a cool and moist root-run in a parching time is remarkable. The amount of water needed for subterranean irrigation is trifling and out of all proportion to the beneficent effect.

The record drought will not have taught the systematic cultivator of Lilies very much he did not know before, but the year was not barren of lessons. The almost total absence of Botrytis, for instance, was very marked. The scourge made an appearance during the sharp spell of inclement weather of the third week in April, and for a few days made characteristically rapid progress. But with the return of fair weather towards the end of the month, the disease was checked and made no further progress in the year. Plants which had been attacked, too, made a wonderful recovery.

The conditions which predispose certain forms of plant life to the ravages of this disease, for which there seems as yet no prophylactic and no effective cure, are doubtless known to scientists. To the gardener it seems tolerably clear that the sun has a definite bearing on the matter, for in 1911, and again last year, there was a marked absence of the fungus. An epidemic is to be expected at any season of the year, in moist, sunless weather, whether the temperature is high or low, and, though the hurt caused by spring frosts to plants susceptible to Botrytis seems to lay them especially open to the initiatory attack, it may come at any moment when atmospheric conditions are favourable to it.

Another feature of the year was the bountiful harvest of seed yielded by the June and July flowering species in general, and the later flowering species where they were not crippled by the drought, as well as the satisfactory condition of the seed.

The fruiting of cultivated forms of *L. candidum* was reported in many directions, and that is testimony to the exceptional nature of the season, for, as is well known, these forms of the Lily do not produce seed in the normal British summer. In this respect, the behaviour of the plant differs materially from that of the wild form of *L. candidum* from Salonica, distributed by Mr. Bowles a few years since, for that produces a rich crop of seed with annually astonishing regularity. This Lily is a real drought-resisting species,

for it remained green and imperturbable throughout the season in places where all around was burnt and browned. It seems to be remarkably resistant to Botrytis, too.

Another noticeable feature of the year was the revelation of the drought-resisting powers, hitherto unsuspected in a stem-rooting species, of *L. Henry* (see Fig. 119); except for a slight curtailment of stature in very arid places, plants of this species also remained green to the end.

No lengthy retrospect of the season is needed, for it must be long before the recollection of it will fade from the memory. Suffice it to say that, except for the check due to a wintry spell in the third week of April, there was nothing to mar the smooth progress of Lilies from the turn of the year till the opening of the season a few days earlier than usual.

There is usually a definite gap between the June Lilies—*L. pyrenaicum*, *L. monadelphum*, *L. rubellum*, *L. tenuifolium*, and *L. Hansonii*



FIG. 119.—*LILIMUM HENRYI*.

—and those which flower in July, just as there is between the latter and the late flowering species; but last year broke the sequence which had been maintained with remarkable regularity over a period of twenty years. *L. regale* was in bloom before the petals of *L. Hansonii* had fallen, and the buds of *L. Henryi* opened on a date earlier than any whereof the writer has a record.

It is a commonplace that Lilies are plants of the sun, but that does not mean that they will tolerate the parched situations in which so many found themselves last year. In many places the early flowering Lilies flourished amazingly, because in June there was still a sufficiency of moisture below the crust of the earth, and, as we know, the bulbs of many species push their roots far and wide in search of moisture. The writer has often noticed wandering roots of *L. Leichtlinii*, for instance, four feet away from the bulb.

By July, however, the absence of rain was beginning to tell, and the water content of the earth had been seriously depleted. The late-flowering group, consisting almost entirely

of stem-rooting species, depends for the exuberance of its growth and bloom on a sufficiency of surface moisture, and, as in the majority of gardens this was non-existent by the middle of July, the group was generally stunted in growth and deficient in bloom. Newly planted imported bulbs, and especially those of the Japanese species, such as *L. auratum*, *L. speciosum*, and *L. tigrinum*, must have been slaughtered in thousands.

Of the newer Lilies, there is not much to be said from the gardener's point of view which has not been said already. The pair sent home by Farrer during his first exploration of Kansu—*L. centifolium* (see Fig. 120) and *L. Farreri*, the "Marble Martagon," which seems to grow more and more like *L. Duchartrei*—have still to prove themselves satisfactory garden Lilies. Of the hundreds of seedlings of *L. centifolium* raised in this country since 1915, there cannot be more than fifty flowering plants at the present time, many of them under glass, and, though the scarcity of the plant in the hands of enthusiasts may be due to errors of cultivation or mishaps, one cannot yet couple this Lily with *L. regale*, for instance, as a good garden plant. Nor is it possible at present to write more hopefully of *L. Farreri*.

At the R.H.S. show on July 27, 1920, *L. centifolium*, then identified by the number F. 316, was awarded a First-Class Certificate when exhibited as *L. Brownii kansuense* by Mr. Clarence Elliott. In a summary of the characteristics of the Lily in the Royal Horticultural Society's *Journal* (Vol. XLVI., p. lxxviii.) it is stated to be practically scentless. In point of fact, it is deliciously fragrant. At the instance of Mr. Elwes, in August of last year * the specific position of this fine Lily was dealt with provisionally by the authorities at Kew, who named the plant *L. centifolium*, Stapf., placing it in the *L. Brownii* phylum. If bulb characters have any taxonomic value, however, those of the bulb of this Lily point to a relationship with *L. sulphureum* rather than *L. Brownii*.

Scheubel's hybrid between *L. sulphureum* and *L. regale*, shown at Holland House in July, does not seem an improvement on either parent, or to combine the good points of each. Its sole claim to fame at present is that the flowering season is intermediate between the parents. Hybrids between these parents may prove of use, however, in the consideration of the specific position of *L. Sargentiae*, which is so variable in many of its characteristic features as to lead one to the conclusion that it is not quite sure of itself as a fixed species.

The so-called Formosan variety of *L. philippinense* is as elegant and refined a trumpet Lily as anyone could wish to see, but in this country it is for the cold house rather than the garden. That is not to say that Price's alpine form of it in particular will not grow and flourish in the open in certain places.

When any trouble is taken with it, E. H. Wilson's *L. Willmottiae* is one of the most satisfactory garden Lilies of recent introduction. The only drawback to it is the unusual one that it often sets more sail in the way of bloom than it can carry, and so needs support for about two-thirds the height of the stem.

Far less floriferous, but equally elegant, is another Wilson Lily, *L. Thayerae*, which, in the opinion of its author, is no longer separable from the older *L. Davidii* of Frauchet. The latter is known only by the beautiful plate of Faquet (t. 24) in *A Monograph of the Genus Lilium*. It is the sole figure in that remarkable work not drawn from the living plant, and, as is made clear in the text, the drawing is a reconstruction based on the dried specimen of David. This is not the place for a consideration of the reasons which have led to the conclusion that *L. Davidii*, as presented by Faquet, does not exist, and never has existed, but one may confess to a feeling of regret that such a beautiful Lily should have proved so entirely elusive.

L. Davidii, as Wilson considers his *L. Thayerae* should now be known, was regarded

* *Gard. Chron.*, August 20, 1921, p. 101.

for some time after its introduction as a calcifugal plant; but more extended experience shows that this is not so.

The drought thinned out the ranks of Lilies in many gardens, but the bulbs of those which weathered the visitation will have been thoroughly ripened. In the southern half of England there were none of the heavy early winter rains which usually catch the bulbs when they are dormant and drown so many. From the Lily grower's point of view, everything in the late autumn was for the best, and the prospects for the present year are excellent.

It is satisfactory to know that the synonymy of the Martagon group of Western Chinese *Lilium* has been investigated during the year at the Edinburgh Botanic Garden, and that it is hoped before long to make the conclusions arrived at available for students and others interested, in a paper from the pen of the Regius Keeper. A. Grove.

MR. KINGDON WARD'S SIXTH EXPEDITION IN ASIA.

NO. 14.—MORE TREASURES FROM THE VALLEY OF BEAUTIFUL FLOWERS.

So few are the species of *Rhododendron* in this region—at least, as compared with the Mekong-Salween divide, and perhaps even with the Mekong-Yangtze divide; anywhere west of the Yangtze, in fact—so few, I say, are the *Rhododendrons* in the Yung-ning Mu-li region that each one deserves special notice. Between Yung-ning and Mu-li I have come across scarcely fifteen species. But I think this must be partly due to the fact that I have not been able to get high enough. I feel sure there are more species on the snowy range; and yet perhaps not many more. There are vast slopes of mountain here covered with dwarf *Rhododendron*, but all of two, or at most three, species. Tree *Rhododendrons*, in the proper sense of the word, there are none; at the altitudes where they would normally occur it is too dry for them. This is emphatically not a *Rhododendron* country, and we may confidently recognise the Yangtze river gorge as the eastern boundary, beyond which the genus rapidly diminishes in variety. Certainly there is nothing like so many species in the Mu-li area as there are on the Mekong-Yangtze divide, for instance. But this is not the whole story, for if we go northwards, to the region of Tatsienlu, where Wilson found so many species, they increase again. It would, therefore, appear that the *Rhododendrons* follow two streams—one from the north-west, the other from the north-east, which unite somewhere about the Mekong-Salween divide. Into this absorbing topic, however, I cannot enter now.

Now we approached the pass by a narrow valley, girt with gloomy cliffs. A stream tinkled over the precipice on our left, and splashed amongst boulders. Quite suddenly flowers seemed to spring up on all sides, and we found ourselves tramping over fields of *Primula pseudo-sikkimensis*, *Meconopsis pseudo-integrifolia*, *P. brevifolia*, *P. secundiflora*, and other delights. We waded through them, knee deep; and I stood spellbound. It was impossible to continue further up the ravine with the flowers beckoning to us to stay, and the cliffs crying aloud their welcome. So I gave the order, and the tents were pitched then and there—in a bog! From the door of my tent I could count six species of *Primula*. A bushy *Rhododendron*, with leaves brightly silvered beneath, and trusses of pink flowers, looked promising. Another species, with leaves rusty red beneath, and compact trusses of tubular white cups, sneaked inside with purple, accompanied it; this last was one of the *Erratum* series, perhaps. Were we in the *Rhododendron* zone after all? Alas! they were the last bush *Rhododendrons* met with. The day was still young, so after a quick lunch we set out to climb the

cliff over which the stream cascaded. I soon found myself in a lovely alpine valley, where rare *Primulas* grew like Daisies on an English lawn. Turning the corner, I came to a marsh, which was a sheet of brilliant lavender blue, thanks to a small bush *Rhododendron* in full bloom; and a more exquisite sight I have rarely seen—the colour was so refined, so unusual. Between the trickles of dark, peaty water, masses of Iris were springing up, and of this I secured an advance guard of seed—last year's.

On the rocky slopes above this bog were a few shrubs growing thickly—two small *Rhododendrons*, Juniper and *Lonicera*, the last with large, straw-yellow, pendent flowers, in pairs. There was little variety in the shrub belt.



FIG. 120.—*LILIAM CENTIFOLIUM*, STAPF.

Very steep earth slopes, which, facing south, were at present almost bare, led up to the crags. A species of *Phlomis* was the only obvious thing on them. Ascending to the crest, we found *Abies* and *Rhododendron* sp. growing on the sheltered side, and straggling over the broken crest, in nooks and crannies. Everywhere the whitened rock was weathered into fantastic needles and pitiless knife blades. The whole world was on edge—never have I seen so perpendicular a country. The precipices were agonising to look at, cruel, but grand beyond belief. White *Rhododendrons* (two species) flecked the tree-clad slopes with foam. Down below were sheets of purple and lavender, where the dwarf species carpeted the slope; and every stream was embroidered with *Primulas*.

The limestone region which we had been

traversing now for ten days' journey—ever since we left Yung-pei, in fact—seemed to reach its apogee here. Comparatively clear as the atmosphere was, no obviously higher peaks were visible in any direction, though westwards the view was much restricted. As a matter of fact, the nearest snowy peaks lay a few miles to the west, though whether they were of limestone or not, I had no means of judging, even when I observed them later, from no great distance.

On the following day, June 6, after a cold night, with heavy dew at dawn, we climbed the western ridge again, exploring many a peak and valley. One of the most extraordinary plants found was a Crucifer, a species of *Solms-Laubachia*, I think; extraordinary for a mere Crucifer, that is, and at the same time beautiful. There are many Cruciferae high up on these ranges—species of *Draba*, *Cochlearia*, *Cardamine*, *Sisymbrium*, etc., which, like Uriah Heep, are very umble, contenting themselves with a meagre subsistence on screes, and such-like places, where no self-respecting plants grow. Very few of them are worthy of cultivation. But this was an exception. The flowers were pale violet, delicately veined with a darker shade, and extremely fragrant. But it was the habit—almost that of a *Suffruticosa* *Primula*—woody stems more or less clothed with the bases of old leaves, that was so surprising. This year's leaves were crowded at the ends of the stunted stems, and the whole formed a compact cushion. It was very floriferous and would look well on a rockery, though no doubt requiring some years to establish itself. One of the jolliest plants was a dwarf *Meconopsis*, with deep violet flowers. It grew scarce six inches high, on open grassy slopes, a modest little flower hanging its head and hard to find. It appears to belong to the *Primulinae* series, having three or four flowers on the scape, and only four (sometimes five) petals. The region is certainly not rich in this genus, though doubtless there are others to be found; but this little tot, with its almost glabrous leaves and shy, half-opened flowers, was a sheer joy, with none of the gawkiness or perky pride common to so many of its race. On the shaded cliffs grew a little white-flowered *Pinguicula*—not *P. alpina*, the pretty egg-yellow species of *A-tun-tzu*; and bunches of the graceful *Isopyrum grandiflorum* rather pale of complexion—hung from dark crevices.

It was early yet for *Saxifragas*; they come late in the summer with the *Gentians*, when the *Primulas* and *Rhododendrons*—those early birds of the alpine regions—are thinking of scattering their seeds. Still, there was one *Saxifrage* in bloom on the shaded precipices, a cushion plant starred with white flowers. Other plants noticed in this region include *Potentilla peduncularis*, species of *Corydalis*, *Lloydia*, *Cassiope* (*myosurides*?) yellow-flowered *Cremanthodium*, *Pedicularis*, *Myosotis*, etc. After a climb up to the screes, on June 7, where we found even those apparently barren rock chutes chequered with plants, notably a *Fritillaria*, *Saussurea*, and several Cruciferae, we returned to camp and packed up, starting down in the afternoon. From the pass we plunged straight down into forest, all the trees *Abies*, Oak and *Rhododendron* being heavily draped with lichen. Presently Larch trees appeared—*Larix tibetica* probably, a beautiful sight in its fresh green foliage—and then we came to a patch of dwarf *Rhododendrons* in full bloom, bright lemon yellow.

As we got down into warmer regions, the banks were smothered with pink-flowered *Androsace spinulifera*, a variable species, growing at all altitudes and in very different situations, between about 8,500 feet and 15,000 feet. Presently we entered a beautiful forest of Oak, Larch, Birch and *Picea*, where the tree *Rhododendron* with large, pale yellow, bell flowers, grew to perfection. In a grassy clearing appeared a dwarf Iris with dark purple, glossy flowers, looking like velvet.

The descent became steeper, and we soon left the mixed forest behind and entered the lowest forest belt—that of Pines. In these dry regions it seems silly to write "dry regions" while listening to the rain which has been falling for

* The previous articles by Mr. Kingdon Ward were published in our issue of May 14, June 18, July 23, August 20, September 3, October 8, October 29, 1921; January 7, January 21, March 11, March 25, April 8 and April 22, 1922.

some days now! the Pine woods are always thin. A few scattered shrubs grow beneath them, chiefly *Rhododendrons*. Next morning, June 8, we descended through a belt of shrubs to the bottom of the ravine, and ascending the far slope, presently reached Mu-li, just above the Litang river. A very pretty *Arisaema*, with white spathe like an "Arum Lily," grew by the way-side. Our arrival at Mu-li, which was to be my home for a few months, was sensational. We were expected, as I had sent the heavy baggage on from camp, and the roofs of the vast monastery were lined with spectators. But for the stony silence, I might have imagined myself the new Lord Mayor riding down Lombard Street at the rear of my little procession. However, the silence was not to be taken as indicating a cool reception, but simply as Oriental. On the contrary, my reception was a warm one, the welcome accorded me hearty; for scarcely was I inside the house when one of the head lamas came round with messages from the grand lama, bringing presents of butter, tea, fowls, eggs, rice (*tamba*), and a sheep, hoping I would be comfortable, and bidding the owner of the house do everything he could. The good man, too, promised me every assistance in my work, transport, interpreters, collectors; and in this wise we settled down at Mu-li, under the shadow of the monastery, a village in itself. *F. Kingdon Ward.*

INTERNATIONAL COMMERCIAL HORTICULTURAL CONFERENCE.

AFTER the somewhat strenuous business session on the first day of the Conference of the *Fédération Horticole Professionnelle Internationale* held at the Hague (see p. 207), the representatives lunched together in the Hotel Wittebrug. Then they went to see the exhibition arranged by the Netherlands Horticultural and Botanical Society in the Zoological Gardens. This fine exhibition was opened with due formality and is referred to in some detail on page 218. In the evening the Burgomaster, on behalf of the Municipality of The Hague, gave a reception to the delegates at the beautiful municipal offices in Java Street, where the City fathers have their splendid council chamber.

About 9.10 a.m. on the second day, April 21, the second session of the Conference began. Mr. Krelage presided again and read a gracious reply from Her Majesty the Queen of Holland to the letter sent her the previous day. Then came the surprise of the Conference. Mr. Krelage introduced Miss Westerdijk, a pathologist and professor of Utrecht University, who discussed the problems raised by the American Quarantine Order No. 37, in so far as these were of phyto-pathological interest. Her address, written and read in English, was listened to with profound interest. That she was voicing in scientific fashion the feelings of the practical men present was evident from the ejaculations of her audience as she made her various points, and also by the round of applause she received at the conclusion of her address when she observed that "prohibition was a sign of weakness." We have much pleasure in publishing Prof. Westerdijk's address, in part, on p. 224.

Mr. H. V. Taylor, the British Deputy-Controller of Horticulture, after thanking Miss Westerdijk for her address, stated that the United States authorities formerly considered a certificate of health sufficient warrant for allowing European horticultural produce into their country, but now evidently they did not regard such a certificate as of any value, hence Quarantine Order No. 37. He pointed out that the United States had some grounds for fear seeing that since 1912 their officers had found pests of some kind in 1,000 consignments of plants from Holland, 600 from France, 500 from Belgium, and 154 from England, but, he added, many of the insects discovered were already well known in the U.S.A., and in one instance it was the

common house fly which was reported as a sinner! His view was that America ran very little risk with regard to fungous and insect pests conveyable by European horticultural produce, and he pointed out that prohibition of the importation of horticultural produce would spoil trade and would not necessarily prevent the importation of disease. It was, however, necessary that the various European countries trading with America should do their utmost to ensure the health and cleanliness of the goods they wished to export to America, and so encourage trading, which is the outcome of civilisation.

The President congratulated Mr. Taylor upon his observations, and both he and Mr. Turbat urged that the Professor's address and Mr. Taylor's observations should be translated and published in the several countries represented. Mr. Leak brought matters to a practical issue by asking what each country was doing to support its own representatives at the Washington Plant Conference in May; he felt that it was very necessary the delegates to Washington should have the very strongest possible support in combating Quarantine Order No. 37. He stated that Mr. W. J. Lobjoit, the Controller of Horticulture, would represent Great Britain. The Dutch delegates stated that Mr. Van Poeteren and Dr. Slogteren would represent Holland and were being supported by the various trade committees and a special branch of the Dutch Legation at Washington. Belgium reported that it would be represented by Mr. C. Pynaert and Mr. L. Sander, nurserymen, but did not propose to send pathologists. France appeared to consider that direct representation by means of horticulturists or scientists would serve no useful purpose, and so they would be represented at Washington only through the Diplomatic Service.

Mr. J. Smits, in a very racy address, emphasised many of the points made by Prof. Westerdijk and Mr. Taylor, and as he has travelled extensively in America, his remarks were of considerable interest. He stated that in 1919 a Dutch Deputation agreed to establish a quarantine house in America and to provide all necessary means for ensuring the cleanliness of horticultural subjects sent from Holland, but Dr. Marlott wanted 100 per cent. of safety, and was not prepared to accept the offer made by the Dutch officials, but, instead, desired to set up his own quarantine arrangements. Mr. Smits contended that the majority of the horticultural traders in America desired free importation of European horticultural products and that the Quarantine Order No. 37 was nothing less than a prohibition order. The only means of fighting this Order was to set up somewhat similar quarantine regulations against the import of American produce into Holland. Several other delegates spoke, and eventually, on the motion of Mr. E. A. Bunyard, it was agreed:—

"That this Conference, considering that every country has the right and duty to prevent plant diseases and parasites being introduced; considering, too, that the Quarantine system, as enforced by the United States, would in time result in complete prohibition, which is not justified; considering that European countries would have to adopt the same measures against U.S. agricultural and horticultural products (including fruits), if the present system is maintained; and further, considering that in such a case International Horticultural Trading would be so reduced as to be in danger of extinction; urges that the importation of produce from countries which have a phyto-pathological service should be free and guaranteed between these countries, which would reserve the right to issue rules concerning the importation of certain products; invites affiliated associations to communicate this resolution to their respective Governments and pledge themselves to press it with all their power; and decides that this resolution be communicated to the American Government by the F.H.P.I. Bureau."

Mr. Spaë referred to the Rome convention and urged that traders in every country should endeavour to secure the ratification of the arrangements and thus make them effective. He

suggested also that cut flowers should not require a certificate of health.

In connection with another item on the agenda the British delegates protested strongly against the proposed duty on British flowers sent to France. In defence, the French delegates stated that the French duty on flowers was imposed to prevent Italian produce from flooding the Paris market, and they considered that a duty of two francs per kilo, would not seriously affect the English trade, as flowers sent from England were always of such high quality that the small duty would not affect their sale. The Belgian delegation and also the Luxemburgers were equally strong in their protest against the French duty on flowers. Mr. Monro pointed out that enormous quantities of French flowers were exported to England; they had spent almost the whole of the morning in endeavouring to secure freedom of horticultural trade with America, and yet France was now proposing to impose a duty on the comparatively few British flowers which she received. Mr. Turbat stated that the French growers wanted protection against the "dumping" of Italian flowers, but when a question of imposing a duty arose, the French Government could not set it up against one nationality only. Finally, after a very spirited discussion, a resolution of protest was passed by all the delegates, except, of course, those representing France.

The third session of the Conference, held in the early part of the afternoon of April 21, was concerned chiefly with the question of dumping. Mr. Wesenberg said that he was sorry the Dutch Ministry of Agriculture had not yet decided to consider legislation against the dumping of Dutch horticulture produce in England. Mr. Leak stated that the British representatives had hoped for a favourable report to the protest made prior to the Conference because British traders felt the effect of this dumping very badly. In his own district there had been four sales of Dutch produce, and in as many weeks: five Roses were sold for 6d., an altogether impossible price and far below the cost of production, consequently the British traders, being the largest buyers of Dutch produce, protested very strongly against the practice of dumping. He moved that the Dutch Ministry of Agriculture be asked to put suitable regulations into force to prevent it. Mr. Wesenberg replied that all growers, great and small, had the same right to export, but numbers of small growers in Holland did not belong to the Dutch Exporters' Association, a body which was doing all it possibly could to prevent dumping, indeed, no member of that Association was allowed to sell produce at auction under a penalty of £400. Mr. Leak's motion was adopted, and supported by the Dutch delegates.

Reverting to the subject of plant diseases and quarantine arrangements, the Conference agreed that all countries with a pathological service should work out a method of procedure which might find general adoption.

A report on the condition of horticultural trade in Great Britain was presented by the Chamber of Horticulture, and, though brief, its contents appeared to be of great interest to the whole of the delegates present.

Arrangements for the conference to be held in 1923 next came under consideration, and Mr. Spaë, on behalf of Belgium, invited the *Fédération Horticole Professionnelle Internationale* to hold its conference at Ghent next year in connection with the great Ghent International Quinquennial Exhibition, on or about April 15. The conference accepted the invitation, and expressed the hope that the Ghent Exhibition would be a great success. Mr. C. Pynaert, of Ghent, was elected president for the ensuing year, and Mr. Ruys, Holland, vice-president. The president (Mr. Krelage) and the general secretary (Mr. Turbat) were heartily thanked for their services, and Mr. C. E. Pearson expressed the thanks of the British delegates for the courtesy extended to them and for the hospitality they had received throughout the conference proceedings. In a brief concluding speech Mr. Krelage returned thanks for the honour extended to him last year, and his pleasure in presiding over so large and representative an attendance.

MESEMBRYANTHEMUM AND SOME NEW GENERA SEPARATED FROM IT.

(Continued from page 214.)

C. FLOWER YELLOW.

6. *C. calculus*, N. E. Br. Growths globose (type D), 7-10 lines in diameter, light glaucous-green or chalky green; the old withered skin is very tough and of a pale brown, becoming blackish-brown with age. Calyx 5-6-lobed. Corolla 7-8 lines in diameter, expanding at night, closed during the day; tube $3\frac{1}{2}$ -4 lines long; petals 40-50 in 3-4 series, $3\frac{1}{2}$ -4 lines long, filiform-linear, yellow. Stamens exerted about 2 lines from the corolla-tube, whitish, with yellow anthers. Top of the ovary dome-like. Style very short; stigmas 6, filiform, greenish.—*M. calculus*, Berger, *Mesemb.* p. 289 (1908), Marloth, *Fl. South Afr.*, v. 1, p. 201, t. 49, f. B.

Van Rhynsdorp Div. Near Nieuwerust, Pearson 5515; near Bakhuis, Pearson 5471; Hardeveld, Marloth 4573; Mrs. Rood.

7. *C. Pageae*, N. E. Br. Growths 4-5 lines high and 3-5 lines in diameter, obconic, flattish at the top (type F), with the orifice sometimes slightly depressed, sometimes (in the very same plant) uniformly bright green, at others bright apple-green, with the sides and around the orifice of a rich purple. Flowers not seen, but figured in a drawing as being 4-6 lines in diameter and yellow, with the tips of the petals tinted with red.—*M. Pageae*, N. E. Br. in *Journ. Linn. Soc. Bot.*, v. 45, p. 86.



FIG. 121.—*C. NOPHYTUM GLOBOSUM*, N. E. BR. NATURAL SIZE.

Little Namaqualand. Near Garies, Burke.

The manner in which this species changes its colour in different years under cultivation (at least with me) is very remarkable. When the rich purple colouring around the orifice is present it is an exceedingly attractive plant, yet sometimes this is entirely absent; for example, in 1919 and 1920 the purple was present on my plants, yet during the hot sunny year of 1921 it was entirely absent on the very same plants.

CC. Flower of some shade of red, or perhaps whitish in *C. saxetanum*, colour unknown in *C. subrisum*. (Species 8-14.)

8. *C. globosum*, N. E. Br. (Fig. 121). Growths of introduced plants originally globose and about 5-6 lines in diameter (type B), becoming under cultivation slightly globose-obcordate (type M), and sometimes 1-1½ inch in diameter, of a slightly bluish-green colour. Corolla $\frac{1}{2}$ -1 inch in diameter, expanding in the morning, closing in the afternoon, scentless, funnel-shaped, with 40-50 petals in 3 series, white at the lower part and light pink at the apical part. Anthers yellow. Style 3-5 lines long, slender, with 4 filiform stigmas.—*M. globosum*, N. E. Br. in *Kew Bull.*, 1913, p. 119. *Lycoperidastrium soboliferum altius radicans*, etc. Burmann, *Rar. Afr. Pl.*, p. 22, t. 10, f. 2, probably belongs here.

Little Namaqualand. Near Garies, Pearson 5582, Pillans.

9. *C. jucundum*, N. E. Br. Plant forming branching stems with age. Growths pear-shaped in side view (type D), subglobose seen from above, glaucous-green, occasionally with a few dots of darker green when young, which disappear with age. Calyx 3-4-lobed, Corolla 8-11 lines in diameter, opening in the daytime; tube 4-5 lines long, apricot-coloured, petals 30-40 in 2-3 series, bright rosy-magenta. Anthers yellow. Style 4-5 lines long; stigmas 4-5, about 1 line long, greenish, equalling or



FIG. 122.—*C. NOPHYTUM MINUTUM*, N. E. BR. NATURAL SIZE; FLOWERS SMALLER THAN USUAL.

exceeding the stamens.—*M. jucundum*, N. E. Br. in *Journ. Linn. Soc. Bot.*, v. 45, p. 93.

Little Namaqualand. South of Bethany Drift, Pearson 6067.

The formation of stems with age is a marked character of this and the next species. Under cultivation the stems of *C. jucundum* spread over the ground, but under natural conditions are probably buried under drifting sand.

10. *C. subrisum*, N. E. Br. Plant developing branching stems with age. Growths 9-12 lines long, 7-8 lines in diameter, obconic, truncate at the top (type I), with the orifice depressed and somewhat resembling a smiling mouth, with a small dimple at each end, uniformly whitish-green. Flowers unknown.—*M. subrisum*, N. E. Br. in *Journ. Linn. Soc. Bot.*, vol. 45, p. 100.

Van Rhynsdorp Div. Near Atty's, Pearson 5466.

Of this very rare species a single plant was sent to Kew in 1911 by Prof. H. H. Pearson, which under cultivation increases very slowly. It is readily recognised by its habit of forming stems, and the resemblance of the depressed orifice to a smiling mouth.

11. *C. Wettsteinii*, N. E. Br. Growths 6-10 lines long, 6-13 lines in diameter, very broadly obconic, with the flat circular top often overhanging the sides (type H.), uniformly light bluish-green or rarely with a few scattered darker green dots. Calyx 3-5 lobed, whitish or pale reddish. Corolla 8-11 lines in diameter, remaining open irrespective of cloud or sunshine, scentless; tube longer than the calyx, dull orange-pink; petals of two kinds, the outer 17-38 in two series, widely spreading, bright rich magenta, becoming white at the base, shining; the inner erect at the mouth of the tube, $1\frac{1}{2}$ -2 lines long, linear-filiform, very acute, yellow or orange. Stamens all included in the corolla-tube below the inner petals. Style $\frac{1}{2}$ -1 line long; stigmas 4, erect, minute, about $\frac{1}{4}$ line long. *M. Wettsteinii*, Berger, *Mesemb.* p. 285 and 288, fig. II. (1908). *M. truncatellum*, Othner in *Gartenwelt*, 1907, vol. 11, p. 301, with fig., not of Haw.

Van Rhynsdorp Div. Near Bakhuis, Pearson 5469.

12. *C. minutum*, N. E. Br. (Fig. 122). Growths forming short branching stems with age, clothed with old sheaths; each growth about 5-6 lines long and $2\frac{1}{2}$ lines in diameter, obconic or subglobose-obconic, slightly convex at the top (type E.), with the orifice in a slight central depression, light bluish green or some-

what glaucous green, with or without a few inconspicuous scattered darker green dots. Calyx 4-lobed, whitish. Corolla 6-11 lines in diameter, expanding in the daytime irrespective of cloud or sunshine, scentless; tube slender, dull orange, or sometimes pale yellowish-white; petals of two kinds, the outer 3-5 lines long, widely spreading or recurved, bright rosy-magenta, shining, and the inner 1-1½ line long, ascending or spreading from the mouth of the tube, yellow, or some with magenta tips. Stamens included in the corolla-tube and hid from view by the inner petals. Style $\frac{1}{2}$ -1 line long; stigmas 4, up to $\frac{1}{4}$ line long, greenish.—*M. minutum*, Haw. *Misc. Nat.*, p. 21 (1803); *Bot. Mag.*, t. 1376; Berger, *Mesemb.*, p. 285 and 288, f. 65, I., copied from the *Bot. Mag.* *M. thecatum*, N. E. Br. in *Bot. Mag.*, t. 8595 A.

Van Rhynsdorp Div. Near Bakhuis, Pearson 5470, Pillans. Introduced by Masson in 1795.

When I described *M. thecatum* I considered it to be distinct from *M. minutum*, because the tube of the corolla was not exerted from the calyx, in the manner represented in the figure of *M. minutum*, and in the case of the latter, the formation of sheath-clad stems is neither represented nor described; but my plants of *M. thecatum* have now produced flowers with a corolla-tube nearly or quite as long and as much exerted from the calyx as is represented in the *Botanical Magazine*, and when the plant is more deeply set in the soil the stem-formation is not evident. Other characters being apparently the same, I have now no doubt that



FIG. 123.—*C. NOPHYTUM OVIFORME*, N. E. BR. NATURAL SIZE.

M. thecatum is identical with *M. minutum*. The extent of the exertion of the corolla-tube probably depends upon the temperature and amount of moisture received during the formation of the flower, as I have found a variation of these conditions to produce similar results in other species.

13. *C. oviforme*, N. E. Br. (Fig. 123). Growths subcylindric-ovoid or narrowly obovoid, 4-6 lines long and 2-3½ lines thick, very convex at the top (type A.), grass-green, minutely tuberculate or papillate all over, soft and pulpy, often enclosed in their old whitish or pale brownish skins. Calyx 6-7 lobed, included, or only the tips of the lobes exerted from the old skin. Corolla about 7 lines in diameter; petals about 30, stated to be pale magenta, but not seen in a fresh state. Style none; stigmas 6, about $1\frac{1}{2}$ line long, filiform. Capsule 2-3 lines in diameter, 6-valved, 6-celled, with small cell-wings, and broad marginal valve wings. *M. oviforme*, N. E. Br. in *Journ. Linn. Soc. Bot.*, v. 45, p. 95; and in *Gard. Chron.*, vol. LXX., p. 207, fig. 84, I-L.

Van Rhynsdorp Div. Hardeveld, Marloth: Mrs. Rood, 655.

I think it quite probable that the flowers of this species are sometimes white. The minute papilla-like tubercles on this plant readily distinguish it from all other species. *N. E. Brown.*

(To be Continued.)

THE NETTLE AS A FOOD.

THOUGH it is certain that your correspondent (see p. 170) is correct in stating that the Nettle was used for food in Scotland, I imagine few eat it in this year of grace. If we give credit to the astute Andrew Fairservice Nettles were forced 200 years ago, and the verse—

Cowe* the Nettle, stow* the Nettle,
Cowe the Nettle early.
Cowe it by the castle wa's,
Cowe it where the dew ne'er fa's.
Cowe the Nettle early—

is assurance that it was in common request long ago. It is also known to have been in repute as an assured specific along with Mugwort (*Artemisia vulgaris*) for girls in an anaemic condition. Moreover, I well remember how the matrons in my native village fed their pigs when food was scarce on boiled Nettles mixed with miller's dust and an occasional meal of brewer's grains. But in olden times it was as a herbal preparation that the Nettle, or, rather Nettles, for the Roman (*Urtica pilulifera*) and two varieties of *N. urens*, of which that with dark stems was held in the greater esteem, was used. That collection of ancient recipes, *The Garden of Health*, gives no fewer than 121 in which the Nettle either alone or in conjunction with other herbs is mentioned. The gathering and preparation of Nettle "crops," as the young shoots were called, might be a difficulty with many, but the verse of a 17th century poem shows how easy it is:—

Tender-handed touch a Nettle
And it stings you for your pains;
Grasp it like a man of mettle
And it soft as silk remains.

The Nettle is one of the ingredients in the "herb pudding" prepared and eaten in some parts of the North of England at Easter, the leaves of the Bistort (*Polygonum Bistorta*) being another. The latter is there known as Easter Ledges, which carries one back to the days when the Bistort was described as *Aristolochia rotunda* and which through many changes, of which Oister loyte is one, became the Easter Ledges of the present day. These are probably long forgotten substitutes for the bitter herbs eaten at the Passover season by Jews. The Mercury of Lincolnshire (*Chenopodium Bonus Henricus*) has similar laxative properties, and was certainly cultivated as the Flowery Dock in Scotland, old garden sites still being evidenced by plants in the vicinity. Spinach has in our time superseded these, but Spinach is probably not a whit better, and, indeed, I have frequently, when the crop has been overmuch gathered, substituted Scotch Kale, a vegetable possessed of similar properties, for Spinach. Purple Sprouting Broccoli is another valuable spring vegetable, less laxative than the above. The Scot up to a very recent period ate the pith of Cabbage stalks. Hereabouts it was called Casties, the Castocks of Burns:

Gif the Castocks, sweet or sour,
Wi' joctelegs they taste them.

Up to about 40 years ago the working-class in this locality decocted *Artemisia maritima* and drunk it in spring as a prophylactic, and for its tonic properties, and another common herb in use particularly among vagrants was *Agri-monia Eupatorium*, which they infused like tea and consumed when bilious. Those who know Thoreau's *Walden* are aware how he lived for a time, annually, on what he produced by his own labour in six weeks, and made a satisfactory dinner on Purslane alone on one occasion. One need not experiment as he did and yet find a vegetarian diet competent to meet all the wants of the body alike for food and physic. One of the most distressing afflictions that overtake old men may be kept, if not away, at least under, by a purely vegetable diet in which decorticated barley, and if one cares for them, Dandelions, form a daily portion. Whether so much meat as is now usually consumed has anything to do with the origin of the above functional disease it would be rash to say, but the resort to a vegetable diet has certainly a great effect for good. R. P. Brotherston.

* Cowe and stow are old Scots for "cut."

THE GRAPE VINE.*

(Continued from page 215.)

THE pruning should be done at least a month before starting the vines into growth, as soon as the wood is ripe and when the leaves are down. Cut away all the current year's wood to one or two buds, and thus keep the spurs within reasonable limits. One bud is sufficient for the production of a good bunch on most varieties; but there are others, so called "shy bearers," which do not always throw a bunch from the basal bud. Duke of Buccleuch is particularly shy in this respect. This difficulty may be got over successfully by leaving eight inches of the current year's wood instead of one-quarter inch, and then removing all the buds except one or two at the base. This means that all the reserve food in the last season's wood will be available for the buds left. In the spring, when the sap rises, these shoots are tied firmly to the wires. The young shoots can be trained to these the following spring, and by putting on a base tie after the shoot is about four inches long it saves a lot of work when tying down the laterals later. During the following season this reserve food is all used up by the plant. By the end of the season, when pruning time comes round again, this wood is thin and starved. It is then cut flush with the current year's wood, and the wound will heal over completely the following season, whereas in the short method the wound seldom heals or calluses over properly. None of the varieties in cultivation are shy bearers in their young state, because the whole of the vine is of recent growth and can be pruned to a single bud.

The spurs should never be closer than twenty inches apart on alternate sides of the stem. It is impossible to get large, well-finished bunches without large leaves, and this cannot be accomplished with spurs every few inches. For instance, we have some old rods of Black Hamburgh, with spurs two feet apart, on which I have seen leaves measuring seventeen inches when the vines were in flower, and the leaves easily cover the space when at full maturity.

Only one shoot should be allowed on a spur, and each of these shoots should be capable of carrying a bunch. It is only when there is plenty of room between the spurs that fully developed leaves are found, without overlapping each other. Though reserve food is found in the spurs, it is not readily available. This is proved by the fact that a bud rising from the spur takes a year or two to fruit, and one from the stem takes much longer, while a bud from the current year's wood will fruit the following year.

When the rods have been pruned, they should be thoroughly cleansed and dressed with Gishurst compound; at the same time the woodwork, glass, and all bare surfaces in theinery should be scrubbed with hot soapy water, with a little paraffin added, to destroy any vermin lurking in the crevices.

Remove about one inch of soil from the surface of the border. At all events, sweep away all loose particles of inert soil and the loose bark taken from the rods. Give the border a dressing of some suitable fertiliser; the strength of the vines the previous year is a good guide to the quantity required. Fork this material in lightly, and add about one inch of fresh, finely chopped loam to the border. The soil in the border should be tested periodically to see if it is sour, and, should it be found to be acid, dress the border with lime.

In starting the vines into growth, keep the front ventilators closed, using the top ventilators only. The night temperature should be about 45°, with a rise of 10° during the day, when fire heat is used, but it may be allowed to rise more with solar heat. The rods may be syringed with tepid water in the mornings till the buds burst evenly over the vine. If there is danger of the top buds in young canes developing far in advance of the

* A lecture delivered by Mr. Malcolm Macnaughton, Seane Palace Gardens, Perth, in the Technical College, Dundee, before the members of the Dundee Horticultural Association.

others, let down the cane to a horizontal position, remove all superfluous buds as they appear, and reduce the buds to one on each spur.

As soon as growth is fairly started, raise the night temperature from 50° to 55°, with a gradual increase to 65° in the daytime. I discontinue syringing and damping as soon as the vines are breaking evenly. When there are enough leaves beyond the bunch to cover the trellis, without the leaves touching one another in the space between the rods, pinch out the points of the shoots; also pinch the leading shoots on young rods when they have made four or five feet of growth. The bunches should be removed from this shoot as soon as they are seen. Pinch out all laterals and tendrils and also long, straggly shoulders from the bunches, leaving nothing but the primary leaves. This directs the sap to the leaves and bunches. This stopping does not affect the growth of the vine. The leaves are larger and better able to do their work; at the same time root action is steadied, causing short, branchy rootlets to develop instead of long, spongy, soft roots, which generally die off at a critical time.

Many shoots will develop two bunches, and the better one should be retained.

Care and patience are required when tying the shoots to the trellis, for they are easily removed from the sockets at this stage. It is better to draw them down a little at a time till they are in position.

When the vine comes into flower, admit air carefully during the day, especially in the morning. No harm will accrue if the temperature rises to 90° with top air admitted. Guard against a sudden lowering of the temperature during the forenoon, even for a few minutes, by the sun disappearing behind a cloud, the reason being that, when the temperature falls suddenly, the stomata of the leaves close, and growth is practically arrested for the day. A check of this kind is not good for vines at any time early in the season, but it is fatal so far as the setting of the flowers is concerned.

In pollinating the flowers, a little jerk will occasion the dislodgment of the cap or covering of the flower, causing the pollen to be dispersed. With some free setting varieties this is effected naturally, aided only by the proper atmospheric conditions. The flowers of other varieties are more difficult to set, and this difficulty has to be overcome by artificial impregnation of the flowers. This is best accomplished at mid-day by gently tapping the rods and holding a piece of glass under a bunch of a free setting variety to catch the pollen while the bunch is being shaken. The pollen is then taken directly to the soy setting varieties and blown lightly over the bunches on to the stigma, these bunches having been shaken previously to remove the cap from the flowers, leaving the pistil exposed. If this is done two or three times, it generally proves efficient.

In bright weather, and if the atmosphere is dry, damp the house down after the flowers have been gone over. It is sometimes necessary to thin the bunches, especially when the rods are too close together, or where there are too many spurs on the rod. It is not the number of shoots the grower has to consider, but the number of leaves or amount of leaf surface, in deciding the number of bunches the vine is able to carry. If the rods are three feet six inches apart and twenty inches between the spurs it is quite safe to leave a large bunch on each shoot, provided the vines are in good health.

THINNING THE BERRIES.

As soon as the flowers are set thin the berries before they are as big as Radish seeds. Free setting varieties I have thinned before the flowers opened with the best of results. Clip out what may be termed side berries and those in the centre of the bunch, starting at the lower end of the bunch and working to the shoulders, taking care not to damage or rub the berries. A tiny mark made at this time may develop into an ugly blemish.

At this stage everything should be done to help the bunches to develop rapidly. Keep the

temperature on the high side during the day, with a little top air admitted, and damp the house several times daily for a week after the berries have been thinned, so that the bunches will spread themselves out and the stalk of the berries lengthen and strengthen as much as possible, for there is no use having big bunches if half the berries have to be removed. Aim at having a bunch that will retain its firmness and shape when finished and placed on the table. It is best if the thinning can be done at one operation, so that the berries can place themselves in position as they grow. We do not tie up the shoulders of the bunches unless they are very heavy, but prefer to go over the bunches occasionally and ease the berries with a smooth, round-pointed stick or pen-holder. Commence at the top of the bunch and work the berries upwards, regulating them as much as possible; this helps them considerably in swelling, care being taken not to rub the bunches with the hands or the hair, as this often spoils the bloom and may disfigure the fruit. As the berries begin to swell, reduce the temperature and give an abundance of air, using both top and bottom ventilators, leaving them open a trifle during the night, even in dull, cold weather, when fire-heat has to be used. Discontinue damping theinery, unless in the forenoon, if the air gets very parched.

(To be Continued.)

FRUIT REGISTER.

APPLE RUSHOCK PEARMAIN.

THIS Apple is of the russet family and it is surprising to me it is not more generally grown, as I feel certain it would find a ready and profitable market.

The fruit is about medium size, some two and three-quarter inches in width, and about the same in height; conical and handsomely formed. The skin is a deep yellow colour, almost entirely covered with cinnamon-coloured russet, with a brown tinge on the side next the sun. The eye is large and open, with broad, flat segments, which fall off as the fruit ripens. The stalk is short and stout and inserted in a deep cavity. The flesh is yellowish, firm, crisp and juicy, with a brisk sub-acid and sugary flavour.

It is a dessert Apple of first-rate quality, keeping sound until the end of April. It was raised by Chas. Taylor, a blacksmith, at Rushock, in Worcestershire, about the year 1821. *Pomona*.

APPLE WINTER PEARMAIN.

Pomona's note on this Apple on p. 185 confuses two totally distinct varieties. Old Pearmain, which, according to the *Fruit Manual*, dates back to the year 1200 is now almost extinct. A few specimens of it were shown at one of the Royal Horticultural Society's meetings four or five years since, from the neighbourhood of Orpington, Kent; possibly the trees from which they came are still in existence. I know of only two other trees, which are now getting very weak. This variety is far superior in quality to Duck's Bill or Winter Pearmain, also called Sussex Scarlet Pearmain, and does not keep so long in condition, the end of October being about the limit of its season. It is a pity such a good flavoured Apple should have been allowed to pass out of cultivation. Duck's Bill is very much inferior both in flavour and texture, but has the merit of keeping several months longer than Old Pearmain. W. H. Divers, V.M.H.

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Chorleywood Cedars.—I read with great interest Mr. Stacey's note, on p. 56, about the Chorleywood Cedars, and the correspondence arising from it on pp. 81 and 111. These trees were under my observation from 1887 till about three years back. I am afraid I cannot contribute any information as to their age. Several times during the past thirty

years attempts have been made to arrive at the ages of these particular trees. As Sir Herbert Maxwell points out, there is no certain evidence of the exact year that the Cedar of Lebanon was introduced to the British Isles, and, no doubt, the old writer, John Evelyn, was about the first to bring this tree to the notice of planters in Britain. It is my opinion that batches of plants were raised about that time, and that they were distributed to some of the great landowners of the period, and possibly the oldest and largest trees in exist-

wood trees are of greater age than 155 years. The feature of the largest Chorleywood Cedars are the huge limbs, forming straight boles, say, from 10 feet to 12 feet from the main trunk. I quote a description taken from J. C. Loudon's *Arboretum et Fruticetum Britannicum*, 1838, Vol. IV., page 2426, as follows:—

"REMARKABLE EXISTING TREES.

"At Chorleywood, near Rickmansworth, on an estate of the Duke of Bedford, are, near the house, eight remarkable Cedars, the largest of which has a trunk 18 feet in circumference,



FIG. 124.—ONE OF THE LARGEST SPECIMENS OF CEDRUS LIBANI AT CHORLEYWOOD CEDARS.

ence are from that particular distribution. I mention this as Mr. Baker, Bayfordbury, refers to the Cedar seed planted at Enfield in or about 1670. Mr. Baker also mentions the Cedars at Bayfordbury, one of which has a girth of 20 feet and is 97 feet in height, and this in the short time of 155 years. I think 300 years from the time of planting quite covers the time of any tree of Cedar of Lebanon in this country. The soil and sub-soil make a great difference in the growth of Cedars, as of other trees not native of the country. For instance, Mr. Baker has mentioned a height of 97 feet in 155 years. This exceeds in height any of the Chorleywood Cedars, the highest of which in 1907 was 92 feet. It is quite certain the Chorley-

dividing into 12 large limbs, from which spring 32 branches of a size fit to be measured as timber and containing 613 solid cubic feet."

This is, I think, the tree referred to by Mr. Stacey as measuring 25 feet in girth 3 feet from the ground. This tree, at 4 feet from the ground, I think, measures 30 feet, as it bulges out at that part. The Chorleywood trees have suffered much from heavy snows during the past 50 years. The great snowstorm of January, 1881, did much damage to them, and huge limbs have come away in snowstorms since. Very great expense has been incurred in past years in trying to preserve these splendid trees by chains laced high up amongst the limbs and iron hoops to keep them from snapping by the weight of snow.

My opinion is it would have been better to have left them alone, as the chains and hoops have tightened and cut into the bark, so that, when snow falls, they prevent the huge limbs from swaying and releasing the snow. I have seen the branches break many times, just where the chain and the hoop clasped the limb. The heights of seven of the large Cedars at Chorleywood in 1907 were 92 feet, 82 feet, 87 feet, 85 feet, 81 feet, 84 feet, and 70 feet respectively. *William Waterman, Hollydene, Elsenham, Essex.*

I have been greatly interested in the various letters concerning *Cedrus Libani*, many of which have really been answers to my original enquiry. I have not ventured to give the age of our big Cedars, but I wanted particulars, so far as possible, of large specimens and some data that might lead to reliable information concerning the introduction and planting of the finest specimens in the country. I am greatly obliged to you for your help and for the help of your correspondents. I enclose a sample twig to show the slow rate of growth of *Cedrus Libani*, and another photograph (see Fig. 124) showing the largest of our original seven trees (a four and a three). The height of the big specimen is from 100 to 110 feet, and this tree is visible from miles around. Our soil dries quickly, as we are on gravel and chalk. If you can find space to illustrate our giant, I shall be grateful, and it would seem to be a fitting end to the discussion. *Geo. W. Stacey, Chorleywood Cedars, Herts.*

Greenhouse Blinds.—In your issue for April 22, p. 202, Mr. F. Crandon asks whether it is not much better to have such blinds as the wooden chain lath blind, that may be kept in its place all the winter, to save the little extra time that it takes to refix the cotton-canvas blind. The lath blind is undoubtedly a great protection during severe weather, where a high temperature is required in the houses, but beyond that it has very little to recommend it. I much prefer the thick cotton-canvas blind for the flowering-plant house and stove during the summer, as it gives, in my opinion, a much better shade and a cooler temperature, when the plants need it. *T. Pateman, The Node Gardens, Welwyn.*

Summer Time.—In your issue of April 1, page 145, the Minister of Agriculture states that there is no obligation on farmers or their labourers to revise their customary hours of work according to the sun. May I point out that they all have to fall into line with the other workers, for various reasons. Cows have to be milked an hour earlier for the farmers to catch the trains, as both the retailer and the public require milk an hour earlier. Butter and eggs have to be taken to market by the clock, and the market gardener has to have his goods in the market or at the shops by the clock, not by the sun. All workers on farms, market gardens, and private gardens have to make their after-work arrangements by the clock if they wish to play cricket, go by train or to any place of amusement. My experience is they do not like to be at work after other people have finished labour. They quite realise that they have to work late in the hay and corn harvests. From what I gather, the grievance is that on farms, market gardens, and private gardens there is always work to be done after the usual working hours, especially on Saturday afternoons and Sundays. The one hour on those days makes a lot of difference to the farmer and private gardener. In large gardens, where there are men in the botch, it does not matter so much. *A Derbyshire Gardener.*

Effect of Last Summer's Drought on Hardy Bulbs.—Never do I remember the spring bulbous plants to have flowered with greater freedom than this season. The stems, and particularly those of Narcissi and Daffodils are much longer and stronger than usual, and the flowers very much larger and more beautiful, which clearly proves what a good effect the great drought of 1921 and long rest the plants enjoyed had in thoroughly ripening

the bulbs, as no manuring or other assistance has been given them. I also notice that *Amaryllis Belladonna*, *Habranthus*, bulbous Irises, and other bulbous plants are commencing to grow with far greater vigour than usual, and promising very fine flowers during 1922. *R. H. C., Weston Park Gardens, Stevenage.*

Musa Cavendishii.—Are we to understand correctly from the note by Mr. Thos. E. Funnell on p. 202 that the bunches of fruits produced by Mr. James Ollerhead, weighing as much as 100 to 112 lb., were of *Musa Cavendishii*? It appears to me to be more likely that the species was *Musa sapientum*, and that the smaller variety alluded to was *Musa Cavendishii*. Sir Joseph Paxton observed that bunches might be produced from 15 to 30 lb. I admit that larger bunches are likely to be produced when the Bananas are planted out than when grown in tubs. The weight I quoted was of fruits only—"120"—and did not include the stem. *J. Snell, Sunderland.*

Blanching Celery.—Mr. Owen Thomas' remarks on blanching Celery with paper collars (see p. 171) prompts the query: "Is it possible to produce well blanched, sweet, crisp, nutty-flavoured Celery from August to May with paper collars instead of the usual earthing up?" Celery is very susceptible to frost, and a paper collar is a thin garment against the frequent attacks of 20° to 30° of frost in winter. Celery in many gardens is a most important and expensive crop to cultivate. Information on this matter should interest many growers and readers. *John Bates, Meaford Gardens, Stone.*

Aquilegia Stuartii.—In Mr. Arnott's note (p. 192) upon *Aquilegia Stuartii*, he observes that it is said to be a hybrid between *Aquilegia glandulosa* and *Aquilegia olympica*, and suggests that there are grave doubts as to the truth of this statement. There need be no doubt at all as to the parentage of this lovely Columbine. I had the privilege of acquaintanceship with the late Dr. Stuart, and often visited his garden at Chirside. He told me the parentage of *A. Stuartii*, and its history is confirmed in the paper upon "A Few Notes on Reproduction in Hardy Plants," which he contributed to the International Conference on Hybridisation held in London in 1899 under the auspices of the Royal Horticultural Society. His paper is published in full in the "Hybrid Conference Report" (*Journal R.H.S.*, Vol. XXIV.), and deals fully with the story of *A. Stuartii*. The parentage is *A. Witmannii* × *glandulosa*. I have seen several stories of the history of *A. Stuartii* in various gardening journals, all of which have been wrong. Every student of hardy plants can obtain the true history in the *Journal* to which I have referred. That is surely authoritative, and should settle the matter once and for all. Many writers, however, seem to copy each other without any verification of the statements that are made, and errors are perpetuated in consequence. Like Mr. Arnott, I have lost my stock of *A. Stuartii*, and I am afraid it is not now to be procured true from nurserymen. The cross, however, might be repeated in the hope of creating, *de novo*, the hybrid again. It was the gem of the blue and white *Aquilegias*, and its great sapphire blossoms with their snowy settings were flowers to be remembered. *George M. Taylor, Edinburgh.*

Carnation Bis Greenfield.—Mr. W. Carter wonders why this variety is not more widely grown (see p. 158), and I agree with him. I have grown it since it was first introduced by Messrs. Peed and Son, and consider it the best Scarlet Carnation yet introduced. The plant has a wonderful constitution: it makes strong growths and long, stiff stems, whilst the calyx does not split. The flowers are as large as those of a Malmaison variety and they have a lovely Clove scent. Although this variety does not flower quite so early as some of the Enchantress type, it blooms at a time when Carnations are most needed. I am sure when this variety is better known it will be found in every collection of good perpetual Carnations. *F. J. Cubberley, Tatton Park Gardens, Knutsford.*

SOCIETIES.

MIDLAND DAFFODIL.

(Continued from page 217.)

AMATEURS' CLASSES.

The collection of twenty-four varieties of Daffodils, which gained for Miss HINCHLIFF, Inston, Messrs. BARR AND SONS' Daffodil vase, offered as first prize, was a particularly praiseworthy one, not only for the quality of the flowers, but also for their pleasing arrangement. A few of the best varieties were *M. M. de Graaf*, *Madame de Graaf*, *Barrii*, *Bullfinch*, *Poeticus Horace*, *Mermaid*, and *Tazetta Grand Monarque*; 2nd, *R. H. DARLINGTON*, Esq., *Potter's Bar*; 3rd, *Rev. R. H. WILMOT*, *Worcester*.

Mr. DARLINGTON won first prizes in classes for (1) 6 *Trumpet varieties*, (2) 6 *Incomparabilis varieties*, (3) *Barrii varieties*, (4) 6 *Leedsii varieties*, and (5) *Poeticus varieties*.

Messrs. Cartwright and Goodwin's silver vase, offered for six varieties of Daffodils, was won by Miss V. WARREN with a choice half-dozen flowers.

The Birmingham Botanical and Horticultural Society's medals were awarded as follows:—Classes 1-30: Silver medal to Mr. J. LIONEL RICHARDSON, with 112 points; bronze medal to the DONARD NURSERY Co., with 89 points. Classes 16-30 and 31-40: Silver medal to Mr. J. LIONEL RICHARDSON, with 66 points; bronze medal to the DONARD NURSERY Co., with 64 points. Classes 16-30 and 41-49: Silver medal to Mr. DARLINGTON, with 71 points; bronze medal to Mr. W. F. M. COPELAND with 42 points.

AWARDS OF MERIT.

Magnolia.—A beautiful Eucharis-like Giant Leedsii of great purity, with a prettily frilled cup. Exhibited by Messrs. GEORGE MUNRO, LTD., Covent Garden, London.

Poeticus Coronation.—A charming flower, with a pure white flat perianth and a rich crown, edged with orange. Exhibited by Messrs. BARR AND SONS, Covent Garden.

Glorious.—A robust Tazetta variety of good size, pure white, with a bright orange-coloured cup. Exhibited by J. LIONEL RICHARDSON, Esq., Waterford.

Brightling.—A strong growing Incomparabilis variety, with a pale yellow perianth and a very deep orange-coloured cup. Exhibited by the ANGLESEY BULB GROWERS' ASSOCIATION, Llanfair, P.G., Anglesey.

Sunrise.—Delicate white perianth and a rich orange-coloured crown. Exhibited by the ANGLESEY BULB GROWERS' ASSOCIATION.

Mrs. Percy Neale.—A bi-colour Incomparabilis. Exhibited by W. F. M. COPELAND, Esq., Southampton.

Everest (see Fig. 116).—A refined, delicate white Trumpet variety. Exhibited by the DONARD NURSERY Co.

Orange Glow.—An Incomparabilis, with a broad, flat perianth and a deep orange-frilled cup. Exhibited by Messrs. R. H. BATH, LTD., Wisbech.

HONORARY EXHIBITS.

Gold medals were awarded to Messrs. BARR AND SONS, Covent Garden, for an extensive display of Daffodils, including many new varieties, and the DONARD NURSERY Co., Newcastle, Co. Down, for a large group of Daffodils, consisting principally of Trumpet varieties.

Silver gilt medals were awarded to Messrs. R. H. BATH, LTD., Wisbech, for Daffodils, and the ANGLESEY BULB GROWERS' ASSOCIATION, Llanfair, P.G., Anglesey, for Daffodils.

Silver medals were awarded to J. LIONEL RICHARDSON, Esq., for Daffodils; W. F. M. COPELAND, Esq., Southampton, for Daffodils; and Messrs. CARTWRIGHT AND GOODWIN, Kidderminster, for Daffodils.

A bronze medal was awarded to H. G. HAWKER, Esq., Ivybridge, Devon, for Daffodils.

MANCHESTER AND NORTH OF ENGLAND.

APRIL 6.—*Committee present*:—The Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, B. J. Beckton, J. Birchenall, A. Burns, A. Coningsby, D. A. Cowan, J. C. Cowan, J. Cypher, Dr. R. N. Hartley, J. Evans, W. Giles, J. Howes, A. Keeling, J. Lupton, D. McLeod, J. McNab, L. W. Thompson, and H. Arthur (secretary).

AWARDS.

FIRST-CLASS CERTIFICATES.

Odontoglossum crispum Royalty. A remarkable variety of the Premier type; the sepals and petals are very broad and beautifully fringed; the large lip is also fringed. *Dendrobium Cybele*, West Point var. A fine variety of the type. *D. Cybele album* magnificum. A large white flower of fine shape. *Brassolaelio-Cattleya Lady Rachel* (B.-C. Queen Alexandra × B.-L.-C. Veitchii). A large flower with white sepals and petals; the lip is white, with the lower half coloured deep purple. *Odontoglossum crispum* Iron Duke. A large white flower of grand shape, heavily blotched deep red. From S. GRATRIX, Esq. *Odontioda Alcazar* (Odontioda Hippolyta × Odm. L'Empereur). A deep claret-purple coloured flower of perfect shape. *Odontoglossum crispum* Athertoniae. A very fine variety. Odm. Duke of York (percultum × illustrissimum). A flower of fine shape; the sepals and petals are deep reddish-brown and the lip of the same colour with a white tip. From Mrs. GRATRIX. *Odontioda Cilleham Flammea*. A very pretty variety deep scarlet in colour. *Odontioda Laura superba*. Deep reddish-brown flower of fine shape and substance. Odm. Llewellyn var. Mrs. Hanmer (amabile splendens × Georgius Rex). A large reddish-purple flower with rose-coloured margin. From A. HANMER, Esq. *Cymbidium Castor* var. claytoniensis. A large flower of fine shape. *Cymbidium Alexandri Imperial Prince*. A large, rose-coloured flower of fine shape. From the Rev. J. CROMBLEHOLME. *Cypripedium Alcar* (Alciadias illustris × Carola). A large well-shaped flower, the dorsal sepal showing a preponderance of white. From Dr. CRAVEN MOORE.

AWARDS OF MERIT.

Cattleya Irene, West Point var., Odm. crispum Cygnet, *Dendrobium* Mrs. S. Gratrix, *Cypripedium* Gold Mohur. From S. GRATRIX, Esq. *Sophro-Laetia-Cattleya Adelina* var. *Dorabella*. From Mrs. BRUCE and Miss WRIGLEY. *Cypripedium Thais*, Edgemoor var. From A. HANMER, Esq. *Cypripedium Olympus* The Secretary. From Dr. R. N. HARTLEY. *Cymbidium Elfin* (Parishii Sanderae × Pauwelsii). From Col. Sir J. RUTHERFORD, Bart.

AWARDS OF APPRECIATION: FIRST-CLASS.

Odontoglossum crispum May Blossom. From S. GRATRIX, Esq. *Miltonia Sanderae* var. *Painted Lady*. From Capt. W. HORRIDGE.

GROUPS.

MESSRS. ARMSTRONG AND BROWN, Tunbridge Wells, were awarded a Gold Medal for a magnificent group of Orchids in great variety.

Mrs. BRUCE and Miss WRIGLEY, Bury (gr. Mr. A. Burns), staged a group for which a large Silver Medal was awarded.

The Rev. J. CROMBLEHOLME, Clayton-le-Moors (gr. Mr. E. Marshall), was awarded a Silver Medal for a group of Cymbidiums in variety.

Col. Sir J. RUTHERFORD, Bart. (gr. Mr. J. Lupton), was also awarded a Silver Medal for a group. MESSRS. CYPHER AND SONS, Cheltenham, staged a collection for which a large Silver Medal was awarded.

NATIONAL PRIMULA AND AURICULA.

(SOUTHERN SECTION.)

APRIL 25.—The annual show of the Southern Section of this old-established Society was held in conjunction with the R.H.S. fortnightly meeting. Time was when this function was an important horticultural event, but for many years past the show has assumed very small proportions and with the apparent apathy shown

by the executive, there are but small prospects of any return of the Auricula to its former position as an exhibition flower. The few exhibits staged were really beautiful specimens of the fascinating Auricula, but they were painfully few. A great number of the many visitors to the hall came, in due course, and inspected the exhibits, but there was nothing to assist them, except the very meagre statement on the entry cards of a few classes, in their evident anxiety for enlightenment.

FIRST-CLASS CERTIFICATES.

Auricula Glow.—A very beautiful Alpine Auricula of rich crimson-carmine colour and golden centre. Shown by Mr. JAMES DOUGLAS.

Primrose Clarkson.—This is a free-flowering, rather dwarf single Primrose of medium size and rosy-lake colouring with an orange eye. This and the two following were shown by Mr. G. W. MILLER.

P. George.—Similar in habit and type to the foregoing. The colour is a clear lilac, and it has a small orange eye.

P. Lingwood Beauty.—A larger single Primrose of attractive rosy-purple colouring.

COMPETITIVE CLASSES.

The principal exhibitor of Auriculas was Mr. JAMES DOUGLAS, Great Bookham, who won the first prizes for (a) 12 Fancy, (b) 12 Alpine, (c) 12 Show, and (d) 6 Show varieties. His outstanding plants were (a) Lothario, Jupiter and Annot Lyle, a beautiful Rose; (b) Day Dream, Picotee, and Glow (see awards); (c) and d) Blue Eyes and Gleam, a gorgeous golden flower with a broad white eye.

Mr. J. T. BENNETT-POE won first prizes for (a) 6 Alpines, (b) 4 Alpines, (c) 1 white-centred Alpine, showing a good specimen of Argus, and (d) 1 gold-centred Alpine, with Muriel. His Alpines were of high merit and included extra good plants of Argus, Muriel and Golden Dustman.

The only collection of Primulas and Auriculas was by Mr. G. W. MILLER, and he was awarded the first prize for an interesting and comprehensive exhibit. Mr. MILLER was also awarded all the first prizes for Primroses and Polyantheses. He showed exceedingly good plants in all the classes, his 6 double-flowered Primroses and one plant of Clarkson Gem, a rich yellow, with orange centre, were all very beautiful.

DEESIDE FIELD CLUB.

UNDER the general presidency of the Marquis of Aberdeen and Temair, who was accompanied by the Marchioness, the annual meeting of this club was held in the Town Hall, Banchory Ternan, Kincardineshire (a pretty little town situated on the bank of the Dee, and some 18 miles from Aberdeen), on Saturday, April 15. Despite the tempestuous weather, there was a magnificent attendance, and the greatest enthusiasm prevailed. Mr. W. Murdoch, Logie Mar, Banchory, secretary and treasurer, submitted the annual report. Substantial progress, it was pointed out, had been made during the past year—the membership had doubled, activities had developed, enthusiasm had grown, the financial position had improved, the club's policy and methods had stood the test, the main difficulties had been overcome, and they had now no fear for the future. Such was the gist of the second annual report.

In his opening remarks, Lord Aberdeen reviewed the principal events of the past year, and made special reference to the Bay of Nigg, a beautiful spot situated near the entrance to Aberdeen Harbour. His lordship characterised the bay as a delightful and attractive asset to Aberdeen and warmly praised the work of those now making an effort to make this magnificent asset more popular and its beauties and charms better understood and developed. On the motion of Miss Burnett Ramsay, Banchory Lodge, seconded by Mr. J. S. Davidson, O.B.E., Currie, Cults, the report was unanimously adopted.

Office-bearers were then appointed, and were their names given here, it would simply include members of the leading families in Aberdeen-

shire and Kincardineshire, scientists, university professors and lecturers. Baron Bentinck, seconded by Mr. J. C. Thom, proposed the appointment of Mr. Alex. Macdonald, M.A., Aberdeen, as recorder and editor. The summer excursions were fixed to take place on the second Saturday of each month, with the exception of July and August, when the date will be the second Wednesday. Lord Aberdeen suggested an excursion to the old castle of Coull and Craigievar, and the secretary mentioned a suggestion by an absent member in favour of the old castle of Birse and Finzean, the residence of Mr. Joseph Farquharson, R.A. Both suggestions were favourably received, and will be included in the itinerary.

After tea, members took advantage of the opportunity given by Miss Burnett Ramsay to visit the beautiful grounds and gardens at Banchory Lodge. Regret was expressed at the absence, through indisposition, of Dr. Bremner, Aberdeen, who was to have given a geological demonstration.

EAST ANGLIAN HORTICULTURAL CLUB.

AT the April meeting of this club a very instructive and lucid paper on "Cyclamen Culture" was given by Mr. F. J. Endersby, gardener to J. H. Gurney, Esq., Keswick Hall, Norwich. Mr. Endersby has gained much local reputation as a successful cultivator of this flower and for the numerous prizes he has won with them at local shows. There was no one point from seed sowing to flowering and then growing the plants on again that he did not touch upon.

One great point Mr. Endersby emphasised was that at no stage in their culture did he believe in drying off the corms; experience had taught him that such a method was not the way to secure the best results.

As an evidence of his cultural skill Mr. Endersby brought to the meeting a wonderful collection of plants of varied ages, and showing diversity of colour and form in their flowers. The best of the collection was a variety with flowers of a deep, crimson self colour; the plant was eighteen months old from seed sowing and yet measured over two feet in diameter and carried over a hundred fully developed flowers. Mr. Endersby received a Cultural Certificate for his plants and a hearty vote of thanks for his paper.

FALMOUTH SPRING SHOW.

A FLOWER show in Cornwall, and especially a spring flower show, differs considerably from any held elsewhere in this country. At Falmouth, on April 19 and 20, in a collection shown by HOWARD FOX, Esq., of that town, Citrons, Oranges, Bananas (*Musa japonica*) in bud, Bamboos 25 feet long, large fragrant branches of *Cytisus elegans*, *Viburnum rugosum*, *V. Carlesii*, *Eriostemon ericoides*, and similar plants were a striking contrast to the subjects to be seen at meetings of the Royal Horticultural Society.

Australian plants have been grown for years, and it is not necessary to go to Cornwall to see these, as the beloved "Wattle" of the Australians flourishes in sheltered spots in other parts of the country, *Acacia Baileyana*, and *D. dealbata* sometimes measuring 15 feet or more in height and presenting a fine picture when in blossom in the open.

At Falmouth some half dozen private exhibitors sent Acacias from their gardens, while the local nurserymen, Mr. ROSE and MESSRS. GILL AND SON, showed *Rhododendrons*. Acacias and other plants which flourish out of doors in the neighbourhood; a fine specimen of the white Himalayan *Rhododendron cilicalyx*, which opens flushed with rose, was a very fragrant attraction.

The garden lover in Cornwall is encouraged by climatic conditions, but cultivation is not superior in the case of Roses and fruit trees. Certain growers, however, exhibited some of the finest flowers of Anemones imaginable. The Cornish gardener is very conservative; for instance, while the classes for rare flowers were

fairly well filled, not a single competitor came forward for the £4 offered in prizes for Carnations. Amateur growers of Carnations here, as elsewhere in the country, do not bring out their blooms, and even at the British Carnation Society's show, held at the Horticultural Hall in March, some £25 worth of prize money went begging.

In the class for decorative pot plants, arranged on a space of 100 square feet, the winner, Mr. J. C. BURROW, gardener at the Falmouth Hotel, had a magnificent specimen of *Iris japonica* in full flower, with a promise of ample blossom to follow; *Schizanthus*, *Diplacis*, *Abitulons*, and *Senecios*, flanked by *Phoenix rupicola*, were other subjects employed. Mr. R. GILL, gardener to the Falmouth Corporation, won second prize, his group including *Schizanthus*, *Primula malacoides*, and *Rhododendron Pink Pearl*.

Non-competitive exhibits were a feature of the show. These included a choice lot of new *Narcissi* from Mr. J. C. MARTIN, who recently secured an Award of Merit for *Silver Chimes*: his spikes exhibited here carried 6 or 7 flowers each. Messrs. R. VERTCH and SOX, Exeter, brought plants which flourish in Cornish gardens, noticeably, the brilliant *Correa splendens*, *Viburnum Carlesii*, *Prostanthera rotundifolia* with purple bell-like flowers; and *Tremandra verticillata*. Roses from the Devon Rosery, Torquay, and Carnations of the Perpetual varieties, which do so well in the open here as elsewhere in England, came from Messrs. ALLWOOD, BROTHERS, Hayward's Heath, and Messrs. STUART LOW and Co., Enfield.

Hybrid Orchids were also shown by the latter firm.

The exhibition was opened by the Rev. BOSCAWEN, an enthusiastic horticulturalist, who in his opening address advised his audience to take up gardening as being a hobby which returned better value than any other. He suggested they should work themselves, advice which elicited droll remarks from a few gardeners present, one asking what jobs would be left for the professional gardeners; to which another replied that it was but a diplomatic way of calling attention to the value of gardeners, because if amateurs did their own work they would more readily appreciate the value of the professional and soon want his assistance.

Obituary.

Samuel Thomas Wright, V.M.H.—No name in horticulture is better known, no figure was more familiar, than that of S. T. Wright. And though we shall often hear his name, we shall never again see that familiar figure, for he passed away quietly early on Friday morning, April 28, at Matlock, where he had gone to recuperate after his recent severe illness, and where, as the latest reports had told us, he appeared to be getting on well. His body is laid to rest in the parish churchyard of Snelston, near Ashbourne, Derby, hard by the garden where he began his life's work, and among his father's people. Born on October 21, 1858, he began his gardening career at Snelston Hall Gardens in 1870, and went thence to the famous gardens of Alton Towers in 1875. Leaving there, he became foreman at Woodseat, Rocester, and then head gardener at Ednaston Lodge, Brailsford, and, later, head of the gardens at Glewston Court, Ross, and manager of the well-known fruit plantations there. He had served a good apprenticeship, and this stood him in good stead, for while at Glewston he had opportunities of exhibiting fruit, flowers and vegetables, and he made such good use of them that over 700 prizes were won by him at various exhibitions in England, Scotland and Wales. There, too, he became practised in the use of his pen, and contributed a good deal to *The Gardeners' Chronicle*, *The Gardeners' Magazine* and other papers. His book, *Fruit Gardening for Amateurs*, has passed through many editions and has set many on the right methods. His triumphs on the exhibition table, his record at Glewston, and his writings combined to bring him before the horticultural public, and he became a member of the Fruit

and Vegetable Committee of the R.H.S. while at Glewston. But, perhaps, what did most to establish his position in those days was his admirable essay on "Hardy Fruit Culture," which gained the Royal Horticultural Society's prize in 1896. In that year he was appointed to succeed the late Mr. A. F. Barron as superintendent of the R.H.S. Gardens at Chiswick, and he has remained superintendent of the R.H.S. Gardens ever since. He saw Chiswick when it had scarcely recovered from the dire straits into which it had fallen in the 'eighties, and he helped its growth until another site was found, less cramped, and altogether more favourable, at Wisley. Wisley was largely rough corn land around a beautiful wild garden in 1905, and no one will ever know how much Wisley owes to the hand, that is stilled for ever, in its development to what it has become to-day. For a long period Mr. S. T. Wright was the Society's adviser, and those who know the Society most intimately know best how greatly his advice and knowledge were valued by garden owners up and down the country; and this work he relinquished only when Wisley became too large for him to do both. He was secretary of the Fruit and Vegetable Committee until his death, and superintendent of the shows, first at the Drill Hall, Buckingham Gate, then at Vincent Square, as well as the Temple, Chelsea, and Holland Park. In 1919 the coveted Victoria



THE LATE MR. S. T. WRIGHT.

Medal of Horticulture was conferred upon him, and perhaps no single thing in his whole life gave him greater pleasure than to be selected to join that small company of medallists. So much for his career. He had many things to do, but what, perhaps, distinguished him most, what endeared him to so many, was the gentleness that was his unflinching attribute. Every questioner at the shows, every visitor to Wisley, every exhibitor with a grievance, found him a sympathetic listener, and—as with those whose gardens he visited—able and willing to do his utmost to help them with advice and in other ways. All these, the staff and students at Wisley, and the old members of that staff and school, will miss his pleasant greeting, which to receive almost constituted one a friend, and none can quite fill the place he filled, and filled with such effect. He died as he would have wished, still in the offices he had held so long, and our sympathies are with his widow and family, who will miss him even more than we of the horticultural world.

An impressive memorial service, conducted by the Rev. C. Hamilton, was held in the little church at Wisley on Tuesday morning, May 2, and it was attended by the entire Wisley staff and numerous gardeners and garden lovers in the district.

Michael H. Walsh.—The American horticultural papers record the death of Mr. Michael H. Walsh, of Woods Hole, Massachusetts, one of the most prominent of American rosarians. He was a native of Wrexham, South Wales, and served an apprenticeship for five years in a

private garden; later he was appointed under-gardener to Sir Watkin William Wynns, of Wynnstay, Ruabon. In 1868, Mr. Walsh emigrated to the United States and secured a position as foreman on the Samuel R. Payson estate at Belmont. Five years later he was appointed manager to a nursery firm at Brighton, Mass., of which he subsequently became the proprietor. In 1877 Mr. Walsh was appointed superintendent of the estate of Mr. J. Fay, of Woods Hole, Mass., and it was while he was there that he raised many new Roses, several of which were awarded prizes by the Massachusetts Horticultural Society. The introduction of *Rosa Wichuraiana* from Japan gave Mr. Walsh material for crossing with various hybrid teas, and eventually he obtained a new type of rambler Rose of which *Lady Gay*, *Hiawatha* and *Excelsa* are well known and extensively cultivated; he was also the raiser of *Delight*, *Débutante*, *Wedding Bells*, *Evangeline*, *Paradise* and *Minnehaha*. Mr. Walsh was not only a skilful raiser, but also a clever grower of Roses, and the huge specimens which he exhibited won many gold medals and other awards at exhibitions in the United States.

ANSWERS TO CORRESPONDENTS.

BOOK: *A. D. F. Cactaceous Plants*, by Messrs. Brittain and Rose, comprises four volumes, two of which have been published, price £6 and £7 10s. respectively. These may be obtained from Messrs. Dulau and Co., 34-36, Margaret Street, Cavendish Square, W.1.

BOWLING GREEN: *M. N.* If the bowling green has been well laid and rolled the grass should by this time have become well matted together and the green in a suitable condition for use when the season opens. The rainy weather will have greatly benefited the turf, and if the greens have been rolled carefully on dry days the turf should be settled well in position and suitable for reasonable use almost immediately.

ELM SHOOT WITH GRUBS: *T. C.* The Elm bark is attacked by the Elm Bark Beetle, *Scolytus destructor*. The beetle itself is fairly easily recognisable by its black thorax and light brown abdomen. The beetles appear about the middle of June and the female begins to bore into newly felled or unhealthy trees. Shortly after she has begun boring the male appears and pairing takes place in the primary burrow. After pairing the female starts the burrow proper. In this she lays eggs to the number of from 100 to 160. The larvae are white, fleshy, footless grubs with strong chitinous heads to take the powerful muscles necessary for boring into hard material. Towards the end of July some become full fed, and perfect beetles may be found, which may emerge from holes cut from the ends of the larval galleries to the open air. Many larvae, however, take longer to mature, and so larval stages may be found in winter, as in your case. It is important, where possible, that all sources of infestation should be removed. Search should be made in the vicinity for any fallen Elms, as they will probably be strongly infested. They should either be completely removed, or better still the bark removed and burnt. In extreme cases it may be necessary to fell badly attacked trees in order to remove these sources of infection from other healthy ones in the neighbourhood. First, however, care must be taken that no infected felled tree is acting as a source of infection. The nest is a serious one and often does much damage unless checked.

NAMES OF PLANTS: *W. G. A. 1.* *Narcissus Barrii* conspicuus; *2. N. Burbidgei* type; *3. N. incomparabilis Antocrat*; *4. N. i. Stella*; *5. N. Leedsii* Duchess of Brabourne; *6. N. Leedsii* type.

Communications Received.—*F. T.* Auckland (thanks for Is. for R.G.O.F. Box.—*ENS.*)—*W. B.*—*T. C.*—*R. I. H.*—*A. R.*—*W. G. A.*—*R. J. C.*—*A. B. H.*—*W. H. C.*—*L. D.*

THE

Gardeners' Chronicle

No. 1846.—SATURDAY, MAY 13, 1922.

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 51.5.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, May 10, 10 a.m. Bar, 30.3; temp. 54°. Weather—Dull.

Importance
of the
Horticultural
Industry.

There was a time when the horticultural industry was regarded as the Cinderella of commerce. That time has passed, we hope never to return. The regular meetings of the Royal Horticultural Society and the seasonal exhibitions of the National Rose Society, National Chrysanthemum Society, National Sweet Pea Society, National Dahlia Society and the British Carnation Society give ample evidence of the keen interest which is being taken in horticulture and especially in floriculture, while the activities of the several trade associations, with the Chamber of Horticulture as the co-ordinating organisation, have demonstrated the importance of commercial horticulture. The concentration of people in large towns has resulted in a largely increased demand for fruits, vegetables and flowers. To meet this demand, a new type of grower has come forward, and with intensive systems of cultivation and thorough business organisation the industry has been raised in importance, until now the value of horticultural crops produced each year in this country is estimated to be not less than £50,000,000. But, large as the production is, it does not entirely meet the demand. It is believed that about one-third of the food consumed by the British people consists of fruits and vegetables, consequently the home supplies are insufficient, and in 1920 were supplemented by imports of Apples valued at nine and a half millions of pounds; other fruits (excluding Bananas and Citrus fruits), six and a half millions; Potatoes, five millions; Onions, three and a half millions, and Tomatoes, four and a half millions. The total value of the imports of fruits, vege-

tables, flowers, plants and seeds during that year was 30.8 millions of pounds sterling, of which only about nine million pounds worth came from our overseas dominions. These figures, put forward by Sir Arthur Griffith Boscawen, Minister of Agriculture, at the annual dinner of the Chamber of Horticulture on May 3, show that there is ample room for a wide expansion of the horticultural industry at home and in the colonies if the idea of a self-sustaining Empire is to be attained. Success in horticulture means something more than high cultivation and clever organisation; it includes the prevention of diseases and insect attacks, consequently measures are taken by the Government to restrict or prevent the spread of such troubles as Wart Disease, Silver Leaf, and American Gooseberry Mildew. Most civilised countries have now a phytopathological service, but with the increase of knowledge of diseases and insect pests, there has grown up the fear that one country may import diseases from others, through the medium of horticultural products, to its own disadvantage. This fear has led to the setting up of quarantine laws, which, unless sanely considered, will lead to the shutting down of that international interchange of horticultural produce which is one of the wonders of our times. In referring to this matter at the annual dinner of the Chamber of Horticulture, of which a report is given on p. 248, Sir A. Griffith Boscawen considered there were three lines of policy which might be adopted by the Government; the first is the *laissez-faire* policy, under which no restrictions are placed on any categories of plants and the risks of importing new and dangerous diseases and pests are entirely ignored; the second is the extreme policy of allowing no plants at all to enter the country; the *via media* is that which has been adopted by the Ministry, namely to secure that the fullest possible safeguards are taken to ensure the health of all imported plants by demanding their inspection by a responsible Government official in the country of origin.

Organisation for protecting and furthering the interest of various branches of horticulture has been in existence for many years, but it is only in recent times that it has been developed to a degree at all comparable with the progress of the industry. With this development there arose a distinct need for some co-ordinating body that would serve the interests of all when all interests were concerned, and so the Chamber of Horticulture, founded in 1919, began its career of usefulness mainly owing to the enthusiasm, energy and generosity of Mr. George Monro. The Chamber of Horticulture is in close touch with the Ministry of Agriculture—as shown by the presence of Sir A. Griffith Boscawen and Sir Daniel Hall at the annual dinner—and the Ministry has found in it that direct contact with the whole horticultural industry which could not be found previous to its inception. At present the Chamber of Horticulture is being subjected to considerable criticism; doubtless its methods and its usefulness may be improved, but the wisdom born of experience is not the monopoly of its critics, who, we hope and believe, will find it more advantageous to the horticultural industry to build up rather than to pull down the Chamber. In the words of the Minister of Agriculture, "the aims and objects of the Chamber are to promote the best interests of horticulture, to watch over all measures affecting horticulture both in and out of Parliament, and to link up all sections, and generally to promote horticultural organisation and reform." These aims and objects can only be attained when personal and sectional

jealousies are forgotten and when all horticulturists "pull together," to use the words of the new President, Mr. G. W. Leak, whose advice at the meeting referred to was, "aim high and be satisfied with nothing but the best."

The Late S. T. Wright.—The announcement of the death of Mr. S. T. Wright, which was made in last week's issue of *The Gardeners' Chronicle*, has come as a great shock to his many friends. They had hoped that after his many years' service to horticulture and to the R.H.S., he might be spared to enjoy a well earned period of rest, to pursue those country sports of which he was so fond, and to inspire in others the love of gardening which was so conspicuous in himself. The late Mr. S. T. Wright was a great gardener. Few had such a wide knowledge or so keen an appreciation of the garden value of plants, and none had in greater degree the power of imparting knowledge and communicating enthusiasm. The debt which the R.H.S. owes to Mr. Wright is great. He made Wisley a happy garden. The charm of his welcome none could resist, and to walk round the garden in his company was at once a liberal education and a unique pleasure, which led hundreds of visitors in the course of each year to make many pilgrimages to Wisley. It is high praise to give to any man to say that he had qualities of greatness; yet this praise is due in full measure to Mr. Wright, for he possessed—in a degree which we have not seen equalled—urbanity of manner, a quality as rare as it is distinguished, and one which men of little minds can never acquire. Courtesy, consideration for others, and unselfishness are some of the ingredients which go to the compounding of this quality. Thanks to it, Mr. Wright was able to suffer fools gladly and to win the deep, lasting regard of those who knew that in the scale of human attributes urbanity stands high; far above intellectual attainments and far above cleverness. This quality stood the Society in good stead, for, thanks to it, many members were led to a greater loyalty and to a deeper interest in the Society. As a colleague, Mr. Wright was perfect. Not that he lacked imperfections; he was too much a man for that; but because he had the rare gift of loyalty, when he believed in a man he gave him frankly, and without reserve, the full measure of his confidence, and that is the secret of successful co-operation. It is a great sorrow to realise that that jovial figure, bright eyed, and full of cheeriness, may be seen no more, and that the walks we used to take with him about the grounds of Wisley must now be solitary.

Kew Guild: Annual Meeting and Dinner.—The annual general meeting of the Kew Guild will be held at the Imperial Hotel, Russell Square, on Wednesday, May 24th, at 6.30 p.m. The annual meeting will be followed by the annual dinner at 7.15 p.m., when the President-elect of the Guild, Mr. Ernest H. Wilson, M.A., V.M.H., will preside. Mr. Wilson recently arrived in England after a trip round the world undertaken on behalf of the United States Government in connection with the Harvard University and the Arnold Arboretum.

Manchester Parks Horticultural Debating Society.—This Society was formed about a year ago for the purpose of furthering the horticultural knowledge of the employees in the Parks and Cemeteries Department of Manchester, and also for the purpose of increasing the opportunities for social intercourse among the members of the staff. There are seventy parks and open spaces in the city, and some of these are so much as ten miles apart, and when it is remembered that the permanent staff consists of about 450 members, it will be recognised that such a society is extremely useful. The Society has a membership of 110, and has held fortnightly meetings throughout the winter session; during that period the superintendent of the department, Mr. W. W. Pettigrew, has very actively interested himself in the proceedings, while the chairman and deputy chairman of the

Manchester Parks and Open Spaces Committee have also given their support. So far as we are aware, this is the only society of its kind in the country, and we congratulate the Manchester Park staff on the success of its venture.

Trial of Salpiglossis at Wisley.—The Royal Horticultural Society will carry out a trial of Salpiglossis for flowering in the spring of 1923, under glass, at Wisley. Those desiring to send varieties for trial should post them to the Director (from whom the necessary entry forms can be obtained), R.H.S. Gardens, Wisley, Ripley, Surrey, so as to reach him by May 31, 1922.

Insects Beneficial in the Garden.—The Ministry of Agriculture has recently published a pamphlet under the title of "Beneficial Insects," having for its object the wider recognition of some of the more common of those insects which are the farmers' and the gardeners' friends, but which too often are destroyed in error. The letterpress is brief, and is written in simple language. Great care has been taken to ensure that the illustrations, which are very well reproduced by the four-colour process, shall be scientifically accurate. The pamphlet, "Miscellaneous Publications No. 37: Beneficial Insects," may be obtained from the Ministry of Agriculture and Fisheries, 10, Whitehall Place, London, S.W.1, price 4d., post free.

Flowers in Season.—From Mr. D. Chaplin, Frognaal Gardens, Sunninghill, Ascot, we have received blooms of what he considers to be sports from *Viola gracilis*, but the size and improved form of the flowers suggests that they are seedlings having a blue garden *Viola* as one parent. No. 1, now in full bloom, is earlier than *V. gracilis*, and has flowers of light, violet-blue colour, with a few purple blue lines radiating from the yellow eye. No. 2 is much larger, with blooms $2\frac{1}{2}$ inches across at the widest part, and rich violet-blue in colour with dark violet blue lines radiating from the soft yellow eye. The flowers in each case are of charming colour and elegant form, and if the plants flower profusely, the varieties should have considerable value.

Silver Leaf in Apple Trees.—The number of cases of silver leaf on Apple trees is now on the increase, and the Inspectors of the Ministry of Agriculture report that the disease is more abundant in Apple trees where large branches have been cut off during pruning, or where the trees have been headed back for the purpose of top grafting. The fungus, *Stereum purpureum*, is a wound parasite, and, as our readers are aware, wounds left exposed during the winter may lay the tree open to infection by the disease. No remedy is known for silver leaf; but, by covering each wound made by pruning, or by heading back, with Stockholm tar or grafting wax, the spores are prevented from entering and the tree is protected. The greatest danger is with the trees which have been headed back, as large wounds are exposed during the winter and spring months of the year. If the wounds are not covered at the time of cutting, then one foot more of the branches should be sawn off at the time the grafts are inserted, so as to remove any wood which may have become infected. Needless to add, all wounds should be covered with grafting wax as soon as the graft has been inserted. Silver leaf disease is one of increasing danger to fruit growers with each succeeding year.

Association of Economic Biologists.—A general meeting will be held at 2.30 p.m. on Friday, May 19, in the Botanical Lecture Theatre of the Imperial College of Science, South Kensington, London, S.W.7, when Mr. Wilfred Rushton (St. Thomas's Hospital, Medical School) will lecture on "Further Contributions to the Biology of Freshwater Fishes (see *Ann. Appd. Biol.*, IX., 1); and Professor J. H. Priestley (Leeds University) will discuss the "Toxic Action of Illuminating Gas on Plants," with a demonstration. The Council will meet on the same day at 2 p.m.. The annual field meeting of the Association will be held on Friday, June 30, at the Royal Horticultural Society's Gardens, Wisley, by kind invitation of the Director

Royal Gardeners' Orphan Fund Festival Dinner.—All our readers will be glad to learn that the annual festival dinner held at the Connaught Rooms on May 9, was one of the most successful ever held on behalf of that most deserving charity, the Royal Gardeners' Orphan Fund. The Chairman, Mr. Lionel de Rothschild, M.P., a great lover and patron of gardening, made a strong appeal on behalf of the Fund, which does such splendid work in the interests of the orphans of gardeners. Mr. Lionel de Rothschild—whose portrait we have great pleasure in presenting—is, as most horticulturists are aware, a great lover and student of Rhododendrons, and has a wonderful collection of those shrubs, including many new and rare species and varieties, at Exbury, near Southampton. He brought flowering specimens to the dinner and suggested that some growers might like to make him a good offer for them, as grafts, on behalf of the Fund. Similarly, he offered pollen of a fine strain of *Hippeastrum*, but apparently there were no Rhododendron or *Hippeastrum* enthusiasts present, as no offers were made even when Mr. Rothschild offered a layer of any of the Rhododendrons if the grafts failed. The appeal was made on the high ground of gratitude to those who made gardens so attractive and interesting to their owners, and who, cut



MR. LIONEL DE ROTHSCHILD, O.B.E., M.P.

off in early manhood, left children unprovided for. It was to assist such orphans the Fund existed. Mr. Rothschild's appeal was most successful and resulted in a subscription list of £1,623, to which the chief contribution were the Chairman, and Messrs. N. M. Rothschild and Sons, £100; Messrs. Hurst and Son, per Mr. E. Sherwood (Treasurer of the Fund), £100; Messrs. Sutton and Sons, £100; Covent Garden friends, per Mr. David Ingamells (Chairman of Committee), £230; Sir Harry J. Veitch, £26; Mr. W. Nutting, fifty guineas; Mr. J. B. Bridgeford, £55; Mr. Anthony Waterer, £25; Messrs. R. and G. Cuthbert, £21; Messrs. G. Banyard and Co., £20; Mr. Dixon (Hurst and Son, collected), £22; and Mr. H. J. Jones £21. Mr. E. Sherwood responded in his usual able manner to the toast of "The Royal Gardeners' Orphan Fund," proposed by the Chairman. Mr. George Monro proposed "The Visitors," and to this Mr. G. P. Berry, of the Horticultural Department of the Ministry of Agriculture, responded; while "The Chairman" was very pleasantly proposed by Lord Aldenham, who observed that though all other pastimes of youth and manhood might lose their attractiveness with advancing years, gardening never failed. The Festival dinner was wholly successful, the attendance was large, the tables were charmingly decorated with Ophelia Roses

and a capital programme of music was rendered under the direction of Mr. Turtle Lee.

Royal Horticultural Society's Committees and Chelsea Show.—The various Committees of the Royal Horticultural Society will meet on the first day of the Chelsea Show to adjudicate on plants, fruits and vegetables submitted for awards. The Fruit and Vegetables, Floral, Orchid and Narcissus Committees will meet at 10.30 a.m. outside the Secretary's tent. On the second day of the show Dr. A. Rendle will deliver a lecture on "Plants of interest exhibited."

Birmingham Flower Show.—Although the annual show of the Birmingham Horticultural Society in Cannon Hill Park last year proved a failure financially, the committee, encouraged by promised support, has decided to hold a show in the Victoria Park at Handsworth on July 21 and 22, 1922.

Horticultural Club.—The Horticultural Club has made arrangements with the Hotel Belgravia to have the exclusive use of a room for the Club on the Mondays and Tuesdays in the weeks when the Royal Horticultural Society holds its fortnightly meetings and also on any other occasion when important horticultural functions are held in the metropolis. The room will be available for the members on the three days of the Royal Horticultural Society's Show at Chelsea, and the Club has arranged with the Hotel for the members to obtain accommodation on special terms. The Hotel Belgravia is situated in Grosvenor Gardens, Victoria; it is quite close to Victoria Station and within easy access of Vincent Square. Since the hotel was relinquished by the Government, it has been entirely renovated by the new proprietors, and all the latest modern improvements added to make it a first-class hotel. The Annual General Meeting of the Club will be held on May 24, the second day of the Chelsea Show. A house dinner will also be held on this occasion, and after the dinner, Mr. E. A. Bunyard will give a lecture, illustrated by lantern slides, on "Impressions of Algeria; mainly horticultural."

Profits from Shrewsbury Flower Show.—The total receipts in connection with the Shropshire Horticultural Exhibition, held at Shrewsbury on August 17 and 18 last, was £13,954, while the expenditure was £11,380, leaving a net profit of £2,573. The committee has offered the town £2,000 towards erecting a suspension bridge over the Severn to connect the suburbs of Port-Hill and Copthorne with the Quarry. This has been accepted by the corporation, and the work will be proceeded with at an early date. At the annual meeting of the society, held at Shrewsbury on the 3rd inst., Lord Howard de Walden was elected president for the ensuing year.

National Dahlia Society.—The schedule of the National Dahlia Society's exhibition, which is to be held on September 6, 1922, includes a list of varieties certificated in 1921 after trial in the R.H.S. Gardens at Wisley. The number of varieties certificated is twenty-eight, and includes Single, Collerette, Paeony-flowered, Decorative, Camellia-flowered, Show, Pompon, Star and Cactus varieties respectively. There are also lists of varieties which were highly commended and commended, as judged by the R.H.S. trials. The number of classes in the Society's exhibition is 53, and there are sections for all types of this popular autumn flower. We are glad to notice that the Society is endeavouring to make the Dahlia as valuable for garden purposes as for exhibition, and to this end the trials in the R.H.S. gardens should provide a suitable guide as to the best garden sorts. The Dahlia is, together with the Chrysanthemum, one of the most valuable of autumn garden flowers, and there is unlimited scope for development both in the raising of new types and varieties for garden decoration. The National Dahlia Society is one of the oldest floricultural societies, and is worthy of the support of all gardeners. The Secretary is Mr. A. C. Bartlett, 318, Kew Road, Kew, who will be pleased to forward a copy of the schedule to those interested.

Appointments for the Ensuing Week.—Wednesday, May 17: Hertford Horticultural Society's meeting; Somerset County Agricultural Association's Horticultural Show at Bridgwater (2 days).—Friday, May 19: Paisley Florists' Society's meeting; Association of Economic Biologists' meeting; Eastbourne Horticultural Society's meeting.

"The Gardeners' Chronicle" Seventy-five Years Ago.—*Exhibition at the Horticultural Society's Gardens, Chiswick.*—The first exhibition at Chiswick has had the misfortune to fall upon the last day of winter—a fitting conclusion to a most uncomfortable season. The dawn was wet, the morning damp, the forenoon gloomy, midday cheerless, and the afternoon a deluge. Under these circumstances, we have nothing to record beyond the good humour of the visitors, the patience of the exhibitors, and the magnificence of the plants. If anything could have increased our respect for the unrivalled skill of English gardeners, it would have been this exhibition, which, with two or three exceptions, consisted wholly of plants displaying the most admirable cultivation. We

PLANTS NEW OR NOTEWORTHY.

RHODODENDRON FARGESII, FRANCHET.

At the meeting of the Royal Horticultural Society, held on April 25th, a very fine form of this Chinese species (see Fig. 125) was shown by Mr. G. W. E. Loder from his garden at Wakehurst. Like nearly all these species from Western China *R. Fargesii* varies a good deal in the quality of the individual plants. Mr. Loder's was, perhaps, the best form that has flowered in this country up to the present time. *R. Fargesii* is a shrub originally found in Eastern Szechuen by Père Farges, but introduced by Mr. E. H. Wilson from Western Hupeh in 1901, when he was collecting for Messrs. J. Veitch and Sons. He describes it as occasionally 18 feet high, the flowers varying from white to deep rosy-red. The leaves are $2\frac{1}{2}$ to $3\frac{1}{2}$ inches long, with a rounded or slightly cordate base, dull green above, rather glaucous beneath. Six to eight flowers occur in a terminal truss, the corolla widely funnel shaped, seven-lobed and $2\frac{1}{2}$ inches wide, the ground colour sprinkled more or less freely with darker spots. The stamens and style

RAISING SPRING BEDDING PLANTS FROM SEED.

MANY of the spring bedding plants may be propagated from seed, and the work of raising the plants may be put in hand immediately.

Forget-me-nots make an admirable carpet for Tulips, and in most districts there is no question as to their hardiness. *Myosotis dissitiflora* is an old species which is still valuable. The plant branches freely, attains a height of about 9 in., and produces its blue flowers very early. Amongst the many varieties of Forget-me-nots Royal Blue is of very rich colour, and a little taller than the last-named. Star of Love, sky blue, is one of the best sorts for edging purposes. Attractive also are the blue, white, and pink flowered strains which most seed firms now offer. The seed should be sown on a shady border of finely prepared soil, and the seedlings pricked out into nursery beds 6 in. apart. *Arabis alpina* is one of the earliest of white spring flowers; the plant is compact in growth and free in flowering. Rather taller, but brilliant in the mass, is the

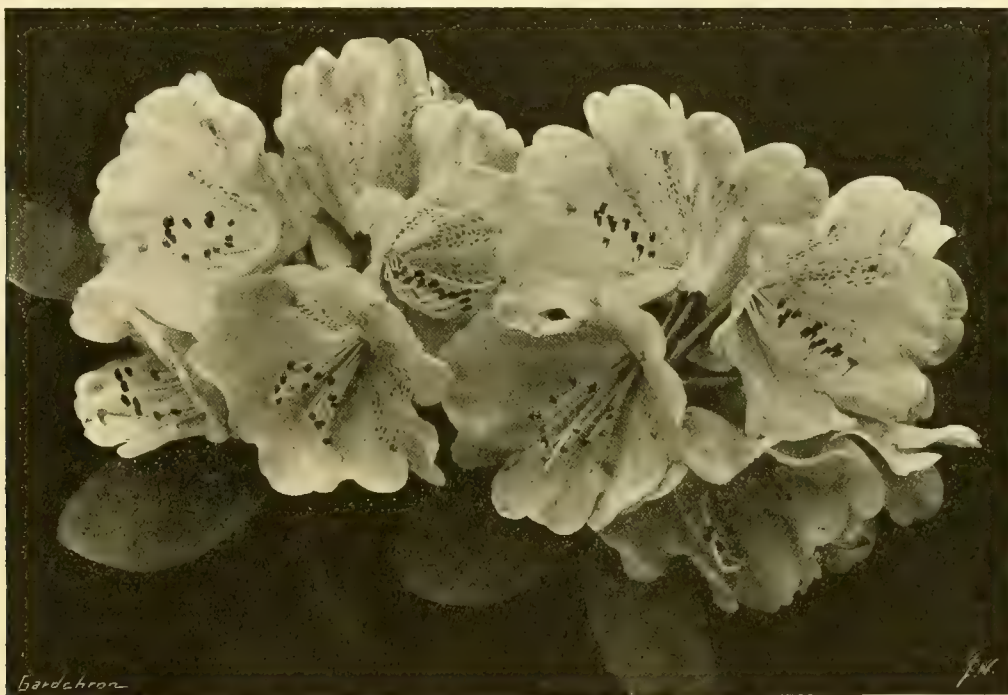


FIG. 125.—RHODODENDRON FARGESII.

should hope that those who have obliged us to regard them as exceptions will have read a lesson last Saturday which they will not fail to remember. Out of 11,580 tickets which had been issued, only 1,479 were presented, the whole number of visitors and Fellows of the Society having been 1,644. The number of medals awarded was 24 gold and 85 silver, their value being £409 15s. The judges added to their award the opinion that "the appearance of woody plants is greatly injured by the excessive use of stakes, as employed in some collections," in which we fully concur. *Gard. Chron.*, May 15, 1947.

Publications Received.—*Water-stress behaviour of Prima Cotton in Arizona.* By C. J. King. Bulletin No. 1,018. *Comparison of Corn Oils obtained by expeller and Benzol extraction methods.* By A. F. Sievers. Bulletin No. 1,054. *The Sugar-Beet Nematode in the Western States.* By Gerald Thorne and L. A. Giddings. Farmers' Bulletin, 1,248. *The Sunflower as a Silage Crop.* By H. N. Vinall. Bulletin No. 1,045. All published by the United States Department of Agriculture, Government Printing Office, Washington.

are quite smooth, but the ovary is always furnished with glands. The species is quite hardy, and thrives best in a semi-shaded spot. Flowering in April, its blossoms are liable to be injured by spring frosts, but, on the whole, it is one of the most attractive of the earlier-flowering Chinese species that are really hardy in our average climate.

RHODODENDRON OREODOXA, FRANCHET.

This species (see Fig. 130) was also shown in flower at the same time by Mr. Loder. It is very closely allied to *R. Fargesii*, and has leaves similar in size and shape, and the arrangement of the flowers is the same. The best ready distinction between the two is furnished by the ovary: in *R. Fargesii*, as stated above, it is covered, often densely, with glands; in *R. oreodoxa* it is perfectly smooth. The corolla in both is seven-lobed, and in *R. oreodoxa* is rosy pink tinged with lilac. Even more than *R. Fargesii* it needs protection from hot sunshine. It was introduced by Wilson from Western Szechuen about the same time as *R. Fargesii*, and Wilson gives the height of the plant in its natural habitat as 9 feet or 10 feet. Both these *Rhododendrons* are valuable additions to gardens. W. J. B.

golden yellow *Alyssum saxatile compactum*. Sutton's Silver Queen is a pale lemon form of equal merit. All these plants are raised readily from seed. Associated with bulbs, Double Daisies, which are available in a variety of pleasing colours, produce some of the most attractive displays, while for edging purposes few plants are more suitable. The seedlings require a certain amount of shade and moisture, conditions which are easier afforded if boxes are used in the first stage. The summer position, too, should be on the shady side, and growth is most rapid in soil containing leaf mould. Perhaps few plants are more valuable for spring bedding than *Aubrietias*. Desirable as are the modern varieties, it takes time to work up a bedding stock from cuttings, and seed sowing offers a ready method of increase. A small percentage of the plants may fail to come true, but the exceptions are seldom conspicuous enough to be an eye-sore. Of the named varieties obtainable from seeds, *A. Leichtlini*, bright rose, *A. purpurea*, dark purple, and *A. graeca*, a rich blue, are noteworthy. The seed should be sown in boxes, and the plants pricked out in fine soil, although it is an advantage if they can be potted, and the pots plunged in ashes.

Polyanthuses are invariably in demand for the furnishing of formal beds, since few plants are more brilliant. On the principle of better late than never, seed may still be sown in frames, and if the plants are well treated afterwards, the majority will have reached the required size for putting out in autumn. They may be procured in separate colours, but where a pleasing mixture is required the Munstead strain leaves little to be desired. Primroses and Auriculas, especially the Alpine section of the latter, are also useful, and the season is not yet too far advanced to commence working up a stock. Of Violas there are numerous named varieties. Yet there are possibilities of raising good plants from seeds, a method of increase to be recommended where large numbers are required on the grounds of economy. Pansies have a charm which few are proof against, and in favourable districts can hardly be excluded from the list of spring bedding plants. To obtain strong, bushy Wall-flowers which will lift in autumn with a good ball of soil, seed should be sown from the middle of May on finely prepared though not over rich ground. The seedlings should be transplanted early on an open plot, about a foot apart. Varieties are numerous, and in addition to such standard sorts as Vulcan and Phoenix, those which are available under a wider range of colours are worth including. Y. G.



FIG. 126. —DENDROBIUM ASHWORTHIAE. (See p. 241.)

HARDY FLOWER BORDER.

LINARIA DALMATICA.

LINARIA dalmatica possesses considerable charm, and there are few border plants of undoubted hardiness which possess anything like the same appearance, so that it lends a distinct effect to the place in which it is cultivated. When well grown, it reaches a height of four or five feet, but in poorer soil may grow only two or three feet high. Even at its lowest stature it is pretty, but is much finer when grown in a rich soil, for it will then produce plenty of its pretty glaucous leaves and branching stems, well furnished with good, yellow flowers. It is not easy to describe the precise shade of yellow; I have just picked up at random three works containing references to *L. dalmatica*. One describes the colour as "lemon yellow," another as "sulphur yellow," and the third speaks of the blooms as being "golden." Whichever of these shades we may be disposed to accept, there is no doubt that the Snapdragon-like flowers are very pleasing and that it is a plant of much worth in the border. It is a true hardy perennial, giving no trouble, except that it is inclined to run a little at the root, and may require to be watched lest it spread too much for the comfort of its neighbours. *L. macedonica*

is another yellow Toadflax, which, with me, was brighter and dwarfer than *L. dalmatica*, of which it is said to be only a form, and both are quite superior to *L. genistifolia*, another yellow *Linaria*. Those who know *L. vulgaris* need not think that *L. dalmatica* resembles it. The latter is much superior. N. Arnott.

SPETCHLEY PRIMROSES.

HAD these flowers been mine, I would have labelled them "Spetchley Polyanthuses," for that is what they are to all appearances. However, it may be the above title is adopted to make sure that there is no confusion between them and those (dare I use the word in a non-florists' age) real Polyanthuses that delighted the hearts of a past generation—those smooth and sleek looking, gold-laced beauties which have gone the way that nearly all our old florists' flowers are going. Perhaps it is; or perhaps it is because it is more correct or scientific, and the botanic sense of Mrs. Berkeley, their raiser, would be offended were it otherwise. The point is only of academic interest, in view of the fact that in the Spetchley Primroses we have a wonderfully large and attractively coloured strain of what are commonly called Polyanthuses. A beautiful selection filled one of the corners of the R.H.S. Hall on April the 25th. It happened to be the show day of the southern

available they should be grown in a border by themselves. East Lothian Stocks are perfectly hardy, and form one of the most useful subjects for furnishing a supply of cut flowers. Lovely as they are in the garden, they are equally beautiful when used as cut blooms in vases, and, as they develop many flowering side-growths during the summer, they provide plenty of material for indoor floral decoration. The flowers are of many lovely shades of colour, and sweetly scented. These Stocks may well be used to fill blank spaces along the fronts of the herbaceous borders, whilst for planting in and around clumps of Tulips on such borders. East Lothian Stocks are invaluable, for they flower when the foliage of the Tulips is fading. B.

SMALL DECORATIVE PLANTS FOR FURNISHING.

The gardener who is responsible for the furnishing of the dwelling house with plants, should now take stock of his supply of ornamental foliage plants used in the decoration of vases, baskets, etc.

In the present stress of work this is often overlooked, with the result that autumn finds him with a very limited number of these plants, whereas, by a very little thought, he may have quite a good stock, even from plants raised from seed sown now, or in other cases by division of old plants or from cuttings.

Cyperus natalensis is one of the most useful subjects for this work, owing, in the first place to its easy culture, and secondly to its hardiness, for it may be used in any dwelling room, even in draughty places, without any fear of its immediate death or decay. The seeds should be sown at once in a light, sandy mixture, preferably in pans, which should be at least three inches deep, and lightly covered with soil. Keep the soil moist with the usual covering of a sheet of glass, shade it from bright sunshine, and the seeds should germinate in about seven days, if the house in which they are placed is kept closed at night.

When the plants are about half an inch high, place about six or seven of them in a clump in the centre of a three-inch pot, using a light mixture of soil, which should not be too rich. The plants will grow rapidly and, if needed, may be potted into the 48 sized pots in heavier soil. Grow them always in a cool place, but do not shade them too much.

These cultural notes apply also to those two lovely grasses, *Festuca glauca* and *Isolepis gracilis*, excepting that these plants should not be potted beyond the 60 sized pots.

Old plants of *Eulalia japonica* and *E. zebrina* should be divided, and, given a generous, loamy soil, will make valuable specimens by August, and may be used either as decorative plants or as cut foliage.

Of the many Selaginellas there is none that lends itself to general work so much as *S. caesia*: old plants divided and potted in sandy soil will grow luxuriantly in a moist, warm house with shade from bright sunshine. If carefully hardened they may be used with advantage in conjunction with almost any flowers. The trailing stems of blue-green colour are in great request for decorating dinner tables.

The present is a suitable time for ordering small Ferns and Palms for growing on, and these, on receipt from the nursery, should be afforded warm and generous treatment, remembering that a sudden change from their previous warm conditions spells failure.

Insert a further supply of cuttings of *Panicum* in small pots; and the cuttings will root very quickly in a moist house. A sandy compost, but not too poor, is all they require. A few seeds of *Asparagus sprengeri* should be sown in heat to furnish a stock of young plants, and being gross feeders, a rich loam, is useful in their development. It must not be forgotten that the most important point in using all these plants successfully is to harden them gradually, to allow them, so far as is possible, to become accustomed to the cooler and drier conditions of the dwelling house. J. S. D.

section of the National Auricula and Primrose Society, so it was a simple matter to compare them with those shown in competition, as well as with some staged in the usual way in the trade exhibits. In size of bloom and the general vigour of the plants, these were left far behind, and the display showed that the patient labour of years had not been in vain. Almost every shade and colour that coloured Polyanthuses are capable of developing were represented. There was a flower, as it were, for everyone. There was hardly one, Miss Willmott told me, that had not had its admirer that afternoon. Personally, I did not care for those in which the colours run into one another, but I know many of these are Mrs. Berkeley's special favourites. Women like them, I think, better than men, just as they seem to prefer varieties of Carnations and other flowers at which men look askance. A selection has been made of some of the best, and these have been named, but I feel sure that a packet of seed, which can be had from Mr. Stewart at the Hospital Gardens, Chelsea, will give equal satisfaction. There is nothing like seedlings for size and vigour. Joseph Jacob.

EAST LOTHIAN STOCKS.

The main batch of these Stocks should now be planted out, and where plenty of plants are

DENDROBIUM ASHWORTHIAE AND ALLIED SPECIES.

THE strong and well-flowered plant of the rare New Guinea species, *D. Ashworthiae*, shown by Dr. F. Bedford, Esleford, Marden, Kent, at the meeting of the Royal Horticultural Society on April 25, calls to mind not only a charming species which many supposed was lost to our gardens, but also a section of beautiful species which may well be classed with it, especially for the purposes of cultivation. With few exceptions, these have never been sufficiently represented in gardens, from which, if not carefully tended, they will probably vanish. To replace them by importation in these times is very difficult; therefore, those who have specimens of the class referred to would be well advised to obtain true seeds by fertilisation with pollen of the same plant and obtain home-raised specimens.

D. Ashworthiae was imported by Messrs. Sanders through their collector in New Guinea, Micholitz, in 1898, all the marked plants passing into the collection of Elijah Ashworth, Esq., Harefield Hall, Wilmslow, who showed it before the R.H.S. on January 15, 1901. It was fully described and illustrated in *The Gardeners' Chronicle*, February 9, 1901. The growth of the plant, as with most of its class, is somewhat like that of a small *Dendrobium thysiflorum*, the flattened pseudo-bulbs being slender at the base and bearing several firm, green leaves at the apex, from which ascending spikes, bearing usually six or eight flowers, proceed. The sepals are yellowish, or slightly tinged with green, and the petals and lip white, the latter bearing a few small purple lines at the base.

D. Johnsoniae, of similar habit, is probably the most beautiful of the class, its scapes bearing several pure white flowers, each four inches across, the base of the lip having some dark purple lines, and the general appearance of the blooms calling to mind a white *Laelia anceps*. It has a curious history. In *The Gardeners' Chronicle*, 1882, vol. xviii., p. 520, Reichenbach described it as *D. Macfarlanei*, a name with two objections; first that the name had been used for another species, and second that F. Mueller had described the plant as *D. Johnsoniae* shortly before. The first few plants to arrive were imported by Messrs. Jas Veitch and Sons, who obtained a First-Class Certificate for this Orchid as *D. Macfarlanei* on January 14, 1890. Soon after that Messrs. Sanders obtained a good collection of it, and showed it frequently, their best specimen being that which the exhibitors showed with ten spikes in their fine group at the Whitsuntide exhibition at Old Trafford, Manchester, May 23, 1890. Unfortunately, this Orchid is rarely seen now.

D. Madonae, also of Messrs. Sanders' importing, is of smaller and more slender growth than the preceding. It bears sprays of pretty white flowers with pink markings on the lip. It was first shown in flower on January 23, 1900.

D. atrovioleaceum, Rolfe, in *Gard. Chron.*, 1890, vol. VII., p. 512, originally imported by Messrs. Veitch and Sons, and later in quantity by Messrs. Sanders, is one of the finest and most distinct of the New Guinea *Dendrobiums*, and one which thrives well in a warm, moist house. It bears strong, ascending spikes of many cream-coloured flowers, spotted with chocolate red, the labellums having bright purple markings unlike those of any other species, except *D. Hodgkinsonii*. It was at one time well represented in gardens and flourishes satisfactorily in pans or baskets suspended from the roof of a warm, moist Orchid house, a position in which most of the class do best.

D. Hodgkinsonii, *Bot. Mag.*, t. 7,900, was introduced by Messrs. Sanders from New Guinea in small quantities, and it has always been rare. It is nearly allied to *D. atrovioleaceum*, from which it differs in having light green, unspotted, acuminate sepals and petals, the lip having radiating lines of violet colour. It flowered in the collection of Dr. Hodgkinson, The Grange, Wilmslow.

Dendrobium macrophyllum (Veitchianum) is one of the oldest representatives of a stately

section of this class, Messrs. J. Veitch and Sons obtaining a First-Class Certificate for it on June 29, 1870. It varies in stature and in the spotting of its greenish-cream flowers, but is always a free grower and profuse flowerer, even when grown in a warm fruit or forcing house or well-heated conservatory.

Dendrobium spectabile, Miq., long a mystery plant on the strength of Blume's description of it as *Latourea spectabilis* in 1848, is a native of New Guinea and the Solomon Isles, and was first known in gardens through a coloured sketch

the section with long, narrow, curiously twisted, erect sepals, such as *D. undulatum*, *D. lineale*, *D. Stratiotes* and *D. strebloceras*, and others, which have at various times been well represented in gardens. It is to be hoped that some still survive. J. O'B.

DENDROBIUM PHALAENOPSIS. SCHRODERIANA.

MANY plants of this delightful Orchid were lost during the war, owing to the difficulty of



FIG. 127.—DENDROBIUM ATROVIOLEACEUM.

and plant received by Sir Trevor Lawrence in 1896. Five years later, Messrs. Sanders received a good importation, the plants of which flowered well in some gardens, and notably in that of Major Joicey, whose gardener, Mr. Thorne, grew all the species of the section procurable very successfully in a span-roofed stove house, where they were suspended in full light near the roof glass. A specimen shown from those gardens at the Royal Horticultural Society with many tall spikes of yellowish flowers spotted with red, the extraordinary showy elongated lip being beautifully veined, received a F.C.C. on December 19, 1899.

There is also a goodly number of species of

procuring coal and other things necessary to their maintenance. There is no more beautiful object in gardens than a well-grown batch of this species, which produces its flowers at a season when choice flowers are appreciated. This Orchid will now be starting into growth, and the present is a suitable time to repot any plants that need it. This species does best in small pans suspended close to the roof glass in the warmest house, where it will receive an abundance of light, heat, and moisture. When in full growth, liberal waterings may be given, and the syringe should be used freely. Being a sun-loving Orchid, very little shade is necessary. B.

The Week's Work.

HARDY FRUIT GARDEN.

By H. MARKHAM, Gardener to the EARL OF STRAFFORD, Wrotham Park, Barnet.

Apricots.—These trees are usually trained in fan shape, and their training should be very carefully carried out. When disbudding the young growths in their early stages, crowding of the branches should not be permitted. Well-placed shoots should be retained to take the places of older shoots that are likely to die off, as is frequently the case with Apricot trees. If the fruits have set in clusters, their thinning is best done at an early stage, in order that those left to furnish the crop may attain a large size before the stoning period. Remove those badly placed and all the smaller ones that are not wanted. Young, fortnight shoots should be stopped at the third or fourth leaf. Old trees in free bearing will be benefited by giving the roots a good watering, whenever the soil is sufficiently dry, and a sprinkling of guano.

Apples and Pears.—Young standard Apple and Pear trees that were planted late should be pruned rather more severely than those planted early, to cause the young shoots to develop strongly. Make good the soil about the roots, apply a mulch of suitable manure, and secure the trees to stout stakes to prevent damage by winds, etc.

Strawberries.—Plants which have been forced under glass and duly hardened should be planted early in well prepared land, there being nothing gained by keeping them in the pots, but the reverse. If the ground intended for these plants was well prepared some time ago, all that is now required is to hoe it over to destroy seedling weeds, and to level the surface. Set out the rows at 2 feet apart, and put the plants 18 inches asunder in the rows. See that the roots are thoroughly moistened prior to turning them out of the pots. Shake away some of the old soil, but do not reduce the balls of earth too much, and plant firmly. If the land is of a light texture, and newly prepared, give it a good treading, and bury the roots a little deeper to allow for the surrounding soil sinking. Spread a thick mulch of manure between the rows, and with due care a first-rate crop of berries should be obtained next year.

Morello Cherries.—As the principal crop of these fruits is usually borne on the previous year's growth timely disbudding should be practised in a similar manner to that adopted for the Peach. Guard against crowding of the shoots, but endeavour to have a supply of healthy young branches at intervals all over the trees, so that any of the older branches likely to die may be quickly replaced by young, fruitful wood. Although Morello Cherries are chiefly borne on young wood, fruits are also produced on spurs. Keep a sharp watch for black aphid, which is one of the worst insect pests of the Morello Cherry grower has to contend with, and if not destroyed will quickly ruin young trees. X.L. nicotine insecticide is a capital remedy if applied as advised by the makers, and it may be safely used when the fruits are quite small. Quassia extract is also very effective when applied with care.

THE ORCHID HOUSES.

By J. T. BARBER, Gardener to His Grace the DUKE OF MARGRUBOUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Dendrobium.—The evergreen members of this large genus, such as *D. chrysotoxum*, *D. densiflorum*, *D. thyrsiflorum*, *D. suavisissimum*, *D. Brymerianum*, *D. clavatum*, *D. aggregatum*, *D. Farmeri*, *D. Dalhousieanum*, and others which produce their flowers at this season, make splendid subjects for exhibition or bold decorations. Soon after the flowers fade, new growths appear from the base of the plants, and any necessary repotting should be done as soon as possible.

The roots of the stronger growing evergreen kinds are usually larger and more robust than those of the deciduous species, and the compost for them may be used in a rough state. Two parts of *Osmunda* or A1 fibre to one part of *Sphagnum*-moss, with plenty of broken crocks added to keep the mixture open forms a suitable rooting-medium. In preparing the compost, it is essential that the ingredients should be well pulled to pieces, removing all the earthy particles, and any pieces which show a tendency to produce fungus growth. Old and decomposed compost causes the roots to decay. For the strong growing species, pots are the best receptacles, and they should be well drained, and the plants potted firmly. With the present-day material, if thoroughly prepared, in proper condition and neither too wet nor too dry, it is almost impossible to pot too firmly. After repotting, place the plants at once well up to the light in their growing quarters. The dwarf growing species are best grown in shallow pans suspended from the roof rafters. For a time very little water at the roots will suffice—only enough, in fact, to keep the rooting material just moist; but plenty of atmosphere moisture and frequent sprayings overhead when the weather is bright and warm will assist the plants in making clean and satisfactory growth. During the growing season, as the plants become well rooted, liberal supplies of water will be needed. The majority of these Orchids thrive best when kept to a regular season of growth and rest, and when grown in an even temperature, such as a warm Cattleya house provides.

D. Dalhousieanum, D. moschatum and D. fimbratum.—These are stately plants, and at one time good specimens were much sought after; as the racemes of flowers they produce are not surpassed by any others in the genus. They are commencing to grow, and any necessary repotting should receive attention forthwith. The above remarks apply to these species, with the exception that these vigorous growing Orchids delight in a tropical temperature and an abundance of moisture both at their roots and in the atmosphere whilst making their growth. These old species are not cultivated so extensively as their merits deserve, but, undoubtedly, as time goes on, their beauties will once more claim recognition.

THE FLOWER GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

Pentstemons.—The beautiful hybrids or, as they are sometimes called, "florists' Pentstemons, that were raised from cuttings rooted last autumn, in cold frames, may now be planted out. This is most effectively done on a border in rows, allowing about 18 inches between the plants and the rows. The plants should be staked at the time of planting, using for the purpose a *Spiraea*, Willow or thin Bamboo stick, which in its turn should be tied to a string, run tautly along the row from two or more stout hazel stakes. Carefully tie the main shoot to the sticks, and, as side growths are formed, loop these in carefully by means of raffia, to support them from boisterous wind. A light watering overhead should be afforded Pentstemons during dry weather. Protection against slugs should be afforded by putting a ring of sharp cinder ashes around each plant. Seedling Pentstemons may also be planted out in a similar way, but they do not require so much growing space generally as the plants raised from cuttings.

Hollyhocks.—These plants are fine subjects for growing in a mass, either by themselves or as groups, at the back of the herbaceous border. Plenty of space should be allowed between the plants, say up to 3 ft. 6 in., and they require a well trenched soil enriched with well-decayed farmyard manure. Support the growths with stout stakes. To obtain extra fine spikes it is as well to remove the side growths. To obtain blooms for exhibition, the point of the spike should be nipped out when the lowest rosettes commence to expand. "Rust" is a frequent cause of trouble in plants growing in heavy, tenacious soil, but the use of Vert's Hollyhock powder has proved most effective with us.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

Permanent Fig Trees in Borders.—Trained Fig trees in succession houses will require constant attention in thinning, stopping, and tying the shoots where there is room for the leading branches to extend. Extension training, where space admits, is the simplest of all modes of growing the Fig, but in order to carry it out properly old branches which have reached the extremities of the trellis should be well thinned at the winter pruning, and feeding should be on a liberal scale. The roots of such trees are kept within bounds by means of turf or brick walls, and surface feeding roots are encouraged by mulchings of light, rich manure and watering with weak liquid, soot and guano water alternately. Fire heat cannot yet be dispensed with, but the valves of the pipes should be closed early on bright mornings. Air should be admitted when the temperature reaches 70°, gradually rising to 80°, and the ventilators closed again about 3 p.m. or earlier should the temperature show signs of declining. The latest houses containing trees from which one good crop only is expected should be kept cool, dry and well ventilated until the point buds begin to push into growth. If fire-heat is at command there is no necessity for delay, but, lacking this, early growth should be kept as hardy and backward as possible until all danger from frost is over. These late trees need not be pinched if they have an abundance of room; each shoot may be allowed to grow and form as many fruits and leaves as possible, to give ripe fruits in succession throughout August and September. The later fruits might prolong the season, but they should be rubbed off as they appear, otherwise the trees would suffer the following year. The roots of these trees are in a very limited area, and should be fed by liberal top dressings and diluted liquid manure applied two or three times a week. Cold water should not be used, but over-watering at this period is almost impossible.

Early Figs.—Pot Fig trees stood on inverted pots and pedestals and surrounded to the pot rims with fermenting materials will now be sending their white, fleshy roots over the sides of the receptacles in search of fresh food and moisture, of which the decaying manure affords a never-failing supply. Encourage these roots to develop during the growing season by spreading large sods well over the sides of the pots, but do not neglect to water the matted balls of roots within the pots, using warm diluted liquid manure occasionally, and keeping the turf and plunging material constantly moist. The syringe should be used freely not only during the flowering stage, but also through the period of the last swelling of the fruits that are ripening, when the amount of ventilation and fire-heat is increased. Exposure to sun light being essential for the fruits to obtain high colour and rich flavour, all gross shoots should be kept pinched, and weak or crowded growths removed as they appear. By these means, and allowing the temperature to reach 60° to 65° at night, with a little air, and 70° to 80° on bright days, the first crop of fruits will attain their fullest size and ripen quickly, while young shoots laden with small Figs will become well advanced for the succession crop.

THE KITCHEN GARDEN.

By JAMES E. HATHAWAY, Gardener to JOHN BRENNAND, Esq., Baldersby Park, Thirsk, Yorkshire.

Cucumbers.—Seed should be sown now to obtain plants in readiness for planting in frames as soon as the latter are at liberty.

Onion Fly.—Precautions should be taken to guard against this pest whilst the plants are young. As soon as the seedlings appear the beds should be dressed liberally with a mixture of half soot and fresh lime every ten days, and after showers. Another method is to sprinkle sand or sawdust saturated with paraffin between the rows. Rows of young Carrots should be treated on similar lines. It is important

to adopt these measures early and prevent attack, for once the pest is allowed to become established it is almost impossible to check it.

Celery.—The early batch of Celery plants should be planted out in trenches made 15 inches wide and 1 foot deep. The bottom of the trench should be broken up and well manured; the trench should then be half filled with well-rotted farmyard manure, and on this place a good layer of soil. The soil should be made firm, and the plants put in single rows 10 inches apart. Lift the roots with as large a ball of soil as possible and make them firm. On heavy land Celery trenches are often made too deep. Trenches for the plants comprising the main crop are better if made a good time in advance of planting, and these should be 3 feet 6 inches apart and 18 inches wide to allow for planting double rows. Dress the plants overhead with soot once a week as a deterrent to the Celery fly.

Borecole, Broccoli and Lettuce.—Make the main sowing of Borecole now on ground which has not been recently manured; also make a late sowing of Broccoli and sow more Lettuce seed to maintain a constant supply.

Gourds.—Sow seeds of Gourds in small pots in gentle heat to obtain plants for setting out at the end of the present month. Gourds are both useful and ornamental, and may be planted to cover unsightly places.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir C. NALL-CAIN, Bart., The Node, Codicote, Welwyn, Hertfordshire.

Violets.—Where Violet runners have been especially grown to produce flowering plants for next season they may now be planted out in well-prepared ground. Choose, if possible, a situation that is partially shaded, but do not plant Violets near large trees. Extra care is required in watering the plants after planting them, and also during hot sunshine. Good results may be obtained by dividing the plants, but when this is done take care not to select the central crown.

Begonia Gloire de Sceaux.—This fine ornamental and free flowering Begonia is, in my opinion, not grown so extensively as its merits deserve. As the plant flowers in the early spring, it is doubly valuable for grouping in warm corners of the plant house. When well grown it forms a delightful subject, for its large rose-coloured blossoms and handsome bronzy leaves are very attractive. To obtain large specimens of this Begonia cuttings should now be inserted. The best cuttings are obtained from shoots growing from the base of the plant, and they should be inserted singly or three in a small pot. Use a compost of an open texture, and add sand to further ensure a free drainage. Plunge the pots in a warm propagating frame and shade the cuttings from bright sunshine.

Tuberous Begonias.—The newer hybrid Begonias that were reported as advised previously will have made sufficient growth suitable for use as cuttings for propagating purposes. These hybrid Begonias always appear to be slow in making new growth until about the middle of the present month, but after that date they will be found to grow very rapidly provided a little attention is given to their requirements. Good strong growths taken from the base of the old plant will be found most suitable for use as cuttings. The receptacle should be prepared in advance; use a good open compost consisting of loam, leaf-mould, and peat, with a good dash of silver sand added. The cuttings should be placed in a propagating frame having a temperature of about 65°. They may be inserted either singly or three in a small pot. We generally place three cuttings around the edge of a small 60-sized pot, and immediately they are rooted sufficiently they are potted singly. This work is best done before the roots become matted together. Cuttings of these Begonia root very easily, and when once rooted they will be found to grow very quickly. Some of the best varieties include Optima, Eclipse, Scarlet Beauty, Exquisite, Emma, Elation, Mrs. Heal and Ideala.

THE BULB GARDEN.

HIPPEASTRUM.

SOME of the finest plants of *Hippeastrum* (syn. *Amaryllis*) may be allowed to ripen seeds for the purpose of raising a stock of young plants. The bursting of the capsule will indicate when the seeds are ripe. Although the seed of the *Amaryllis* will germinate freely at any time, it should be sown as soon as it is ripe to allow the seedlings time to make good progress before the advent of winter. The seeds may be sown thinly in a pan, or in 6-inch pots filled with a soil composed of two parts good loam, leaf-mould and silver sand. Finely-sifted soil should be placed over the seeds to the depth of a quarter of an inch. After watering them, the pots should be stood in a warm, moist propagating frame in which the seeds will soon ger-

until they flower, which a considerable number of them will do in the following spring. That is about twenty months from the sowing of the seed. After flowering, the seedlings may be treated the same as old bulbs. *W. Steward, Alfreton Park Gardens, Alfreton, Derbyshire.*

NARCISSUS PRESIDENT VIGER.

At the last meeting of the Société National d'Horticulture de France (held on April 13, 1922), MM. Vilmorin, Andrieux and Co. exhibited a vase of cut flowers of the magnificent *Narcissus Président Viger*, so curious by reason of its frilled trumpet, forming a ruffled outgrowth similar to that of *Begonia cristata*, and giving it an altogether new and original aspect.

This variety, raised by M. Chédanne, is said to be a sport from *Sir Watkin*. It received a Certificate of Merit from the Société Nationale d'Horticulture de France in 1913. *A. M.*



FIG. 123.—NARCISSUS ORANGE GLOW. AWARD OF MERIT, R.H.S., APRIL 25 (see p. 220).

minate. When the seedlings appear the pots should be placed on a shelf under the shade of a thin blind and watered very carefully. The young plants will make sturdy growth, and when they have formed their third leaf they should be potted singly into thumb pots, using the same kind of compost as before. The plants should again be placed on a shelf, and so long as there is room for the plants to grow without touching the glass there is no better position for them until they require larger pots. If watering is done carefully the young plants will make good progress until they require to be placed in 6-inch pots. The soil for this potting should be richer than for the previous pottings, and a compost consisting of three parts loam, one-quarter part leaf-mould and coarse silver sand with rough charcoal, the whole mixed well together, is suitable. It is essential that the pots be well drained. Some growers rest seedling *Hippeastrums* during the winter, but I think it is best to keep them growing continuously

TRILLIUM UNDULATUM.

This species of *Trillium* is more difficult to cultivate than *T. grandiflorum*, and in many cases fails to establish itself in gardens. Yet it can be successfully cultivated in a cool, shady place in gritty peat, where the roots are moist, yet not excessively wet.

The blooms are white, brightly painted with stripes and blotches of richest crimson towards the base of the petals. That the plant is hardy there seems no question, but it is often lost through planting it in a dry soil or a situation exposed to too much sun. Besides being found in the woods of the more southerly parts of the North American continent, it is indigenous from Nova Scotia to Ontario, and is hardy enough to stand our climatic conditions, so far as cold is concerned. It loves the shade of woods and a cool, moist environment. This *Trillium* is often known as *T. pictum* and *T. erythrocarpum*. *S. Arnott.*

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MARKET FRUIT GARDEN.

APRIL was cold and wet. The wind was frequently in the North or East, and it was keen even when it blew from other quarters. At my place rain fell on nineteen days, the total amount for the month being 3.11 inches. This makes it the wettest April since 1913, a fact which was not realised till the records were examined. There were 11° of frost on the first and fourth days, 4 feet above ground level, and the thermometer fell a little below freezing point several times, even at the end of the month, whilst there were ground frosts nearly every night. In such conditions vegetation was naturally held back. Fruit blossom is a month later than last year, which makes it about a fortnight behind the normal. All varieties of Plums bloomed during April, the earliest being in full display on the 15th. Early-blooming varieties of Cherries and Pears were also open in the latter half of the month, but later kinds had not burst their buds at the close. No Apple bloom appeared, whereas last year blooming started on April 12th, and was general by the 28th. I have never heard less of the cuckoo during April.

PLUM PROSPECTS.

All varieties of Plum have been full of bloom, some of them too full. The order of blooming was as follows: Black Diamond, Monarch, President, Rivers' Early Prolific, Czar, Victoria, Pond's Seedling, Belle de Louvain. The weather during blooming time gave a good deal of anxiety, as it certainly did not seem to be favourable to pollination. It is true that 3° of frost was the most recorded 4 feet above the ground during this period, but the thermometer frequently approached freezing point at night, and the days were often cold and windy or else wet, and, therefore, against the work of bees and other insects. However, there were intervals when the welcome drone of the bumble bees sounded amongst the trees, and it is to be hoped that their work proved effective. If they set one bloom in a hundred there would be a fair crop. It is too early yet to judge results, but the bloom seems inclined to hang on.

I am very glad I decided to spray with nicotine and soft soap just before the opening of the bloom. Examination proved that this killed most of the stem mothers of the dreaded leaf-curling Plum aphid. I think there would otherwise have been a severe attack, as plenty of these insects were found on a few trees in full bloom that were not sprayed before the buds burst, breeding evidently having started. I think it is a good rule to spray all Plums before blooming every year. Spraying as soon as the bloom has fallen may or may not be just in time to catch the pests before they curl the

leaves and protect themselves; but by that time the aphides have multiplied, and killing them is bound to be a more difficult matter.

A RESULT OF THE DROUGHT.

It is evident that last year's drought matured young wood to an unusual extent. Plums, of course, often bloom on wood of the previous season's growth, but seldom to the extent seen this spring. My Rivers' Early Prolific bloomed right to the tips of the young shoots; and some young trees of several varieties planted as maidens in the autumn of 1920 were covered with bloom from top to bottom. This, of course, is undesirable, and the bloom was promptly picked off to give the trees a better chance of growing. But this blooming on year-old shoots is more unusual with Apples. This year it occurs in many cases, some of them annoying, as where the bud to which a leader was pruned turns out to be a fruit bud. In other instances the drought did good service by throwing vigorous young trees into fruit. So far it looks as though a good proportion of this year's crop would be borne on



FIG. 129.—THE LODER RHODODENDRON CUP (see below).

young trees that have not carried much fruit before.

THE SPRAY-GUN.

Readers of American publications must often have seen mention of the spray-gun, and may have wondered how it differs from the spraying appliances used in this country. I find that spray-guns are now obtainable in England, and that several growers have tried them and gained a favourable impression. I have just become possessed of one, and have given it a test, though not an exhaustive one so far.

The main object of the gun is to enable the sprayer to reach the top of a tall tree without using a nozzle on the end of a long lance, which is heavy and awkward to handle amongst trees, and does not effect its purpose any too well if the trees are very tall. The gun is only 2 feet long, and therefore very handy. In appearance it is like a brass syringe. There is a big nozzle at one end, but the handle at the other, instead of being for working in and out, as in a syringe, is twisted by the hand to regulate the adjustment of the nozzle. The gun is attached to a

hose much as a lance would be, the hose screwing on to a short elbow just above the handle of the gun. The slightest turn of the handle alters the character of the spray. To wash the lower part of the tree the handle is screwed up so as to produce a very wide cone of spray. To reach the higher branches it is unscrewed less than half a turn, and the cone of spray becomes narrow and far-reaching. Provided there is plenty of pressure available (the gun is intended for use with power sprayers only) there is no difficulty in reaching the top of the highest fruit-tree. If the handle is screwed right home the spray is cut off altogether to allow moving from one tree to another. Owing to the big cone of spray produced and the ease of handling, a sprayer can get over the ground much more rapidly with a gun than with a long lance; but he needs to move about in a lively manner, or he would waste the wash.

For winter spraying and the use of contact washes in summer, when the object is to drench the trees, the gun seems to be ideal; but I am doubtful whether it would be wise to use it for applying fungicides to trees in foliage. As the cone of spray is lengthened it naturally becomes coarser, and *vice versa*. Thus the top of the tree receives a coarse spray and the bottom a fine spray. In the case of a fungicide this might cause scorching of the top branches. Apertures of different sizes are provided for the nozzle, but the spray must always become coarser as it is lengthened to reach to a distance. This is the only fault I have to find with the spray-gun.

INCREASING CONSUMPTION OF FRUIT.

Hitherto growers and distributors of fruit have relied upon the mere presence of the produce in the markets and shops to secure its sale. No attempt has been made to increase consumption and avoid gluts. It is hoped that this will be altered in the coming season. Growers are notoriously slow to combine, but they are organising with unusual enthusiasm to support two big advertising schemes, one to deal with glass-house produce, and the other with outdoor fruit and vegetables. In the latter effort growers and distributors are combining. During the marketing season the value and attractiveness of home-grown fruit will be brought to the notice of the public by means of advertisements in newspapers and magazines, special films in cinemas, and posters in the tube railways and elsewhere.

Special efforts will be made to stimulate the demand for any particular fruit at times when gluts are most to be feared, and in this way it is confidently expected that the demand will be caused to keep pace with the supply. Advertising experts, who are familiar with the power of propaganda, have no doubt as to the success of these schemes. It is a mere matter of creating in the public a habit of eating more fruit and vegetables. At present the British people consume less of such food than any other people in the world outside the Arctic Circle; so there is plenty of room for improvement. Although something like £112,000 will be spent on these advertising campaigns, the cost to the individual grower will be very small indeed; and, naturally, the greater the number of growers who give their support the lighter the burden will be for each. *Market Grower.*

THE LODER RHODODENDRON CUP.

THIS Cup was presented to the Royal Horticultural Society in 1921 by Mr. Gerald Loder, in memory of his brother, the late Sir Edmund Loder, to encourage the study and cultivation of the genus *Rhododendron* (including *Azalea*).

The award is to be made in October of each year, and in making the award the judges will take into consideration not merely floral display, but the value to horticulture of the work of the recipient, whether such work shall include the production of flowers or not.

There are five judges, three appointed by the R.H.S. and two by the Rhododendron Society; the Cup is not to be awarded to the same individual more than once in seven years.

The first award was made last October, when

Sir Isaac Bayley Balfour was selected by the judges to be the first holder. It will generally be agreed that no more fitting choice could have been made. As is well known, Sir Isaac has devoted many years to the study of Rhododendrons; he has worked out large numbers of new species discovered by Wilson, Forrest, Kingdon Ward, Farrer and others, and has raised many of them from seed.

The actual presentation of the Cup was postponed from last autumn, in the hope that after being relieved of his duties as Regius Professor at Edinburgh, Sir Isaac might be able to receive the Cup from the hands of the President of the Royal Horticultural Society. Ill-health has, unfortunately, prevented the realisation of this hope, and it has now been arranged to present it to him privately.

The Cup (Fig. 129), which is of silver-gilt, stands about 15 inches high, and though not an exact copy of an old piece is antique in character and style. The ornamentation is Celtic, and is similar to that on the Ardagh Cup made in the 10th Century, now in the Dublin Museum.

almost entirely supplanted by a crowd of hardy immigrants from the northern hemisphere."

It is remarkable that, notwithstanding the great number of flowering plants of the southern hemisphere cultivated in European gardens no successful counter-colonisation has taken place. This rule, however, is not without exceptions. I have noted four species of shrubs that have become thoroughly naturalised in this neighbourhood, growing self-sown so freely both in garden borders and woodland, that they have to be rooted out in some places to prevent them suppressing other growths. These are *Berberis Darwinii* and *D. buxifolia* from South America, and *Veronica Traversi* and *V. parviflora* from New Zealand. The last named is so prolific as to amount to a nuisance in the garden; but the nearly related and more desirable *V. salicifolia* shows no such tendency.

It is strange, in view of the preponderance of composite plants in Australasia, and the prodigious cloud of seeds discharged every year by the many species of *Olearia* and *Senecio*, that none of them has succeeded as a colonist in this

At this time careful watch must be kept for caterpillars, and if discovered steps should at once be taken to eradicate these pests. The Rose Slug-worm does a great deal of damage, and especially to climbing Roses, eating the upper skin of the leaf, but leaving the lower, with a result that the foliage assumes an unhealthy appearance, being covered at first with white blotches which soon turn brown, and cause much of the leaf to become semi-transparent.

As the foliage appears, commence spraying and dusting with sulphur, as a preventive against the various pests and diseases to which Roses are liable. Spraying should not be done late in the evening, nor in showery weather, and, of course, should never be carried out during bright sunny spells.

Hoing around the plants should be done frequently to keep the soil in good condition, whilst the spraying and dusting of the plants with specifics should be continued assiduously, for at this period pests begin to get very troublesome, and prevention is far more satisfactory than cure. Endeavour to keep enemies at bay from the beginning. When spraying, be sure to work



FIG. 130.—RHODODENDRON OREODOXA (see p. 239).

NORTHERN AND SOUTHERN PLANTS.

THE overflow of the human population of the northern hemisphere into the southern hemisphere, without any counteracting migration on the part of southern races, has its parallel in the vegetation of the globe. The readiness with which many flowering plants indigenous to lands in the northern temperate zone have become naturalised in Australasia and other lands in the southern temperate zone, has long been recognised as presenting a striking contrast with the inability of nearly all species from the southern hemisphere to compete successfully with the indigenous flora of the northern hemisphere and to establish themselves as colonists. In his *Manual of the New Zealand Flora*, Mr. Cheeseman states that in several districts of New Zealand introduced species now constitute the larger portion of the flora. He enumerates 528 of these introduced species (excluding what are obviously chance, and perhaps transient, escapes from gardens), whereof 425 are natives of the northern temperate zone. "At the present time," he remarks, "there are many districts where the indigenous flora has been

country. We grow here a considerable number of species of each of these genera, yet a single seedling of *O. nummularifolia* is the only self-sown offspring I have found in the course of many years. *Herbert Maxwell, Monreith.*

THE ROSE GARDEN.

SEASONABLE WORK.

THE pruning of Roses, where it is not yet completed, should now be finished without further delay, as the growths are making rapid headway. Care should be taken to remove all prunings at the time the work is carried out, or later one will find to one's cost what neglect in this direction means by happening upon an unnoticed thorn or two with painful results.

After the work of pruning is finished, apply a light mulch of well-rotted manure over the root area, and prick it lightly into the soil to a depth of three or four inches. This work should be done by an experienced and careful hand, as it is very necessary to guard against disturbing the roots when forking in the manure.

the mixture well under the foliage, as this is probably even more important than wetting the upper surface, as it is on the under sides of the leaves that pests, as a rule, harbour.

Plants raised from cuttings inserted last September or early October may now safely be placed out of doors to grow on, even though they have not started to throw out roots, provided they are well calloused; a sheltered situation should be selected. Cuttings offer an ideal method of raising fresh stocks of the lovely *Wichuraiana* group. Cuttings of well-ripened wood, cut to a joint, should be inserted in 48-sized pots filled with good, sandy compost, and the cuttings rooted in a cold frame. The same method may be employed for most of the Climbing Roses, and for some of the stronger growing Hybrid Teas and Hybrid Perpetuals, though for the latter two groups it is a more tedious way than budding, as greater time has to elapse ere the desired results are obtained.

Examine the stakes of Standard Roses and replace any that are decayed at the base; some may need withdrawing and placing in an upright position. This will also afford an opportunity to release any ties that are compressing the bark. *B.*

PASSPORTS FOR PLANTS.*

(Concluded from page 224.)

In the year 1920, 124,000 kg. of Beans were imported into Rotterdam harbour alone. In America Beans are severely attacked by a dangerous disease, which might be carried to Western Europe. It has never been found with scientific certainty on this side of the Atlantic yet. The disease in question is called the Bean Blight (*Bacterium phaseoli*). But America's famous bacteriologist, Erwin Smith, thinks it highly probable that it is commonly carried on the seed, and Edgerton's experiments seem to prove this. Erwin Smith states that it affects the seed coat without destroying the seedling embryo, and the organism has a great resistance to drought. It is a well-known fact that it is a dangerous disease in a moist climate. The bacterial spots are seen on the leaves as minute translucent dots, which become somewhat protuberant, and, later, are sunken and discoloured. The pods are also heavily infected, and finally the ripening and the grown-out seeds. The United States and South Africa are the places where the disease occurs very often.

Again, what about the vegetable seeds, of which in the year 1920 16,000 kg. were imported into the port of Rotterdam? The pathology of vegetable seeds is only partly known. In the case of several diseases, the way in which they are transmitted is not known, but there are indications that a number may be carried by the seeds.

In the U.S.A. there is a dangerous bacterial disease of the Tomato, caused by *Aplanobacter michiganense*, which causes a phloem disease. It shows a withering of the stems, a leaf wilt, and, finally, a rotting of all the tissues. Erwin Smith says of it: "I think that it is a seed-borne infection. I have seen its yellow slimes close under the seed in the middle of green Tomato fruits and also in the coat of an immature seed. Whether or not it actually occurs in the interior of seeds capable of germination, the frequent extensive invasion of the outer part of the Tomato fruit is certain to bring about a surface continuation on the seeds."

These examples illustrate some of the dangers that threaten European horticulture and agriculture. If Europe follows the same lines her points are as convincing as those of the Americans.

England has, in 1921, issued an Order against four American plant diseases, the Chestnut Canker (*Endothia parasitica*), Downy Mildew of Hops (*Peronospora humuli*), Pear Blight (*Bacillus amylovorus*), and Black Knot of Plum (*Plowrightia morbosa*). From a purely scientific standpoint the two fruit diseases may be carried over by fresh fruit. The Order will be of value in the case of Blight and Black Knot, when scions and twigs are sent from the U.S.A. to Europe; so it is with the Chestnut Canker, which is a real twig parasite. The Order shows that the interests of English horticulture and agriculture are focussed on this point.

Before trying to answer the second question (whether the danger is so large as the U.S.A. makes us believe) I wish to make some remarks on Quarantine Order No. 37. This Order has been the focus point of interest for horticulturists. It has been criticised by different scientists, and by our phytopathological services, so that it nearly seems superfluous to speak of it again.

I take it that every cultivated plant which may not be imported into America is refused on account of a special disease. If the Paeony and the *Gladiolus* are excluded (the import occurs only by special permit) I can only think of two diseases. The Paeony suffers in the U.S.A. and in Western Europe from *Botrytis paeoniae*, Oud. In the U.S.A. this is very common, and has been studied at different phytopathological centres. I have the impression that it is more common in the U.S.A. than it is here, but on both sides it is well known, and there is no danger of harming each other on either side. With the *Gladiolus* it is the same thing. The only disease that has certain influence is the Hard Rot that is caused by the fungus *Septoria gladioli*. This

occurs on both sides of the Atlantic, and was first described in the U.S.A. by Massey. The growers here know it well, and in the U.S.A. it is wide-spread. To a phytopathological scientist it is absolutely incomprehensible why these plants are excluded.

The same may be said of the Dahlias, of which, so far as I know, no dangerous infectious disease exists.

Let us now look at the practical side of the question, and examine the lists of the fungal and bacterial parasites America has found in different shipments of plants from Holland. It will show to us whether or not the consignments of plants are loaded with parasites. The phytopathological service has already pointed out, by analysing these lists, how clean the plants are, and how few parasites are to be found on them.

In the course of four years (1915-1918) they found no noxious diseases; 16 that had been known for years in the U.S.A., 8 organisms without parasitic characters, and 21 insufficiently described fungi of no noxious influence.

It strikes one that *Botrytis parasitica* on Tulips, which is spread on both sides of the ocean, has only been determined three times. We find mentioned *Glomerella cingulata* (*Gloeosporium fructigenum*) and we know that the American strain of the fungus is different from the European, as I put forward at the beginning of my remarks. *Rhizoctonia solani* has been found, which is a parasite common in the soil in all parts of the world. *Bacterium tumefaciens*, the Crown Rot of Apples and Quinces, was found in shipments. It is rather general here, but not of large economic influence, though well known to growers and pathologists. In the U.S.A. it is of more influence, causing a severe trouble with Apple seedlings, and as for the Quince, a Californian grower told me that "tumours were normal on these plants." It cannot be of any importance to American cultures whether *B. tumefaciens* be imported or not. We do not know whether it is a question of difference in strains in the bacteria or of difference in the host plant. I notice in the lists *Sphaeropsis malorum*, known in the U.S.A. as the Pernicious New York Apple Canker. It is not yet known as a Canker-producing parasite here, but we must keep a look out for it. If the fungus occurs here the strain of fungus does not seem to be virulent.

As already mentioned, I cannot find any severe diseases in these lists. The modern methods of control minimise the danger of transmitting parasites. But we know that American scientists think it possible that a harmless bacterium or fungus from here may prove fatal to them, and we know that Europe runs the same risks.

There is a slight risk, but if the world accepts this thesis, we shall look in future upon an impossible kind of life.

We can imagine passengers suffering from colds; the bacilli may change in the different climate into pernicious pneumonia bacilli, and become noxious to our people. But not only coughing passengers carry the cause of disease, but apparently healthy people may. This is specially the case with those people known as typhoid carriers, who are laden with germs of a pest. These people, according to the hysterical fearful, should be killed!

But no, Man is not worth so many billions of dollars as plants are! Measures against man's diseases are not so rigorous; but the measures against all possible and impossible plant diseases become sharper and sharper. Without very rigorous quarantine man's epidemics are well kept in check. The immigration of man has never been prohibited on account of diseases which he is not suffering from, but which he might carry. With international understanding regarding inspection, disinfection and fumigation, the exchanging and transportation of horticultural and agricultural products should continue with a certain amount of supervision, but should not be crippled by too severe rules. The certificates of pathologists should be recognised in the same way as those of human doctors.

The interchange of plants should not be prohibited, but only controlled. Prohibition is always a sign of weakness. It is only on this

basis that a healthy development of horticulture and agriculture may flourish. Competition is a necessary factor for the advancement of the world, and this will not take place if the present stringent conditions are insisted upon by America.

THE GRAPE VINE.*

(Continued from page 233.)

The size of the berry in the Grape is to a large extent determined by the number of fully developed seeds in it, which points to the value of proper fertilisation. Suppress all laterals as they appear. We do not close the houses in the early afternoon, for, although to do so might cause the vines very little harm, it certainly does them no good. This so-called bottling up of the sun, and incidentally charging the atmosphere with moisture, causes the leaves to soften, and thus makes them an easy prey for all insect pests. The only way to obtain strong, leathery leaves is to close the ventilators gradually in the evening till about 8 p.m., when the bottom ventilator should be closed to an inch and the top ventilators to two inches; if the thermometer falls to 55° no harm will be done to the vines during the stoning period. This is the time that the bloom is laid on and when the berry is built up. The longer the berries are in colouring the better, but, once they begin to turn, they cannot be ripened too quickly, for, when ripe in sixteen days from the time they commence to colour, they have perfect bloom, deep colour, and high flavour; moreover, the bunches will keep better, the berries being firm and solid. It may be said, "How are we to guard against mildew on vines under this treatment, with cold air reaching the leaves more or less continually, when it is known that the spores of this fungus are always present in the outside atmosphere in great numbers, and that they must be continually passing over the leaves?" It is quite simple when it is realised that it is only under certain conditions that these spores can develop, and these conditions are certainly not found on hard, leathery vine leaves and with a comparatively dry, clear atmosphere. But I would qualify the statement so far as a young vine in its first three years of growth is concerned, which must be kept growing further into the season to develop wood, and, therefore, must be kept cosier.

WATERING.

Watering should be done very carefully throughout the year. For the first watering, done ten days before the house is closed, always use tepid water, and thus warm the border a little. For subsequent applications the water should be a little warmer than the temperature of the house. Some growers withhold water from the roots during the ripening period and keep the borders comparatively dry while the fruit is hanging ripe on the vines. I have not yet found that water at the roots has any influence on the bunches; any damage that may be done through moisture is from the atmosphere; but I am convinced that the lack of moisture in the border in the autumn has an adverse influence on the next year's crop, because by withholding water from the roots, before the leaves have fallen, the plant is forced to use up the reserve food stored in the stem and branches in the autumn, instead of carrying this reserve forward for another year. The best plan is to give water any time the border is dry. It may be said that dryness helps to ripen the wood. It certainly hardens it. We go further than that, and give the borders a thorough drenching after the leaves have fallen, not that the roots require it, but to cleanse the soil of impurities given off by the small, decaying root hairs. These tiny root hairs die back annually and leave a toxin in the soil. Nature provides for this contingency in the winter rains.

(To be concluded.)

* An address given by Prof. (Miss) Westerdijk, at Utrecht and Baarn, at the Conference of the Fédération Horticole Professionnelle Internationale, at the Hague, on April 21.

* A lecture delivered by Mr. Malcolm Macnaughton, Scorne Palace Gardens, Perth, in the Technical College, Dundee, before the members of the Dundee Horticultural Association.

HARDY FRUIT GARDEN.

THE GRAFTING OF APPLE TREES.

On page 124 Mr. Markham advises the cutting down of old Apple trees for re-grafting. It may be of interest to many readers to direct attention to an alternative plan, which will give first-rate results. It consists in grafting the numerous extremities over the whole tree, in preference to heading down the stock nearly to the main stem which admits of only a limited number of grafts being accommodated on the resulting stumps, and the tree will take several years to form a fruitful head. A good instance of the success attending the other method I saw late last summer, when paying a visit to the nurseries of Messrs. James Harris and Sons at Blackpill, near Swansea. Observing some large trees bearing heavy crops of clean, well-developed Apples, Mr. Harris informed me that many years ago when he took over the land numerous old fruit trees of a decrepid, exhausted nature were growing on it, the varieties being mostly inferior, and the few fruits produced hardly developed beyond the scrump stage. He decided not to head them down, but to graft them on the extension or multiple plan. The result is seen to-day in trees having fine heads of fruitful growth. One often hears of the influence of stock on scion, but here it was of interest to note the contrary, the influence of the scion on the stock. In some cases the original variety had not been eliminated, but was growing together with the adopted variety. For instance, I saw Bramley's Seedling and King of the Pippins on the same tree, and the first graft, King of the Pippins, was not one wit less healthy and fruitful than the other, and both sorts were bearing heavy crops of good fruit. Another point may be mentioned: these trees, although they bore evidence of bad attacks of woolly aphis in the past, were found on a close scrutiny to be entirely free of this pest. This seemed important, seeing that the season of 1921 was one of the worst for woolly aphis—at least, such was my experience in the metropolitan district. Can it be that double grafting in the case of some varieties may render the tree immune. *Hortus.*

PEACHES AND NECTARINES ON OUTSIDE WALLS.

At the end of April Peach and Nectarine trees were showing a very fine display of blossom, both on south, south-east, and south-west walls, and should the season prove kind there is promise of good crops of fine fruit. The wood ripened splendidly last autumn, and at the time of pruning there was scarcely an unripened tip that needed to be cut away. As this season is a very late one, there should be little need for artificial pollination, as bees and other insects should be plentiful. Leaf blister, a source of trouble and annoyance in many gardens should not be so prevalent as usual, owing to better ripened wood, as I am quite sure the bulk of this disease comes on badly ripened shoots. Although this trouble is rare in these gardens (with the exception of one variety of Peach, viz., *Crimson Galande*), we always take preventive measures by spraying late in the season (just before the bulbs burst), either with lime sulphur at the strength of 1—25, or sulphide of potassium, at the rate of one ounce to one gallon of water, with a small amount of soft soap dissolved in the same. *R. H. Crockford, Weston Park Gardens, Stevenage.*

FRUIT REGISTER.

APPLE LAXTON'S PEARMMAIN.

If this Apple is at its best about Christmas, (see p. 201) it must, indeed, be an excellent variety. I ate one on February 10 last, took a description of it, and concerning the flesh, I wrote, "greenish yellow, soft, remarkably juicy, aromatic, and highly flavoured, still in first class condition, core small, with very small compressed cavities and few seeds." The two last charac-

ters may not always hold good, because both may have been due to imperfect fertilisation. Concerning colour my remarks were, "dull, deep crimson, except on the shaded side, which is greenish-yellow, shaded with crimson." The comparison made between the colour of this Apple and Cox's Orange Pippin on p. 201 would be helpful if the last-named Apple were always as highly coloured as exhibited at the fruit show of the R.H.S. in 1920, or, indeed, any year. There are thousands of people who have to depend on the market, or fruiterers' shops, for a supply of this excellent British Apple. As it comes from the west of Middlesex old and overcrowded orchards, the fruit is russety-brown throughout, and nearly the same as Ribston Pippin, both being undersized and poor in colour. Besides the two pairs of Apples mentioned on p. 201, another notable pair, raised from the same fruit, were Cox's Orange Pippin and Cox's Pomona. *J. F.*

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

A Proliferous Cone.—I enclose a proliferous cone of the Umbrella Pine, *Sciadopitys verticillata*, which may be of interest to you. It was taken from a tree about 20 feet high, grow-

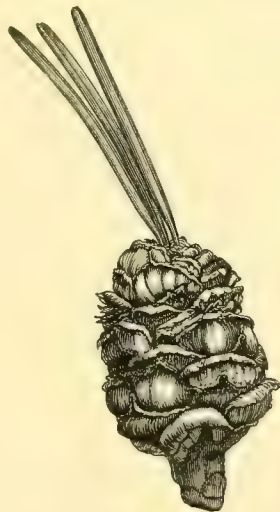


FIG. 131.—A PROLIFEROUS CONE OF *SCIADOPITYS*.

ing at Ballyarthur, Co. Wicklow, the property of Major A. Bayly. *A. C. Forbes, Dublin.*

[The *Sciadopitys* not infrequently exhibits this abnormality; a similar example to the one you send was illustrated in *Gard. Chron.*, March 1, 1884, p. 282, and the illustration is reproduced in Fig. 131.—Eds.]

A Nicotine Substitute.—Nicotine is now scarce and dear. Any substance that will replace it is worth trying, and I suggest that growers should try chlor-cresol. This is a chemical substance, not a proprietary or patent preparation. Used at 2 pounds per 100 gallons of water, with the necessary soap, it is, in my experience, a good contact insecticide, a very good deterrent to insects, and a good fungicide for mildews. It is definitely not a soil insecticide, though Dr. Russell, of Rothamsted, has drawn attention to its value as a soil steriliser for other organisms. I believe that fruit growers, nurserymen, and others would do well to give a trial to this chemical. Nicotine can never be available at a reasonable price, and we have to find a substitute. I think this is a possible one. *N. M. Lefroy, Westbrook House, Heston, Middlesex.*

Orn's "Flower Garden."—Mr. Jacob's note on p. 193 affords me an opportunity to state that *The Flower Garden*, which was by an unknown author, but obviously by a Scot, was really written or compiled by the author of the

other books of the series—McIntosh—but without his name. I find them all advertised later as by him, and a review in another periodical in the early forties gives McIntosh as the author. My copies were obviously bought in parts, and are bound in half calf, and no doubt might have had wider margins to the prints than they have, but still there is a margin, which Mr. Jacob's seems not to have. They were sold, bound in cloth, at 10s. 6d. each. Probably Mr. Jacob is a little unfair to McIntosh in condemning him for using scissors and paste. The other volumes clearly show that fruit was more the forte of the author than flowers, and if he knew little or nothing about Pinks and other florist flowers, it was at least honest of him to give directions from experts, with their names, than to presume to a knowledge of which he was ignorant. Moreover it was a common practice. *R. P. Brotherton.*

Do Plants Know Time?—On page 216, Mr. Mark Mills considers my explanations refer more or less to the opening and closing of the floral organs. That was the only subject at issue. He also says, I conclude that the opening and closing of certain flowers mentioned are due to incomplete growth. That is not my standpoint. Those movements are only possible while growth is incomplete, and cease as soon as growth is completed. I did not mention the cause of the opening of the flower heads of *Tragopogon*; that is another story. They open to receive their numerous insect visitors—beetles, flies, bees and butterflies—in order that their florets may get cross-fertilised, for that is the chief end of their existence. By the rolling of the arms of the stigma, the older florets get fertilised by the pollen of the younger ones. This method of fertilisation is termed geitonogamy, and it is more effectually carried out by the closing of the flower heads. Here also Mark Mills may notice a movement of the green bracts surrounding the head, and which are no part of the floral organs, but a stage nearer the true leaves. Two remarkable movements of other plant organs may also be observed in the *Scarlet Runner*. These are movements that are not hereditary. The opening of the flowers of forced plants cannot be called hereditary. It is quite true that I referred to the incomplete growth of individual flowers. A Sweet Pea may be made to produce a succession of flowers all the summer, and an Oak tree will continue producing them for hundreds of years. Each organ of a plant has its own periodicity of growth. I have made observations on the opening of the flowers of *Eurothera Lamarckiana*, and have seen them opening at some distance away, as it is very rapid. The failure of the flowers to close on a dull day was due to retarded growth. I cannot admit that a plant understands what time it has at its disposal for completing its growth. If a tall growing, late variety of Maize has not completed its growth before frost happens, it gets killed. *J. F.*

Veronicas and Lilies as Greenhouse Plants.—As an old and interested reader of your journal, I was pleased to note on p. 209 your correspondent *J. C.*, recommending Veronicas for pot culture. In these days of heavy expenses, much more use should be made of these semi-hardy plants. I am not acquainted with either of the species named, but are they superior to *V. hulkeana*, which now charms most of its beholders? This species is not quite hardy, but does well in a cold house. With regard to the articles on Lilies for greenhouse decorations, on p. 203, I have had experience with most of the species and varieties mentioned. Regarding *L. auratum*, I have found the varieties *platyphyllum* and *rubro vittatum*, more satisfactory in pots than the type plant. May I remark that those who have not tried *L. Henryi* in pots should do so. This species, grown here under not the best treatment, has done remarkably well, and increased rapidly, so much so that we are trying it in the open this season. Seed ripened last season, has germinated after being sown about 10 weeks. *L. testaceum* is another Lily which is making good growth in pots under cold treatment this season. *J. E., Felcourt Gardens, East Grinstead.*

SOCIETIES.

CHAMBER OF HORTICULTURE.

ANNUAL MEETING.

THERE was a large attendance at the third annual general meeting of the Chamber of Horticulture held at 18, Bedford Square, at 3 o'clock on Wednesday, the 3rd inst. In the unavoidable absence of the President, Sir Harry J. Veitch, Mr. George Monro presided, and was supported by Mr. G. W. Leak, one of the Vice-Presidents. The private members, the Horticultural Trades' Association, the British Florists' Federation, and the Federation of British Growers were all well represented. Lord Winterton, Sir Harry J. Veitch, Dr. Keeble, Alderman E. C. Moore, Mr. W. H. Page and Mr. W. Seabrook all sent letters expressing regret at their inability to attend the meeting.

The annual report and accounts presented proved particularly interesting, and a few of the principal items were those referring to the establishment of a strong Parliamentary Committee, which has had under consideration such matters as the taxation of motor lorries, improved transport facilities, marking of foreign produce, and the regulation of imports. The re-classification of goods conveyed by rail has occupied the attention of the Chamber to the very great advantage of horticultural traders. A matter under immediate consideration is that dealing with the conveyance of horticultural produce by passenger train. It appears also that the Insecticides Committee of the Chamber has done excellent work, while the Technical Committee has been particularly energetic in dealing with various insect pests and their treatment. The Report made reference to the value of the Imperial Fruit Show and to the International Horticultural Conference held in London last year at the offices of the Chamber. It is of interest to observe that the Chamber has representation at the National Institute of Agricultural Botany, the Advisory Committee on Willow Growing, the British Colonial Fruit Show, the Horticultural Advisory Council, and the International Commercial Horticultural Conference. The accounts show a very much better condition of affairs than previously; a large amount outstanding for legal expenses has been met during the year and this, together with the general expenses, have almost been met by subscriptions, donations and affiliation fees. There is still a deficit on the general account, and the chief creditor, and a very generous one, is Mr. George Monro. The Chamber has now seven prominent associations in affiliation with it, and nine non-trading societies. It has a private membership of nearly 150.

The Chairman referred to the several items already noted and stated that in his opinion the Chamber had come successfully through a very difficult period, during which there had been a heavy fall in the sale of prices of horticultural produce and practically no reduction in the cost of production. He also stated that the item of £378 7s. 4d. for cleaning, caretaking and repairs, included one of over £200 incurred in connection with the painting and repairing of 18, Bedford Square, but one not likely to appear again for some time. Mr. G. H. Barr moved the adoption of the report and accounts, and this was seconded by Mr. W. Nutting. Mr. R. H. Page and others considered the publication of a "Bulletin" was essential to the best interests of the Chamber, and other matters raised by members present were the taxation of motor-cars used for business purposes, the supply and strength of nicotine, prepayment of carriage, and owners' risks. The Report and Accounts were then adopted.

On the motion of Mr. Geo. Monro, seconded by Mr. J. Harrison, junr., Mr. G. W. Leak was unanimously appointed President for the ensuing year. In taking the chair and returning thanks for the honour accorded him, Mr. Leak expressed the hope that all members of the Chamber and all sections of the trade would pull together for the benefit of the horticultural industry, so that the Chamber might fulfill the purpose its founders set out to achieve. Messrs.

J. Harrison, junr., H. O. Larsen, W. Seabrook, C. E. Pearson, J. Rochford, and A. W. White were elected Vice-Presidents of the Chamber. Alderman E. C. Moore was reappointed Hon. Treasurer and heartily thanked for his services on the motion of Mr. G. Monro and Mr. H. Mount, while Messrs. Cobley, Kay and Co., were reappointed auditors on the motion of Messrs. Du Cann and C. H. Curtis. The election of eight representatives of private members to the Council followed, with the result that Messrs. R. H. Page, W. H. Page, G. Shawyer, F. Ridley, G. H. Barr, W. Wallace, W. H. Press, and Col. Fletcher were appointed.

The meeting agreed that a letter of thanks be sent to Sir Harry J. Veitch, the past president, together with an expression of hope that his health would soon permit him to come among his friends again. Mr. George Monro was also heartily thanked for his services during the year, as were Mr. C. M. Matthews, the Secretary, and the staff of the Chamber.

ANNUAL DINNER.

Mr. G. W. Leak, the new President, presided at the annual dinner held during the evening at the Hotel Cecil, and he was supported by Sir Arthur Griffith Boscawen, Minister of Agriculture, Mr. and Mrs. Geo. Monro, Sir Daniel Hall, Alderman and Mrs. Moore, Col. C. R. Burn, Mr. and Mrs. Geo. Shawyer, and Mr. and Mrs. J. Rochford, and there was also present a large company of ladies and gentlemen interested in commercial horticulture.

"Success to Horticulture" was proposed by Mr. G. W. Leak, who suggested that commercial horticulturists might be divided into two sections, those who cultivated plants good for food and those who grow plants desirable for their beauty. He referred briefly to the British fruit growing industry and expressed the view that although fruit cultivation had reached a very high degree of excellence in certain parts of the country, there was room for very much improvement in other directions, notably in the south-west of England, and he suggested that the Ministry of Agriculture might give special attention to educational matters in that part of the country. He also considered it desirable that growers should pay a visit to the Westlands of Holland so that they might become conversant with the splendid methods of fruit cultivation adopted there; indeed, he thought it was advisable for flower growers as well as fruit growers, to rub shoulders with those engaged in similar pursuits in other countries because there was usually something to be learnt. With regard to the flower industry, he considered our leading growers had little to learn in regard to cultivation and marketing. He expressed his very strong belief in a central co-ordinating body on behalf of all sections of the horticultural trade, and considered that the Chamber of Horticulture had filled that position to the advantage of all. There was room, in his opinion, for a very much wider interest in horticultural matters than at present obtained in this country, and he hoped that the impetus given to allotment cultivation by the war would not be allowed to lapse, and, particularly, he asked the ladies present to use their influence to extend the use of home-grown flowers, fruits and vegetables. Sir A. Griffith Boscawen responded to this toast in a very interesting and often humorous speech, and one to which we have referred on p. 237. He made special reference to the Hague Conference, to the need for organisation and statistical information in horticultural trade, and to the Plant Conference at Washington, which Mr. W. G. Lobjoit is on his way to attend with, he hoped, good results. At the conclusion of his remarks, Sir Arthur presented Mr. George Monro with his portrait in oils, painted by Mrs. Beresford. This life-like portrait was unveiled at this point, and was greatly admired by the whole of the company, and Sir Arthur expressed the feelings of all present when he said that the portrait was a modest token of the great regard in which Mr. Monro was held, and a little reward for the energy and enthusiasm which he had put into the founding and conduct of the Chamber of Horticulture. In acknowledging the presentation, Mr. Monro said he could scarcely

say that it came as a surprise, seeing that he had sat fifteen or sixteen times in Mrs. Beresford's studio, nor was he conceited enough to consider it a "handsome" present. Nevertheless, he was delighted with this evidence of the goodwill of his many friends, and the portrait would be kept as a heirloom in his family. He did not mind being hung on the wall, but he strongly objected to being placed on the shelf. The Presentation Committee had suggested that the portrait might be hung in the Council Room of the Chamber of Horticulture but his Scottish instinct would not allow him to accept the hint. However, to meet the views of his friends, he had asked Mrs. Beresford to paint an exact copy of his portrait, and when this was finished, he would be delighted to hand it over to the Chamber. Mr. Monro had a magnificent reception, and was accorded musical honours.

The toast "Our Guests" was proposed by Mr. Alderman E. C. Moore, and responded to by Sir Daniel Hall, while the toast of "The Chairman" was very capably proposed by Mr. F. R. Ridley, and duly given with musical honours.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

APRIL 20.—Committee present: The Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, D. F. Bedford, J. Birchenall, A. Burns, A. Coningsby, D. A. Cowan, J. C. Cowan, J. Ellwood, J. Evans, A. Hanmer, J. Howes, A. Keeling, D. McLeod, J. McNab, E. W. Thompson, J. Thrower, and H. Arthur.

AWARDS.

FIRST-CLASS CERTIFICATES.

Cattleya Titius var. Royalist. A variety with mauve sepals and petals and a large, broad lip of deep intense magenta colour and bright yellow throat; *Odontoglossum crispum West Point Elegance*, a large flower of good shape with white ground heavily blotched with deep reddish brown. *Odontoglossum St. George var. Brilliant (Alexandrina × eximium)*. A large, well-shaped flower also with a white ground that is heavily blotched with claret red. From S. GRATRIX, Esq.

Odontoglossum Duke of Clarence (crispum Luciani × Colossus). A fine flower heavily blotched with reddish-brown; *Brassia-Cattleya Jupiter, Lady May Cambridge*. A large flower with mauve sepals and petals and mauve lip with deep magenta markings. From Mrs. GRATRIX. *Dendrobium Ashworthiae Bedford's variety*. The petals and sepals are white and the lip greenish white; *Catasetum Trulla, Dovercourt var.*; sepals and petals almost black and lip green. From Dr. F. BEDFORD. *Cymbidium Garnet (Lowianum × Parishii Sanderæ)*. A very fine dark variety; *Cymbidium eburneogiganteum (eburneum × giganteum)*. A form with reddish sepals and petals and dark lip. From the Rev. J. CROMBLEHOLME. *Odontoglossum Pescatorei alba Haddon House var.* A pure white flower of good form with a yellow crest. *Odontoglossum Dorag (Doris × Aquatania)*. A large flower of good shape. From P. SMITH, Esq. *Lycaste Imschootiana, Bridge Hall variety* from Mrs. BRUCE and Miss WRIGLEY. *Odontioda Evelyn, Edgemoor var.* A flower of good shape and bright scarlet colour. From A. HANMER, Esq. *Odontioda Sultan (Charlesworthii × crispum-Harryanum)*. The sepals and petals are nearly black; lip reddish. From Messrs. KEELING and SON.

AWARDS OF MERIT.

Lycaste Skinneri Red Cap. From Mrs. BRUCE and Miss WRIGLEY. *Sophranitis grandiflora Bedford's variety*. From Dr. F. BEDFORD. *Odontioda Hypatia, West Point variety*. From S. GRATRIX, Esq. *Odontoglossum Amber* from A. HANMER, Esq.

GROUPS.

S. GRATRIX, Esq., West Point (gr. Mr. J. Hawes) was awarded a Gold Medal for a group of *Cattleyas* and hybrids in great variety. Messrs. CHARLESWORTH and Co. were awarded a Gold Medal for a fine group.

ROYAL HORTICULTURAL.

MAY 9 AND 10.—The Hall at Vincent Square was filled to its utmost capacity on the above dates with a great variety of subjects, the chief of which were Daffodils, Rhododendrons, flowering shrubs of many sorts, alpine and early hardy flowers, a few Orchids, Pansies, and a few Saxifrages. A larger representation of the last was anticipated, and in the ordinary course of weather there would have been plenty of Tulips. The opening day was brilliant and hot, and the hall was uncomfortably full of Fellows and visitors during the early part of the afternoon.

Orchid Committee.

Present:—Sir Jeremiah Colman, Bart. (in the chair), Prince Shimadzu, Messrs. Jas. O'Brien (hon. secretary), C. J. Lucas, Gurney Wilson, R. Brooman White, Frederick J. Hanbury, Arthur Dye, Fred. K. Sander, H. G. Alexander, W. H. Hatcher, A. McBean, Richard G. Thwaites, W. J. Kaye, E. R. Ashton, Pantia Ralli and Stuart H. Low.

Only five plants were entered for awards, and most of them had previously been given awards; none received distinction on this occasion. H. T. PITT, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), was awarded a Silver Flora Medal. A fine feature in the group was the variety of grand Miltonias showing the forms of *M. vexillaria*, ranging from the best pure white variety to the rich rose and crimson *M. vexillaria* Lyoth, also the richly coloured *M. vexillaria* Memoria G. D. Owen, *M. Hyeana* var. F. M. Ogilvie, a large white flower with blackish base to the lip; *M. Bleuana* Hesse variety, the best of its section, *M. Venus* var. Fascinator, a beautiful flower of rosy-mauve and white colouring, and the superb *M. Bleuana* Queen Elizabeth. Among the *Cymbidiums* was *C. Low-grinum* Rosslyn variety, which had previously obtained an award.

OTHER EXHIBITS.

G. W. BIRD, Esq., Manor House, West Wickham (gr. Mr. H. Redden), showed a grand plant of *Odontioda Sultan* var. *Scutari* (Odm. *crispum* × *Oda. Charlesworthii*) with a spike two feet tall, of eighteen flowers, that were heavily blotched with claret red.

R. GERRISH, Esq., Milford Manor, Salisbury (gr. Mr. W. Sorrell), showed *Odontoglossum majesticum* Gerrish's variety (eximium × perculum) with a spike of three large and finely formed flowers of rich violet and white colour.

R. G. THWAITES, Esq., Chessington, Streatham Hill (gr. Mr. F. Gover), exhibited *Sophr. Cattleya* Gwendoline var. *Golden Dawn* (C. Octave Doin × S.-C. Wellesleyae), a pretty flower with sulphur yellow sepals and petals, the latter tinged with pink, and a yellowish lip with clear ruby red front.

J. J. BOLTON, Esq., Claygate Lodge, Claygate, Surrey (gr. Mr. S. Lynes), showed cut blooms of two of the finest hybrid Orchids of their class ever exhibited, viz., *Cattleya Corydon* (armavillierensis × *Trianae* Backhousiana), a perfect flower, nine inches across and with proportionately broad petals of rich rosy mauve, the broad lip being ruby-crimson in front; and *Brasso-Laelio-Cattleya* Jupiter var. *John Cowan* (B.-L.-C. Veitchii × *C. armavillierensis*), an immense flower, perfect in form and over ten inches across. The petals are white tinged with rose; the broad, circular-fronted lip is deep violet with a clear yellow disc.

Narcissus and Tulip Committee.

Present: Messrs. E. A. Bowles (in the chair), G. W. Leak, J. de Graaff, Peter R. Barr, J. D. Pearson, C. W. Needham, H. V. Warrender, F. H. Chapman, J. W. Jones, Geo. Monro, W. Poupert, Rollo Meyer, W. B. Cranfield and Charles H. Curtis (Hon. Sec.).

FIRST-CLASS CERTIFICATE.

Narcissus Firetail.—This beautiful Barrii variety, with its ample cream white perianth segments and bright orange-red crown, is now well known to specialists and those who visit spring shows. It is a fine Daffodil, and gained an Award of Merit about a year ago. Shown

by Mr. F. H. CHAPMAN, Rye; DONARD NURSERY Co., Newcastle, Co. Down; and the ANGLESEY BULB GROWERS' ASSOCIATION.

AWARDS OF MERIT.

Narcissus Silver Salver.—A small-cupped Leedsii variety, with white perianth and white cup, the latter prettily plated, and with a greenish eye. Shown by Mr. F. H. CHAPMAN.

Narcissus Pelican.—An attractive Barrii variety raised by the late Mrs. R. O. Backhouse. The large perianth segments are soft yellow, while the rounded cup is vivid orange. Shown by the ANGLESEY BULB GROWERS' ASSOCIATION.

Narcissus White Coral.—This delightful and dainty triandrus hybrid is wholly white; the perianth segments reflex slightly and the wide-mouthed trumpet is prettily frilled.

Narcissus Sea Shell.—A charming giant Leedsii variety, with broad white perianth segments that are pointed rather than rounded at the ends; the short trumpet is pale yellow at the frilled rim, and this colour shades down to white about halfway to the base. Both shown by Mr. W. B. CRANFIELD, Enfield.

PRELIMINARY COMMENDATION.

Narcissus Ypres.—A strikingly handsome variety, with broad, frilled orange-vermilion cup, and broad perianth segments of palest buff tint, with the orange of the cup staining the bases of the segments. It belongs to the incomparabilis class and is the first variety to gain the Preliminary Commendation from the Narcissus Committee. Shown by Mr. GEORGE MONRO, Red House, Finchley.

GROUPS.

Messrs. BARR AND SON created a record by being awarded a Gold Medal at three successive meetings for the same flower. On the present occasion their admirable collection was but little inferior to the group at the previous meeting. It was the Barrii sorts that "took the eye" most, and these included *Nysa*, *Coeur de Lion*, *Prince Fushimi*, *Red Gauntlet* and *Angela*. The Pheasant's Eye type was also well represented (Gold Medal).

Just inside the entrance Messrs. SUTTON AND SONS splendidly illustrated the decorative value of Narcissi. The flowers were all of first quality and the arrangement was deserving of high praise. In tall stands we noted generous quantities of *Whitewell*, *Horizon*, *Memento*, *Red Lady*, *Red Chief*, *Tritoma* and similar sorts, while the central collection of such varieties as *Homer*, *Radiant*, *Crater*, *Buttercup*, *White Wonder* and a few Poeticus seedlings were equally fascinating (Silver-Gilt Banksian Medal).

On the other side of the entrance the DONARD NURSERY Co. had an interesting collection in which the large coronas in such sorts as *Will Scarlet*, *Donax*, *Croesus* and *Dragon* were especially showy (Silver-Gilt Banksian Medal).

The exhibit by Messrs. J. R. PEARSON AND SONS was stated to be composed of flowers from home-grown bulbs, and they illustrated in an admirable degree the excellence of the British product. Of the many varieties so well shown, *Croesus*, *Nannie Nunn*, *Marshallight*, *Gipsy Queen* and *Lucifer* of the Barrii type, and *Virgil*, *Thelma*, and *Acme* of the Poets' Narcissus were excellent (Silver-Gilt Flora Medal).

Varieties chiefly of garden value were shown by Messrs. RYDER AND SON, and these included beautiful vases of *Nannie Nunn*, *Helios*, *Horace* and *Maestica*. The *Tazetta* sorts were especially plentiful and the most prominent were *Fanny Halls*, *Sulphur Orange*, *Elvira* and *Orange Cup*.

Amongst the many varieties shown by Messrs. R. H. BATH, LTD., were *Matchless*, *Unique*, *Firetail*, *Lilian Cave* and *Marseillaise*. Besides the Narcissi there were vases of *Irises* and *Grape Hyacinths* (Silver-Gilt Banksian Medal).

Numerous promising seedlings were shown by Mr. W. B. CRANFIELD, with some new sorts. All were of great merit and attractively arranged. The most prominent varieties included *Flintstone*, *John Macfield*, *Firetail*, *Cosack*, *Crimson Braß*, *Mountaineer*, *Trace* and *Cockatrice* (Silver-Gilt Banksian Medal).

Besides some excellent seedlings Messrs. F. H. CHAPMAN, LTD., showed *Orgy*, a very showy Barrii bloom with a broad corona, shading from greenish yellow in the centre to a fiery orange at the rim. Debutante has a chaste bloom, which has a small red corona.

Messrs. E. H. KRELAGE AND SONS showed a few sorts, mostly of the large Trumpet section. These included *Faust*, *Pegasus* and *Dulcinea*, with seedlings. A couple of vases of *Tulip Siren*, of blush pink shading and elegant form, were very attractive.

In the Orchid annex the ANGLESEY BULB GROWERS' ASSOCIATION arranged a small collection of such attractive Narcissi as *Jingle*, *Jovial*, *Jester*, *Lantern*, *Vixen* and *Jorrock*.

Floral Committees.

Present: Messrs. H. B. May (in the chair), S. Morris, R. C. Notcutt, John Heal, Geo. Harrow, G. Reuthe, J. F. McLeod, W. J. Bean, H. J. Jones, H. V. Warrender, D. B. Crane, H. R. Darlington, Arthur Turner, C. R. Fielder, W. B. Gingell, M. C. Allwood, W. B. Cranfield, Andrew Ireland and J. Jennings.

AWARDS OF MERIT.

Primula fasciculata.—A tiny and apparently very variable species, about two or three inches high, and bearing a few deeply notched flowers on short, slender stalks. The smooth green leaves are ovate, on slender petioles, and suggest the foliage of some of the small-growing *Campanulas*. The colour of the flowers varies from lilac to lavender and blue, and there is a yellow rim around the eye. We believe this is one of Forrest's plants. Shown by the ROYAL HORTICULTURAL SOCIETY.

Acala Korang Yuki.—A bright, free-flowering and attractive variety of the *Kurume* section, making a dwarf densely twiggy bush. The flowers are small, of the *A. amoena* type, and they are of a rich reddish-salmon colour. Shown by Mr. R. C. NOTCUTT, Ipswich.

Rhododendron sino-grande.—At its first appearance in London this much-talked of and much written about *Rhododendron* did not have a particularly good reception, judging from the observations of many visitors at Vincent Square. The species appears to be much like the well-known *R. grande*, but has very much larger leaves, indeed, in a cool house it might pass as a handsome foliage plant. A comparatively small leaf shown was about 16 inches long by 9 inches wide, and we have heard of leaves measuring 20 inches by 11 inches. The campanulate flowers are cream coloured, stained at the base with crimson, and the anthers are crimson; in the truss shown there were twenty-six flowers, and it was evident that two others had fallen. It is not hardy at Horsham. Shown by DAME ALICE GODMAN, Horsham, Sussex.

Eriogonum pungens.—This interesting plant—the Hedgehog Primrose—was admirably represented at Vincent Square by a specimen, grown in a pot, covered with flowers. It is a native of Valencia and Morocco, and was discovered byCLUSIUS. The plant forms a dense, dwarf, almost leafless shrub, erect and very spiny, and bears its purplish-blue flowers, each set in a silky calyx, in clusters of three to eight, just below the ends of the branchlets. A fine specimen at the Cambridge Botanic Garden was figured in *Gard. Chron.*, Vol. lxxix., fig. 121. Shown by Mr. MAURICE PRICHARD, Christchurch.

Rose White Ophelia.—An exquisitely beautiful cream white counter-part of the very popular market *Rose*, *Ophelia*. The blooms are of almost perfect form and carried on long, stiff stems. Shown by Mr. ELISHA HICKS, Twyford.

Pyrus Eleyi.—An effective hybrid obtained by crossing *P. Niedwetzkyana* with *P. spectabilis*. The large flowers are of intense old-rose colour, almost crimson in the newly opened bloom, and Shown by CHAS. ELY, Esq., East Bergholt, Suffolk.

GROUPS.

Flowering shrubs were a pleasing feature of the meeting. On a floor space Messrs. L. R. RUSSELL, LTD., displayed excellent bushes of such large-flowered greenhouse *Rhododendrons* as *Dalhousiae*, *Countess of Haddington*, and *Nuttallii*. There were also examples of *Cerasus*

James H. Veitch, many Clematises and the old-time greenhouse climber *Rhynchospermum jasmminoides* (Bronze Flora Medal).

A corner space was well filled by Mr. R. C. NORCUTT with a good collection of double-flowered Chermes, various *Pyruus* and *Azalea Kaempferi* varieties. There was also a particularly good bush of *Enkianthus campanulatus* (Silver Flora Medal).

Near by Mr. J. C. ALLGROVE had a splendid collection of forced Lilacs. *Souv. de L. Spath*, President Grévy, Madame Lemoine and Marie Legray were very attractive. A plant of the uncommon *Paeonia obovata-alba*, introduced from Hupeh in 1900, also attracted much attention (Silver Banksian Medal).

On a floor space Messrs. R. and G. CUTHBERT displayed Cherry James H. Veitch, with many plants of *Azalea mollis* and *A. Hexe*. They also had examples of the fragrant *Staphylea colchica* and some little bushes of *Deutzia gracilis* (Bronze Flora Medal).

Some very handsome sprays of *Pyruus Malus* varieties were shown by Messrs. J. CHEAL AND SONS. Besides *floribunda purpurea* and *Neidzwetzkyana*, they had large branches of *P. prunifolia coccinea*. In another place Messrs. Cheal staged several pot plants of *Hydrangea Madame Mouliere* also a few vases of *Star Dahlias* (Bronze Flora Medal).

Some good varieties of the "Kersbergen" *Azaleas* were again exhibited by Messrs. WALLACE AND CO., who included many plants of *Azalea Hexe* and *Rhododendron Hugo de Vries* (Silver Flora Medal). A large branch of *Rhododendron Nuttallii* was shown by Messrs. R. GILL AND SON, who also had beautiful trusses of *Gill's Triumph*, *Dalhousiae* and *Beauty of Tremough* (Silver Banksian Medal).

An especially interesting collection of *Rhododendrons* was contributed by DAME ALICE GODMAN, South Lodge, Horsham. These included *R. campylocarpum* and a rather paler yellow variety; *Loder's White*, *Luscombei splendens* and an *Aucklandii* hybrid bearing an unusually large and shapely truss (Bronze Banksian Medal). Messrs. R. VEITCH AND SON, Exeter, showed handsome sprays of *Dendromecon rigidum*, *Prostanthera rotundifolia* and *Sophora tetraptera*, to the latter of which a Cultural Certificate was granted.

MESSRS. JOHN PEED AND SON filled a goodly length of tabling with a collection of handsome *Hippeastrums* (Silver Flora Medal). Several large plants of their new *Golden Mrs. F. Sander Marguerite* were shown by Messrs. Sanders.

Auricles of superb quality were shown by Mr. JAMES DOUGLAS. Amongst the many varieties *Brilliance*, a cerise self show variety with a white centre and mealy leaves, was especially prominent (Silver-Gilt Banksian Medal). A smaller collection, contributed by Messrs. LOWE AND GIBSON, included such sorts as *Argus* and *Great Warley* (Bronze Banksian Medal).

Roses were shown in increased numbers and of great merit. Messrs. B. R. CANT AND SONS included such valuable sorts as *Cupid*, *Padre* and their new variety *Sovereign*, in a collection of beautiful blooms. Mr. E. J. HICKS had many vases of useful blooms. The deep pink *Premier*, with *Columbia*, were admirable, while the central collection of *White Ophelia* was very chaste and charming (Silver Banksian Medal). *Augustine Hartmann*, *Ophelia K. of K.*, and some immense blooms of *Mrs. Foley Hobbs* were included in a good collection of *Roses* by Mr. GEORGE PRINCE (Silver Banksian Medal).

On a floor space Messrs. WM. CUTBUSH AND SON had a very graceful and pleasing group of free-flowering *Roses* (Silver Flora Medal).

The customary quantities of excellent cut *Carnations* were on view. Messrs. ALLWOOD BROS. showed many interesting and decorative varieties of *Dianthus Allwoodii*, with such good perpetuals as *Edward Allwood* and *Mary Allwood* (Silver-Gilt Banksian Medal).

Such brilliant varieties as *Tarzan*, *Ethel Fisher* and *Topsy* were well shown by Mr. C. ENGELMANN, who also had admirable vases of *Mrs. C. F. Raphael* and *Lady Miller* (Silver Banksian Medal).

MESSRS. STUART LOW AND CO. also showed good *Carnations*, and adjoining them staged ex-

ceedingly floriferous *Mimosas*. *Acacia armata* and *A. pendula* were especially good. They also included *Oranges* in full bloom, and a plant of the now rare *Aphelexis macrantha purpurea* (Silver Flora Medal).

Saxifrages were not extensively shown, though these were expected to be the chief feature of the meeting. The Society sent a representative collection from Wisley. The more showy varieties included *Pink Beauty*, *Wenlock Best* of *All. S. ligulata lantoscana*, *S. peltata* and *S. tellimoides* (Bronze Flora Medal).

In a pleasant exhibit Messrs. WATERER, SONS AND CRISP included such *Saxifrages* as *Wallacei*, *Diana*, *affinis*, *sanguinea superba*, with *Iris pumila violacea*, and also had a nice group of the dwarf *Rhododendron fastigiatum* (Silver Flora Medal).

A plant of the quaint *Podophyllum Emodii* major was shown by Mr. M. PRICHARD. He also displayed *Delphinium nudicaule* and *Gazania montana* of great interest (Silver Banksian Medal). Mr. G. REUTHE had his customary collection of new and rare plants (Silver Banksian Medal). *Gentiana acaulis* and the brilliant bedding *Daisy Ball of Fire*, with a fine batch of *Primula Sieboldii*, were arranged by Messrs. LADHAMS, LTD. (Bronze Flora Medal).

Various alpinines, especially *Saxifrages* and *Androsaces* of merit, were exhibited by Messrs. MAXWELL AND BEALE (Bronze Flora Medal). Dwarf *Phloxes*, bearing quantities of blooms, *Anemone alba major* and a colony of *Houstonia serpyllifolia* were displayed by Messrs. SKELTON AND KIRBY (Bronze Flora Medal). Mr. C. ELLIOTT had *Gentiana acaulis* and *Primula*, *Dusty Miller*, with *Sisyrinchium filifolium* (Bronze Flora Medal). Mr. G. W. MILLER showed *Polyanthuses* and alpinines (Bronze Flora Medal). Interesting alpinines were displayed by Mr. F. G. WOOD (Bronze Banksian Medal).

Daphne Cneorum, many *Primulas* and *Armeria caespitosa* were the principal features of the exhibit by Messrs. W. H. ROGERS AND SON (Bronze Flora Medal).

MESSRS. PIPER AND SON showed a good batch of *Primulas* such as *P. Bulleyana* and *P. pulverulenta* (Silver Banksian Medal). In a corner space the CHALK HILL NURSERY CO. displayed an excellent strain of *Pansy* (Bronze Flora Medal).

THE MAYTHAM GARDENS showed beautiful blooms of *Tulip Ellen Willmott* with *Lobelia Warley Blue* and *Phlox subulata lilacina*.

Fruit and Vegetable Committee.

Present: MESSRS. C. G. A. NIX (in the chair), Jos. Cheal, Geo. F. Tinley, S. B. Dicks, W. F. Giles, H. Prince, P. D. Tuckett, T. Pateman, A. C. Smith, H. Markham, F. Jordan, G. Reynolds, J. C. Allgrove, J. Wilson, W. H. Divers, A. Bullock, A. H. Pearson, A. Metcalfe, Owen Thomas, P. C. M. Veitch, E. A. Bunyard and Geo. Kelf.

There were no exhibits of any importance before this Committee. The Chairman, Mr. C. G. A. Nix, referred to the death of Mr. S. T. Wright, who had been secretary of the Committee for the past twenty-five years. He said that all knew him as a faithful, hard-working member of the Royal Horticultural Society's staff, and all present had lost a dear friend. He asked the members to send their condolences to Mrs. Wright and her family, and also proposed the following resolution: "The members of the R.H.S. Fruit and Vegetable Committee desire to express their heartfelt sympathy with Mrs. S. T. Wright and the other members of his family in the terrible sorrow which Mr. Wright's sudden death at Matlock must have brought upon them." The Chairman also proposed to be put on record on the Committee's minutes the very high esteem in which they have always held Mr. Wright, and to acknowledge as amply as is now possible their deep sense of his unfailing courtesy and consideration and of the very high value of his knowledge, experience and counsel during the many years in which he had so faithfully and diligently served the Committee and the whole Society. These proposals were adopted by the Committee.

Obituary.

Alexander Forbes Irvine.—Keen regret will be felt in arboricultural circles at the death of Mr. A. F. Irvine, of Drum, Aberdeenshire, which took place on Saturday, April 29, at the comparatively early age of 41. The scion of a family which descended in the male line from William de Irewyn, Secretary and Armour Bearer to King Robert the Bruce, the deceased was one of the most popular lairds in the North of Scotland. Mr. Irvine was warmly interested in forestry, and was president of the Aberdeen branch of the Royal Scottish Arboricultural Society, wherein he did much useful and valuable work. On several occasions he gained the society's medals with exhibits from his estate, of which he was justly proud. Only recently Mr. Irvine was appointed to the Forestry Committee of the North of Scotland College of Agriculture. Mr. Irvine had within his policies a finely equipped nursery, from which he replenished the woodlands on his estate. Mr. Irvine joined the Army at the outbreak of hostilities as a private, after which he was granted a commission in the Grenadier Guards. With this regiment he went through very severe fighting, and was dangerously wounded. He returned home shattered and maimed for life, and his early and untimely end must be attributed to the hardships he then underwent. He is survived by a widow and five sons.

Professor George Simonds Boulger.—We learn with deep regret that Professor George S. Boulger died at Kew on the 4th inst. He was for thirty years associated with the Royal Agricultural College, Cirencester, as Professor of Natural History. He had also been Lecturer on Botany and Geology at the City of London College since 1884, and at the Imperial Institute since 1917. Professor Boulger was an active member of the Selborne Society, the Essex Field Club, the South-Eastern Union of Scientific Societies, and other associations. He was the author of several works on natural history, including *The Uses of Plants*, *Familiar Trees*, *Biographical Index of British and Irish Botanists* (with J. Britten), *The Country Month by Month* (with J. A. Aven), *Elementary Geology*, and *Plant-Geography*.

ANSWERS TO CORRESPONDENTS.

BETTER FOUND IN A WRITING CASE: H. M. The insect is *Anobium striatum*. This beetle belongs to the family of *Ptinidae*, a group of small and very destructive beetles. They are very destructive to woodwork, but are not in the least particular as to their diet, and will devour almost any kind of food. The tapping to which you refer is the call of the *Anobium* to its mate.

BLOOD AS A MANURE: L. D. The blood should be dried before it is used as manure. If it is allowed to stand for sometime after adding from 1.3 to 3 per cent. of lime the mass will solidify and subsequently can be air dried with ease and without undergoing decomposition. Dry blood is a valuable organic fertiliser, and contains from six to fourteen per cent. of nitrogen.

TRAINING IN HORTICULTURE: G. W. R. S. All the institutions you enumerate may be recommended, and we should say that a course of training at either one would be equally valuable. The practical experience you would gain at either the Royal Horticultural Society's Gardens, Wisley, or Reading University College, would also be very valuable.

THUYOPSIS SHOOT DRYING AT THE TIPS: Erin. The withering of the tips of the branches is not due to organic disease caused by a fungus. It is probably due to unsatisfactory conditions at the roots which may have been caused by the abnormal drought of last summer.

Communications Received.—J. O. M.—D. C.—R. A. A. D. R.—J. W. D. B.—J. J.—H. C.—G. Y.—W. G. A.

THE

Gardeners' Chronicle

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 53.1.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, May 17, 10 a.m. Bar. 29.8; temp. 53°. Weather—Raining.

On "Hardening" Plants.

Few garden practices are so universally followed by good gardeners or so little understood by anybody, as is the practice of hardening plants. Everyone who raises plants under glass knows that to transfer them directly in the early part of the year from the heat in which they are grown to the chances and changes of temperature in the open is to court failure. Gardeners also know that the hardening process is somewhat slow and that one or two days only in a cold frame does not suffice to harden young plants. Experiments carried out a few years ago by Mr. Harvey*, show in a most interesting manner that although the hardening process begins at once when plants are transferred from greenhouse to cold frame—in one day the plants acquire some measure of increased resistance to cold—yet at least five days elapse before the plants become really hard. Thus Cabbage, after five days' exposure to cold frame temperature—three degrees above freezing—were able to resist thirty minutes' exposure to 3°C., although the temperature froze them stiff and killed outright unhardened plants. He also showed what is of great interest to gardeners in this capricious climate, that hardened plants lose under warm conditions their hardness in about the same time as they acquire it. If, therefore, tempted by a genial spell of weather, the gardener puts out his hardened plants, and if that genial spell lasts long enough to

make the plants soft again, they are almost as prone to damage as they would have been had they not been hardened at all. "More haste less speed," is the motto to observe in planting out. Physiologists who have investigated the effects of frost on plants have given us a good definition of hardness. It is the ability to survive ice formation within the tissues. Of our garden plants the tender ones do not possess this power, and we know of no means of making them acquire it. Some possess it, as it were, naturally; others and they are the ones that interest us here, may acquire hardness. The Cabbage is an example of this last class, whereas the Tomato cannot be "taught" to resist a temperature below 5° Centigrade. The adept in gardening can tell by the appearance and still more by the "feel" of a plant, whether it has been well hardened. This is due to the fact that during the hardening process growth is checked and hence leaves and soft stems, instead of appearing sappy, have a stiffish appearance and are springy and elastic. They are smaller and thicker than are those of unhardened plants of equal age. Experiment has shown that hardening may be assisted in watering plants with solutions which check growth. Give them nitrates such as potassium or calcium nitrate and the plants' growth is stimulated. They become sappy and soft, but water them with a weak solution of common salt or washing soda (at the rate of about two oz. to the gallon) and their hardness is increased for the same reason that it increases in the cold frame, namely, because growth is checked. Withholding water is, of course, another means of aiding the hardening process. It follows from what has been said, that age is a factor to be taken into account. Young tissues, for example those of leaves, are more easily injured than are older tissues; a fact which has to be borne in mind in autumn sowing and autumn planting. There are apparent exceptions to this rule; for example, July sown Beet may be left in the ground, if the soil be not a very wet one, well into the winter, by which time old roots would have perished. This, however, is to be attributed to the fact that the "root" of the mature Beet consists of tissues, the cells of which are on the down grade of life, they are, as it were, over-mature, and begin to show the reduced resistance of old age. Plants which are hardy in the sense in which the word is used here may show signs of "frost-bite," although they do not succumb to a hard frost. These signs—also exhibited by tender plants when grown in too low a temperature—take the form of spots on the leaves. These spots are at first translucent, owing to the fact that they represent areas in which the intercellular spaces, normally full of air, have become injected with water which has been excreted from the neighbouring cells as a result of the low temperature. Even hardy plants may show these frosted areas, but in their case the frost spots disappear, whereas in tender plants they become brown as the cells disintegrate. Some hardy plants, like the Cabbage, show curious after-effects in the spotted areas. As Mr. Harvey has shown, each spot gives rise in the course of a few days to an embossed area of a colour lighter than that of the rest of the leaf. These intumescences go on growing and may reach a large size, and a Cabbage leaf which has been exposed to and recovered from frost, may have its surface puckered and rolled in most fantastic shapes. This behaviour may be likened to that often produced by mechanical injury and the formation of those intumescences must be referred to the plant's reaction to the wound-stimulus of frost. Bloom on the leaf often serves, as may be shown by observing different

varieties of Cabbage, to prevent injury from frost. This, according to Mr. Harvey, is probably due to the waxy layer acting as a water-proof preventing communication between water on the outside of the leaf and that lining the cell walls and occurring in the cells. When frost comes, the water on the leaf-surface is cooled and in the absence of wax this cooling is transmitted to the water of the cell-walls and cells. As the process continues, this water is undercooled. It does not freeze, however, unless the ice crystals which form on the surface are in continuity with the water in the walls and cells. The bloom breaks the continuity and hence ice—which is the danger—forms less readily in a leaf with bloom than in one without it. There are numerous hypotheses as to the actual cause of death from freezing; the most probable is that as water escapes from the cells, the nitrogenous complex compounds (proteins) on which cell vitality depends are salted out, that is, precipitated, and that once this process has been set up, recovery is impossible, because the vital mechanism has been destroyed. Hardening on this hypothesis is due to a change in the composition of the proteins of the cell. During the process of hardening these substances give rise to other proteins of simpler construction which are less apt to be salted out, that is, thrown out of the vital mechanism.

It is common practice to spray plants which have been subjected to frost. The practice is a good one, but how it achieves the end is obscure. It was thought at one time that it caused a slower thawing and gave time to the cells which had lost water to recover it. In point of fact, spraying hastens the thawing process and it seems more probable that its good effect is due to transpiration being checked. Mr. Harvey has made a curious observation which lends some collateral support to this view. He finds that if the leaves of a frost-spotted Cabbage are submerged in water, the intumescences already described do not develop. Water appears, therefore, to arrest the pathological processes set up by frost and the recovery of a frosted leaf which has been sprayed must be included in the already long list of "water cures."

Chelsea Show.—The great annual exhibition to be held by the Royal Horticultural Society, in the grounds of Chelsea Hospital, on May 23, 24, and 25, promises to be one of the largest and most attractive yet held on this historic site. There is no lack of exhibitors, indeed, it has been found impossible to provide sufficient space for all, and we understand some would-be exhibitors have been crowded out, notwithstanding that the big, well ventilated tent has been extended. The refreshment tents have been placed in the Ranelagh Gardens, and the space they have usually occupied is being filled by formal gardens. The lecture tent is retained, and one tent is also provided for the use of exhibitors and the members of trade and other horticultural organisations. The scientific and educational features of the show will occupy a separate tent. In this section, the Royal Horticultural Society will contribute exhibits illustrating some of the experimental work in progress at the Laboratory at Wisley, and is also arranging an information bureau where Fellows and visitors may consult the Society's Garden Adviser and members of the Wisley staff on matters concerning cultivation of crops and the prevention and cure of diseases. Fine weather appears to be all that is needed to make the Chelsea show a financial success.

French Flower Growers' Visit to London. A party of some twenty of the largest cultivators of flowers in the South of France will pay a visit to London during the ensuing week. The Paris, Lyon and Mediterranean Railway Co., over whose service the bulk of the French flowers travel to England, has arranged the trip, and

* "Hardening Process in Plants and Developments from Frost Injury." *Journal of Agricultural Research*, N.Y., 2, 1918.

the following is the programme:—Sunday, May 21, visit to the Royal Gardens, Kew, conducted by Dr. A. Hill; Monday, May 22, visit to Messrs. Sutton and Sons, Reading; Tuesday, May 23, visit to Chelsea Show, and official reception by Lord Lambourne, President of the R.H.S.; Wednesday, May 24, an early visit to Covent Garden market, and invitation to breakfast by Mr. George Monro; afternoon, visit to Messrs. Ernest Stevens' nurseries at Cheshunt; Thursday, May 25, visit to the R.H.S. Gardens, Wisley, lunch at The Hut, by invitation of the Royal Horticultural Society, and tea in the gardens; Friday, May 26, early visit to Covent Garden Flower Market, and reception by the British Florists' Federation; afternoon, visit to Messrs. Low and Shawyer's establishment at Uxbridge; Saturday, May 27, motor trip to Mr. C. Engelmann's nursery at Saffron Walden, and lunch by invitation of Mr. Engelmann.

Presentation to a Lady Gardener.—Miss M. Williamson, whose retirement as principal of the School of Practical Gardening for Women, under the auspices of the Royal Botanic Society, was announced in our issue for April 29, has been presented by the students, past and present, of the gardening school, with a gold wristlet-watch as a token of their appreciation of her twenty-three years work among them.

Asiatic Palms.*—Volume 12, Part 2, of the monumental *Annals of the Royal Botanic Garden, Calcutta*, has reached us. This is part of the work on Asiatic Palms carried out by Dr. Odoardo Beccari, and it consists of 231 pages of text, including index, six plates (14 by 11 inches) of analytical figures of flowers, fruits and seeds and 118 double plates, each 16½ by 14 inches, representing various genera of the section Lepidocaryeae. The illustrations are superb reproductions, and include representations of *Calospatha Scortechinii*, six species of *Ceratolobus*, seven species of *Eugeissona*, twenty-eight species of *Korthalsia*, ten species of *Metroxylon*, *Myrialepis Scortechinii*, *Pigafetta filaris*, thirteen species of *Plectocomia*, five species of *Plectocomiopsis*, and thirteen species of *Zallacca*. No fewer than ten varieties of *Metroxylon Rumphii* are described and illustrated, three varieties of *Metroxylon Sagus*, four varieties of *Metroxylon squarrosus*, and two varieties of *Zallacca edulis*. The wonderful thoroughness in which the work is carried out may be gathered from the statement that a minute description of the Sago Palm, *Metroxylon Sagus*, occupies a whole page, apart from the references to synonyms. Then follow notes on the habitat of the species, its distinguishing features and interesting observations on its uses. These occupy another page and are followed by descriptions of several varieties of the species. Altogether, the account of *Metroxylon Sagus* occupies nearly five pages. In the observations on this species, it is recorded that it yields the flour or farina of Sago and the well-known granulated starch, exactly as *Metroxylon Rumphii*, and, like that species, affords numerous other commodities to the natives. *M. Sagus* corresponds to *Sagus laevis* of Rumph., of which he wrote that the plant receives in Amboina the name of "Lapia molat," and that it produces an excellent kind of flour, of which the Amboinese make their much esteemed gruel named "Papada" and a kind of bread. Biscuits of general use are also made by cooking the flour in small, heated, stone moulds. We gather also that *Metroxylon Sagus* is the "Rambia" of the Malays of Java and Sumatra. "Kirai" is its Javanese name, and it is known now in Amboina as the "Sagu perampuan" (the female Sagu) or the "Sagu papada" (the gruel Sagu). The text is printed in eight-page sheets with ample margins, uncut, ready for binding and the double plates are loose, in a thick paper folio, and enclosed in a stiff cardboard case. The price of this part of the *Annals* is four rupees Indian (£3). It appears that the superb, double plate photogravures have been reproduced in Florence.

* Asiatic Palms. Lepidocaryeae, Part 3. By Dr. Odoardo Beccari. *Annals of the Royal Botanic Garden, Calcutta*. Vol. XII. Part 2. The Bengal Secretariat Book Depot, Calcutta.

Retirement of Sir Frederick Moore.—Mr. W. Watson writes: The professional career of Sir F. W. Moore was detailed in *The Gardeners' Chronicle* last year (April, p. 158), and brief reference has since been made to his approaching retirement from the Keepership of the Glasnevin Botanic Garden. This actually occurred on April 30 this year, after over 45 years' service. I have known him since 1879, when he took charge of Glasnevin, and I was engaged as a foreman at Kew. Few years have since passed without our meeting either for a plant foray together or for some celebration. Moore was great at both. He took charge of me when we went plant hunting in Continental countries, for he speaks the French, German, Dutch and Flemish languages like a native, and his personality is of the kind which wins through where the average man often gets stuck. Hundreds of men have felt the magnetism of Moore and have been all the better for his company, either when there was work to be done or when pleasure was the object. The gods were good to him in giving him a big, generous soul and a strong body (he hasn't had a day's illness since he became Keeper of Glasnevin), both of which he has made great use of. If Moore has an enemy or traducer, I have never heard of him. For many years he has been the doyen



SIR FREDERICK MOORE, V.M.H.

of our calling. I have become acquainted with many of the best men in it, and he stands first, an easy first, in my opinion. Glasnevin has long been the Mecca of gardeners, amateur and professional. Rich collections of all kinds of plants were there, and good cultivation. There was also the Keeper, the life and soul of the whole. If it were worth while, I could expatiate on the great work Sir Frederick Moore has done in Ireland, on his wonderful knowledge of plants of all kinds, on his achievements as a collector and cultivator, and on his brilliant success as the head of an important teaching, scientific establishment. But these things are known to the cognoscenti, and the others may go and see for themselves. I was there three weeks ago ("looting" on behalf of Kew), and, acquainted as I am with most of the leading botanical gardens of Europe, say deliberately that, taken all round, Glasnevin is unsurpassed by none and equalled by very few. All this has been accomplished by Moore, single-handed. Ever since I have known him he has managed everything in such a way that all his men adored him. Moore's attitude towards scientific horticulture has always been correct. There is a tendency nowadays to neglect the arts of cultivation, in other words, that knowledge of plants and their requirements that enables one to propagate them, to keep them in good health and to turn them

to the best account. This knowledge can only be obtained by long practice, close observation and study. With it the cultivator is able to steer clear of most of the troubles which beset those who do not possess it. And yet we have no real schools of horticulture where all that appertains to good cultivation is systematically taught; no research workers on purely horticultural problems. There are plenty for the ill that come of wrong cultivation—pathologists, entomologists, chemists, etc., who know little about the plants, and who are interested only in those that are sick. This, to me, is like beginning at the wrong end. The cultivator who knows the requirements of his plants and has a practical acquaintance with the approved best methods of providing them, is independent of the plant doctor's skill. What has all this to do with Sir Frederick Moore? This much. It expresses views, convictions which he and I have long held. He has a gardeners' feeling for plants, he loves them, and is unhappy when they are not happy. We have looked upon things together which have drawn from him strong words of condemnation of the wasted effort, the hopeless mess that ignorance and stupidity had resulted in. I, like many others, am sorry that the limitations of age have compelled Sir Frederick to put down his tools, for he has been a real master of the craft, a splendid example of devotion to duty, and is "a worthy knight," if ever there was one.

Sale of a portion of Covent Garden Estate.—

A portion of the Covent Garden Estate was sold by public auction on Tuesday and Wednesday last by Messrs. Hampton and Sons. The total result of the first day's auction was £49,575. Some of the freehold ground rents realised from forty to forty-two years purchase, although the reversions of these properties are by no means near. The lots offered totalled fifty-nine and included several premises used for the sale of produce, but no portion of the market proper.

Plant Conference at Washington.—

Mr. W. J. Lobjoit, the Controller of Horticulture, has arrived in Washington for the Plant Conference, at which quarantine regulations are to be discussed. For the time being, Mr. Lobjoit's address is Lee House Hotel, Washington.

Fibre from Bromelias.—

Excellent fibre has been produced from the leaves of *Bromelia sylvestris* and *B. Pinuela* (?), in Colombia, South America, and the fibre from *B. sylvestris* is divisible into one ten-thousandth of an inch, and, according to the *Journal of the Royal Society of Arts*, has as much tensile strength as Flax. The Indians used it for fish nets, and mummies wrapped in it show the fibre still in a good state of preservation. It is estimated that a ton of leaves of these Bromelias, the gathering of which costs about £2, will produce five hundred pounds of fibre. It is also stated that Colombia is capable of producing 100,000 tons of Bromelia fibre annually.

Fairchild Lecture.—

The Worshipful Company of Gardeners has arranged for the Fairchild lecture to be delivered in Shoreditch Parish Church on Tuesday, June 6, at 5 p.m. The lecture will be delivered by the Rev. Horace Rollo Meyer, M.A., rector of Watton, Hertfordshire, Rural Dean of Welwyn, and a member of the R.H.S. Daffodil Committee and the Horticultural Club. The company will assemble in the Church Room, adjoining Shoreditch Church, at 4.45 p.m., and will be met by the Vicar, the Rev. F. E. Birch, and enter the church in procession. The church is about five minutes' walk from the Old-street Tube Station, and a tram from that station passes the church doors. Motor omnibuses from most parts of London, and trams from Liverpool street, stop by the church. It will be remembered that Fairchild was a gardener at Hoxton, and left a legacy to provide money for the preaching of a sermon in the Church of St. Leonards, Shoreditch, in every Whitsun week in each year, on either "The Wonderful Works of God in the Creation," or on "The Certainty of the Resurrection of the Dead, proved by the certain changes of the Animal and Vegetable parts of the Creation."

Ornamental Flowering Crabs.—Lady Moore, writing in *Irish Gardening* for May, describes *Pyrus magdeburgensis*, a cross between *P. spectabilis* and *P. Malus*, as one of the finest of all Crabs; it bears handsome clusters of large, deep rose coloured double flowers. At Glasnevin Botanic Garden the tree was somewhat slow of growth at first, but with attention to feeding made good progress and promises to form a fine specimen in a few years. Amongst other Crabs which are especially recommended by Lady Moore, and which have been exceptionally fine in the Glasnevin Botanic Gardens, are *P. Ringo*, which is one of the first to bloom and one of the best; the flowers are rosy coloured in the bud, but paler when open, and they have a sweet perfume; *P. spectabilis*, one of the largest and the best of the *Malus* group; *P. Malus Scheideckeri*, which has branches a yard long, wreathed in flowers from end to end, and *P. Malus floribunda*, which never fails to bloom profusely each season and puts forth its blossoms in fair or foul weather.

Appointments for the ensuing Week.—Tuesday, May 23.—Royal Horticultural Society's Chelsea show (three days); second day, lecture by Dr. A. B. Rendle, on "Plants of Interest Exhibited." Wednesday, May 24.—Kew Guild annual meeting and dinner; Horticultural Club annual meeting and dinner; Linnean Society's anniversary meeting, at 3 p.m. Thursday, May 25.—Bristol and District Gardeners' Association's meeting; Royal Botanic Society's meeting.

"The Gardeners' Chronicle" Seventy-five Years Ago.—*The Botanic Garden at Kew.* When it was some years since proposed to restore the Botanic Garden at Kew to a state of efficiency the recommendation was objected to on three grounds. It was thought that Parliament would refuse the funds required for its support; that if Parliament proved liberal, no useful purpose would be answered by the outlay; and that even if it should prove of abstract utility nobody would care a straw about the place except a few botanical zealots. In each of these particulars the objectors prove to have been mistaken. Parliament grudges no reasonable outlay; the utility of the establishment is universally admitted; the interest taken in it by the public, it is second to no public institution; and no harm has followed their free and unrestricted admission. A Parliamentary paper now before us contains Sir William Hooker's last report on the subject, in which we find the following statement: "The public of all ranks frequent the garden during the good season in a manner that proves the advantage it brings to them as a place of relaxation, both for body and mind. They have unrestricted access to every part of the grounds and houses, and truly gratifying it is to see how highly the privilege is appreciated, and how slightly it is abused. The visitors, it must be remembered, are chiefly confined to the summer months; and the increased and increasing usefulness of the establishment cannot, perhaps, be better estimated than by giving a glance at the amount of admittances since 1841, when the gardens were thrown open to the public."

In 1841	the number of visitors was	9,174
In 1842	do do.	11,400
In 1843	do do.	13,492
In 1844	do do.	15,114
In 1845	do do.	28,139
In 1846	do do.	46,573

From this we learn, that although the number of visitors has quintupled, and their access to every part of the grounds and houses is unrestricted, the privilege is so slightly abused as to require no observation. Thus it always is: restrain men needlessly, and they become troublesome and mischievous; let them alone, deal with them fairly, avoid setting spies upon their actions, and good conduct becomes a point of honour. *Gard. Chron.*, May 22, 1847.

Publications Received.—*Lawns and Their Upkeep.* By James MacDonald. Reprinted from the *Journal of the Royal Horticultural Society*. Vol. XI. Part 3.

THE BULB GARDEN.

A NOTE ON THE GLORIES OF THE SNOW.

Now that the *Chionodoxas*, or Glories of the Snow, are just over, a short note regarding them may interest some. The popular *Chionodoxa Luciliae*, which has been in cultivation for many years, is a general favourite and is lovely with its *Nemophila*-like flowers, that are possessed of a greater depth of blue than in the popular annual, which sets off the white centres. It is very charming. It was introduced by Mr. George Maw, but is not the original *C. Luciliae*, as found by Boissier, which is even finer, but is slightly later with me. This one, sold as *C. Luciliae*, Boissier, has the blue surrounding the white centre much more intense than in Maw's plant. It varies a

nearly all forms of *C. Luciliae*. They are lovely flowers, and the writer still remembers the excitement caused by the appearance of *C. Luciliae* in the British Isles when it was distributed. *S. Arnott*.

HABRANTHUS (HIPPEASTRUM) PRATENSIS.

This very choice plant of the *Amaryllis* family has been effectively exhibited at the Chelsea Show on many occasions. It is the most brilliant of scarlet-flowered bulbs, and, although a native of Chili, it is much harder than is generally supposed. In southern and eastern counties it has proved quite hardy, and it is a feature of many Norfolk gardens, making a wonderful show of bloom at Westwick and other famous gardens around Nor-



FIG. 132.—NARCISSUS NEVINS. A REFINED WHITE TRUMPET DAFFODIL EXHIBITED AT BIRMINGHAM ON APRIL 20 BY DR. N. Y. LOWER, PRESTEIGN.

little, but all the flowers are very charming. *C. Tmolusii*, again, which comes still later, resembles the two foregoing greatly, but also differs in its blooms, being more purple or magenta-blue than blue, although this description of its colouring is apt to convey an erroneous impression. There are white forms of all these. *C. gigantea* (syn. *C. grandiflora*) is one of the earliest, and has large, lovely lavender-blue or lilac flowers, and is dwarfer than the foregoing. There is a white variety of this also. As for *C. Allenii* it differs little, but should have more and larger flowers on a stem. *C. sardensis* is well known. It has smaller flowers than *C. Luciliae*, and should be self-coloured blue, but some collected in different districts have a white eye. There is a white variety of *C. sardensis*. Of *C. nana* it may be said that it is more of botanical interest than of value for the garden. It has small, light coloured flowers of no great attraction. Such is a brief note of the leading *Chionodoxas*, which are practically

wich. *Habranthus pratensis* grows freely in strong loam to which leafmould and sand have been added, or it will thrive in pure sand, but prefers a well-drained slope or warm position under a south wall. The bulbs require a thorough roasting in the sun after flowering. The new leaves follow the flowers, and should remain green through the winter. The scarlet Lily-shaped flowers, borne on stout stems about one foot high, usually expand in early June. The flowers, of brightest scarlet, are feathered with golden yellow at the base. Roetz, who described this species, states, "It is impossible to render in a drawing the brilliancy of colour of this fine plant." This very choice subject should find a place in the select bulb garden or sheltered sunny rock garden where uncommon plants are cherished. Although the plant is hardy in warm districts, it needs protection in the colder parts of the country—and this may be accorded by covering the clumps in severe weather with a layer of leaves, heather, straw or litter. *H. Corbop.*

SUMMER BEDDING SCHEMES.

As the bedding-out season approaches many planters find some difficulty in making up their minds as to the best colour combination to use. Of course, where there are set schemes of beds, especially of a formal character, the scheme of planting should have been settled last season, so that stocks of suitable plants could be got ready for planting out now. But in many gardens cultivators have been handicapped by not knowing what they really could manage in this connection. In such cases some simpler arrangement must be substituted for more elaborate schemes; this is, perhaps, just as well, for the simpler arrangement generally proves the most satisfactory in the end. Such an article as this can only give suggestions, for, after all, the plants and their arrangement depend on the individual taste of the owner. One fact remains, however, and it is that

beds, laid out in more or less geometrical lines; in spite of the contention of the so-called natural school that it does not really matter, the fact remains that such a formal garden should be planted in a more or less formal manner. Indeed, this is essential if proportion and balance are to be maintained. Such a scheme need not, however, look stiff and formal, as a light and elegant appearance may be obtained by the use of suitable foliage plants; and here I would state that most bedding schemes would be greatly improved by a freer use of suitable foliage plants as foils to the brighter subjects.

Another bone of contention is the use of edging plants, some holding that the grass is the best setting for a mass of colour, while others contend that an edging of some suitable plant gives the better finish. It really all depends on the size of the beds and the class of plant used. Large beds are generally improved by the use of a suitable edging plant, but in the

tails much labour, to say nothing of house space and fuel, during winter. This has led to an increased use of many suitable plants that can easily be raised from seeds early in the new year. Still, the bedding *Pelargonium* is valuable for many formal arrangements, and we have no other summer bedding plant that gives that brilliant mass of colour afforded by Paul Crampel, especially when associated with grey-foliaged plants such as *Cineraria maritima*, *Centaurea candidissima*, *C. gymnocarpa*, or *Senecio leucostachys*, while one of the best white-flowered plants to use with it is *Chrysanthemum frutescens*, var. *Mrs. Sander*, popularly known as the double-flowered *Marguerite*.

The many fine varieties of *Antirrhinum* now available are very suitable for formal bedding schemes; well-selected strains come practically true from seed, and what few rogues appear are easily detected in the seedling stage, as each variety has a distinct leaf character. The intermediate varieties are best for bedding purposes, and the colours, with the exception of purple and mauve, may be happily planted together. Where a formal set of beds are in question they may be massed in separate colours. A scheme may consist of pink, rose, yellow and white varieties, or with the orange, scarlet and crimson sorts, again using yellow and white with them. The silvery pink Ivy-leaved *Pelargonium* *Mme. Crousse* is a cool-looking subject for the formal garden, and with it should be used the pale yellow *Calceolaria amplexicaulis*. *Chrysanthemum frutescens* *Mrs. Sander* could also be used and plants with silvery foliage would also be appropriate. If the scheme is large enough, *McKanthus major*, with its glaucous green foliage would be very suitable.

Verbenas, at one time great favourites, and propagated in separate colours by means of cuttings, are now seldom seen, but beds of mixed colours raised from seed are very effective and last all the season; while a bed of *Mrs. Willmott* interplanted and carpeted with *Leucophyta Brownii* is very effective. *Verbena venosa* is a more or less hardy perennial, but is best raised from seed every year; if sown in heat during January, good plants will be ready for putting out during May. There is no other bedding plant with its particular shade of purple, and a large bed of it proves very effective, either alone or grouped with a silvery foliage plant such as *Centaurea candidissima*. It could also be used in a large bed with a permanent edging of *Cerastium tomentosum*. This *Verbena* is also very effective for a set of formal beds grouped with grey foliage plants and *Calceolaria amplexicaulis*.

Plox Drummondii is one of our best half-hardy annuals for bedding, as it lasts in flower until cut down by frost. *Nemesias* and *Dimorphotheca aurantiaca* are good half-hardy annuals that may be used for odd beds; they do not last out the season, but may be followed by border *Chrysanthemums* grown in the reserve garden for this purpose. *Zinnias* also make very effective beds, and are very fine during hot seasons. *Delphinium grandiflorum* var. *Blue Butterfly* is very beautiful and can be interplanted with the dwarf forms of *Koenigia maritima*, one of the most popular and useful of all plants for this purpose. *Heliotropes* are always popular for summer bedding and are best grouped with grey foliaged plants, or carpeted with *Koenigia maritima*. The giant *Heliotropes* may be raised from seed during the spring, and a large bed is effective, as they quickly attain a height of three to four feet.

Salvia splendens var. *Glory of Zurich* is effective either alone or with an edging of *Centaurea candidissima*. This *Salvia* should be raised from cuttings, as seedlings vary somewhat, especially in height, and in time of flowering. *Begonias* of the tuberous-rooted section are invaluable for bedding either in mixture or in separate colours. A good pink variety interplanted with *Leucophyta Brownii* and carpeted with *Koenigia maritima*, proves very effective. *Begonia semperflorens*, of which there are many varieties, is very fine, and can be raised from seed early in the year, as good



FIG. 135.—SUMMER BEDDING IN ASSOCIATION WITH STATUARY.

all bedding arrangements should be as simple as possible, and colour harmonies rather than contrasts should be aimed at, for unless one has a keen sense of colour value contrasts are apt to be dangerous. Not everyone is gifted with a keen sense of colour, yet, by some study of colour values, many pitfalls may be avoided.

Here it may prove useful to give a sequence of colours in harmonising shades. Blues, dark and light, may be grouped with pale yellow and white. These may be followed by pink and then rose, leading up to crimson and scarlet, orange and bright yellow. Pale yellow and white will then lead up to lilac, lavender and purple. Silvery leaved plants are invaluable for grouping with lilac, lavender and purple colours, and also with scarlet, or, in fact, with almost any colour scheme, as it is a much safer arrangement than a too liberal use of white. From the above grouping of colours anyone should be able to plan out many suitable colour combinations, and use the available material to the best effect.

Perhaps the most difficult of all bedding schemes is one where there is a formal set of

case of small beds an edging tends to destroy the broad effect. Again, tall plants that do not carry plenty of foliage right down to the ground demand a suitable edging. Care should always be taken to group plants together that present a harmonious effect.

As an example of how not to do it, I may be allowed to mention one I noticed in a public park some years ago. A noble group of really fine *Hollyhocks* had an edging of small *semperflorens Begonias*, whereas what was really needed was a bold edging of some noble foliage plant, and a hardy one for preference, such as *Funkia* or *Acanthus*.

In all bedding arrangements restraint should be the keynote. Two, or at the most three, varieties or kinds of plants are enough to use in any one bed, and not "anything from a hardy annual to a stove plant," as was usual in the past.

The bedding *Pelargonium* is somewhat under a cloud at present, and this is partly due to the inevitable reaction from a too common use of this plant, and also partly due to the war years, for the maintenance of large stocks en-

strains come true from seed: two good varieties are Pink Profusion and Bonaire. These seem indifferent to weather conditions, and flower profusely all the season; they may be used alone or grouped with foliage plants, such as *Grevillea robusta* or *Albizia lophantha*.

Large lawn beds may be filled with large foliage plants such as *Cannas*, *Nicotiana sylvestris*, *Polygonum lanigerum*, *Solanums* such as *S. Balbisii*, and the beautiful, silvery-leaved *S. marginatum*; *Wigandia imperialis*, *Melanthus* major; variegated and quadricoloured Maize—to mention only a few subjects that are easily raised from seed.

Dahlias are also invaluable for large lawn beds, and are most effective when one variety is used in a bed. In the decorative section, K.A. Victoria, white; Souv. Gustave de Douzon, orange-scarlet; Papa Charmet, crimson; Delice and Loveliness, pink; Brentwood Yellow; and President Wilson, vivid scarlet; are all good in their respective colours. Crawley Star and White Crawley Star, are the best in their class for massing, while large masses of good mixed Collette varieties find many admirers. The dwarf, crimson, Coltness Gem, which only grows some eighteen inches high and flowers with wonderful profusion, may well prove a rival to the bedding Pelargonium. A large bed of Dahlia Delice at Kew is illustrated in Fig. 134.

In the foregoing notes, I have only touched the fringe of a large subject, and have made no attempt to give elaborate schemes, or to mention plants that require much house room during the winter months; rather have I tried to indicate what may be done in a simple way.

While summer bedding plants will always be more or less necessary in the well kept garden, every effort should be made to, in part, replace them—where conditions are suitable—with hardy plants, many of which are suitable for furnishing large lawn beds. Wherever possible, two or more sorts should be planted together, and thus give a prolonged flowering season.

The examples I give below are what I have had personal experience of, and have proved their value for this purpose. A very delightful combination is a large planting of Lavender and the old pink Monthly Rose, with groups of *Lilium candidum* and *Galtonia candicans* for autumn flowering. Along with these were planted *Viola* Mrs. Neil and *Crocus zonatus*. *Pegonias* may be interplanted with *Narcissi* and *Gladiolus* or *Galtonia candicans* for succeeding the *Paeonias*. A large planting of *Rose Caroline Testout* is very effective with *Nepeta Mussini*, *Achillea filipendulina* makes a fine subject for a large bed and may be underplanted with *Narcissi* or *Onithogalum nutans* for spring effect. Another combination which gives a long display is *Eryngium planum* and *Campanula Telham Beauty*. *Salvia virgata*, edged with a broad band of *Artemisia ludoviciana* var. *gnaphaloides* is very beautiful, while *Cerastium tomentosum* or *C. Biebersteini* may be used instead of the *Artemisia*. *Aster King George*, edged with the *Artemisia*, is good, while for spring effect, the bed could be carpeted with *Scillas* or *Muscari Heavenly Blue*. *Bocconia cordata*, *Acanthus mollis* and *A. latifolius* are all fine for large beds. *Kniphofias* are very effective in large beds, and may be grouped with *Yuccas* and *Pampas Grass*. Some of the best *Asters* make fine lawn beds, as does *Anchusa italica* vars. *Dropmore* and *Opal*. For a long display, a large bed planted with *Lilium regale*, *Montbretias* and *Watsonia Meriana* var. *alba* is very fine and distinctive in character. *Sedum spectabile* is effective and may be interplanted with *Narcissi*.

A sub-tropical effect may be obtained with various trees and shrubs by cutting them down to the ground every spring, when they send up a strong shoot with large handsome foliage. *Rhus typhina*, *Paulownia imperialis* and *Ailanthus glandulosa* are all very suitable for this purpose and the beds may be edged with *Funkias* or *Acanthus* and carpeted with spring-flowering bulbs. The few examples given will serve to show that, with a little forethought, there are many useful and beautiful combinations to be worked out with hardy plants. J. Coultis, Kew.

BREAKING IN FREESIAS.

FREESIAS are becoming increasingly popular, I mean, of course, coloured *Freesias*. I think it will be found when the bulb lists arrive that more than one firm will have included a few named varieties for the first time. Unfortunately, I did not see any of the exhibits at Vincent Square this spring, nor have I been able to have any *Freesia* talks with fellow seedling raisers. I want to know more about breaking. My own experience tells me that, as in the case of *Tulip* hybrids, it will be found that only the whites and the yellows are immune. It would seem that it is only a question of time when any of the other coloured ones will break. I have had several jars in this last flowering season. Rosebud has had unmistakable breaks: so has one of my most charming pink varieties, called Pink Beauty. In both these cases the breaks are not offensive, in fact, I personally think them very pleasing; and the local shopkeeper who has my flowers wanted all I had. With Daddy-long-legs, the result of its breaking is



FIG. 134.—DAHLIA DELICE AS USED FOR BEDDING AT KEW.

a perfectly horrid flower. Merry Widow showed no sign of a break while it was with me. Mr. Dalrymple has the stock now. It would be of great interest to know if it is still immune with him. This question is a serious one and must affect the future of the coloured *Freesia*. Can any one put his finger on the spot and say if there is anything in the way that the plants are grown that causes it; or if there is anything that can be done to prevent it?

Another point of interest in *Freesia* culture is the question of "duds." I am told this lying perfectly dormant for a year is a way that several South African bulbs have. In every year up to the present I have had a few "duds," notoriously in a variety called Red Indian. This year we have hardly had one anywhere. I put it down to the extra warm summer of 1921. If every year was like last year, would there continue to be none? Would heat alone or sun alone produce the same result? or, must it be a combination of both? Are "duds" a sign of lack of vigour? If *Tulips* are any guide, the hot summer of last year has made many varieties extra strong, and we have fasciated stems and small flowers rising up from the bulbs alongside of the big main flower. When I paid a visit to Messrs. R. Veitch and Son's Exeter nursery in April I was much impressed with the fasciated stems of almost all the *Tulips* that were there. Golden Bronze I have grown for years. Until then I never saw any fasciation on it. If additional,

or unusual perhaps is a better word, vigour has been given to *Tulip* bulbs by the heat and sun of 1921, why should not we see the same results in *Freesias*? Joseph Jacob.

THE ALPINE GARDEN.

CYANANTHUS LOBATUS.

ALTHOUGH several new species of *Cyananthus* have been found within recent years, few are in cultivation. So far as I can find from catalogues, the only ones offered are the two which have been in cultivation for a good number of years. One of these, *Cyananthus incanus*, is not often met with, and has nothing to recommend it in preference to *C. lobatus*, which is considerably more plentiful both in nurseries and gardens, although not by any means a common plant. It is a very lovely subject for the rock garden, and where time can be spared to attend to it, and the conditions are favourable, it should not be omitted from the garden, as it is one of the most charming of all alpine flowers.

It is of trailing habit, but not aggressive in any way. Its branches are only about eight inches long; they have prettily formed leaves clad with white hairs, and bear at the end an exquisite flower of a most beautiful blue and a calyx decorated with white hairs. The flowers resemble those of *Vinca minor*, the Periwinkle, and are almost as large, and even more lovely in their colouring. But the white hairs on the plant are a source of danger from wet in winter, especially those on the calyx, and some recommend that the flowers should be removed as soon as their beauty is over. It is much better, however, to cover the plant with a sheet of glass or a handlight or bell-glass, slightly tilted, during winter, so as to throw off the rains, sleet, and snow.

C. lobatus is difficult to accommodate in the rock garden, unless great care is taken. It needs a light, gritty, well drained soil, and plenty of water during the late spring and the summer months. After flowering, which begins in August, water may be withheld, unless the plants show signs of distress. A moraine, with water flowing underneath, has been recommended, but I have not had experience of this method with this flower. It appears likely to be suitable if the supply of water is cut off in winter and earliest spring. The plant appears to need partial shade. Propagation is best effected by rooting the branches by layering or by cuttings inserted during spring or early summer in sandy peat. S. Arnott.

The Week's Work.

THE FLOWER GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

The Shrubbery.—Shrubs that have finished flowering, such as Forsythias, Ribes, Loniceras (bush sorts), Spiraeas and Neillias, should be examined with a view to removing thin, weak growths, and thus assisting the plants to throw all their energies into completing the healthy and stronger growths. On the other hand, shrubs that develop gross, rampant shoots, should have these shortened, otherwise the normal growths may suffer impoverishment for the benefit of the few. Philadelphus in particular has this habit, which requires curbing. Evergreens, and especially those that have not made too forward growth, may generally be moved this month with comparative safety, and especially when the weather is inclined to be dull and showery, consequently, where this work has been delayed, it should be completed forthwith. Trees and shrubs of this class should be trimmed where considered necessary after flowering, but the pruning should be less drastic than is permissible with members of the deciduous type. Attend to climbers frequently, with a view to checking too great activity in growth: train the shoots in orderly fashion, removing any surplus ones where necessary to attain this object, thus preventing the growths from becoming tangled, as this frequently spoils what is otherwise a beautiful plant. Roses, Clematis and Vines especially call for this attention. The growths of Clematis are so brittle that grave risk is run of their snapping off if an attempt is made to disentangle them; they should be trained from the start, otherwise serious damage may easily be done. Wichuraiana Roses oftentimes develop many young and weak growths from the base, which should be removed at a very early stage, otherwise a tangle of growths that are of very little use for flowering may result. If desired, these Roses may be trimmed to form pretty, free-flowering bushes.

Bulbous Plants.—Narcissi and other bulbous plants are doing well in the woodlands this season, despite several sharp frosts. Where similar bulbs were forced under glass and are now over they should be planted out in the woodlands, where in course of time they will prove extremely beautiful at this period of the year. Take them from the boxes and pots in which they have been forced, and, leaving the green growth to die away naturally, plant them out in large patches. Other bulbs, such as Hyacinths and Muscari, that have been grown in pots, may be similarly dealt with.

Bamboos.—On p. 178 I dealt with the best way of preparing Bamboos for forming a plantation, by starting them into growth first in pots under glass, and where this was carried out, and the plants have thrown up healthy, young shoots, harden them off and plant them in their new quarters as soon as convenient.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the DUKE OF MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Odontoglossum. Odontoglossums of the grande and Inslayi section require a slightly higher temperature than *O. crispum*, and the same is true of *O. citrosum* and its varieties. During the winter these Orchids are best grown in the cooler end of the intermediate house, and kept comparatively dry, but during the summer the warmer end of the Odontoglossum house is more suitable. *O. grande* and its varieties, with others of these Mexican Odontoglossums, will have commenced to grow, and when new roots are seen to be pushing from the new growths such plants as require it may be repotted. I do not recommend top-dressing instead of repotting, for if the compost is decomposed

at the top, that at the bottom of the receptacle will be in a worse condition, and it increases the difficulty of those entrusted with the application of water. The usual Odontoglossum compost is suitable for these plants. *O. citrosum* should be repotted or re-basketed, whichever mode of culture is adopted, immediately the flower scapes are removed. Care must be taken in the application of water to the newly potted plants until they become established; but when well rooted and in full growth an abundant supply of moisture should be given the roots. As soon as its growth is completed, this Orchid needs a long rest, by keeping it dry and exposing it to as much light as possible to favour the ripening and consolidating of the newly made growths.

Odontoglossum Rossii.—This species and its hybrids will also require attention as regards repotting, as they pass out of flower and their young growths develop freely. They will thrive in shallow pans suspended in a cool, intermediate house, in a position where they do not receive a superabundance of light whilst making their growth.

Oncidium.—The *Cyrtorchilus* section of this genus includes *O. macranthum*, *O. serratum*, *O. lamelligerum*, *O. corynephorum* and several others. The plants are of comparatively easy culture if afforded a cool, intermediate temperature. There are several hybrids of these species which will succeed under precisely the same conditions. They should receive all the light possible during the winter, but be protected from strong sunshine during the summer. The plants should not be allowed to produce flower spikes until they have become fairly strong specimens, and even then their long, trailing flower spikes should not be allowed to remain upon them for any considerable length of time after the last flower has opened.

HARDY FRUIT GARDEN.

By H. MAREHAM, Gardener to the EARL OF STRAFFORD, Wrotham Park, Barnet.

Raspberries.—Where a reasonable crop of large berries is preferred to a superabundance of small, tasteless, undeveloped fruits, ample nourishment should be afforded the roots of Raspberries, and especially is this needed on light land. A heavy mulching of rich, decayed manure and liberal supplies of liquid manure are extremely beneficial to the plants as the season advances. The present is a suitable time to examine the beds and pull up all weak and useless suckers, leaving only sufficient to fill the places of this season's fruiting canes when they are cut out after the crop has been gathered. If new plantations are required, young rooted suckers may be lifted carefully and transplanted. If carefully watered and mulched until they have become well established they will make capital fruiting canes by the end of the present season. Although some of the older varieties are excellent croppers, I believe in a change of stock.

Gooseberries.—Keep a watchful eye on the tiny fruits of Gooseberries, Cherries, etc., and should sparrows prove troublesome use black cotton over the bushes or trees. In some gardens very little harm is done by birds, but in others just the reverse is the case. It is when the fruits have barely set that birds usually damage Gooseberries, and much harm is done quickly if not checked.

The Fruit Blossom.—There has been, and still is, a wonderful display of blossom on fruit trees, and the prospects, so far, are very promising. Even two-year and three-year-old trees are, in many cases, bearing many trusses of blossom, but these should be removed to allow all the energies of the plants to go to growth development, as even a few fruits would draw much energy from the plants and result in a reduction of branch and shoot development.

The Fruit Quarters.—In favourable weather the hoe should be used freely amongst fruit bushes to keep down weeds. If hoeing is done early and before the weeds have time to seed no difficulty will be experienced in keeping the ground clean

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

Vines.—With the weather far from satisfactory the daily operations in the warm vineries must be carried out with the greatest care. In the earliest houses the Grapes are beginning to colour and the bunches should be examined to see if any of the berries are crowded; if so, a few of the smallest ones should be removed carefully. Gross laterals may still be pinched, but unless the premier leaves are likely to become crowded, those of moderate growth will do good service and may be left intact. Copious feeding of the roots with diluted liquid manure warmed to a temperature of 80°, and damping the bare spaces at night with the same, will encourage good growth and check red spider, always provided the manure is not used at too great a strength, and a little air is admitted at night. If the vines are rather heavily cropped and perfect finish of the berries in doubt, maintain a rather lower night temperature of 60° when the weather is cold, and ventilate freely through the early part of the day. A maximum temperature of 80°, with sun heat, from noon to 2 p.m., when there should be a sharp reduction in the amount of ventilation to obtain a rise to 85° to 90° with sun heat, and moisture, will assist the swelling of the berries.

Successional Vines.—The principal work in the successional vinery will be the final thinning of the bunches, the tying and stopping of the leading laterals, and the removal of a few more berries. If large, late Grapes, such as Gros Maroo and Gros Colmar are grown, medium-sized bunches should have preference over larger ones, which take more finishing and do not keep so well when ripe. These Grapes are, as a rule, always under-thinned. When thinning is finished, a light mulch of fresh stable litter may be spread over the inside borders, which should be kept well moistened with warm diluted liquid manure and guano water used alternately until the Grapes begin to colour, when pure water only should be used. Ventilation should be liberal up to 1 o'clock; the ventilators should be closed early to obtain a temperature of 85° or 90°, if only for a short time, on bright, sunny afternoons. Late Muscats, Mrs. Pince and other shy-setting late Grapes, coming into flower require artificial pollination with foreign pollen, that obtained from Black Hamburg being the best. If fine weather prevails and air can be admitted freely and the roots are in a satisfactory condition most of the berries will set, but it is not well to trust to chance. Many growers formerly kept these vineries at a warmth of 70° through the night, but beyond hastening the progress of the vines, this high temperature is not necessary, as one frequently obtains perfect fertilisation when the temperature falls to 60° in the morning, and that by day rarely exceeds 80°. Do not allow the atmosphere to become excessively dry, but damp the floors and other bare spaces on two or three occasions on fine, bright days. The thinning of the bunches should be kept well in hand.

THE KITCHEN GARDEN.

By JAMES E. HATHAWAY, Gardener to JOHN BRENNAND, Esq., Baldersby Park, Thirsk, Yorkshire.

Runner Beans.—These Beans should now be sown on ground that has been deeply trenched and well manured, or in trenches 2 feet deep, made similar to Celery trenches and filled with well decayed manure with a layer of old potting soil on the top of the dung. Sow the seeds in a double row, making the latter 10 inches apart, and put each Bean 8 inches asunder and 2 inches deep. Slugs are often troublesome, and as soon as the seed begins to germinate, the rows should be kept dusted with soot and lime; it is a good plan to sow a few Beans in small pots to make good any that fail in the rows. Best of All, Scarlet Emperor and Hackwood Park Success are some of the best varieties.

Haricot Beans.—These Beans should be sown and treated in the same manner as dwarf French Beans.

Seakale.—The plants which have not been forced should be examined, and any throwing up flowers should be relieved of them. Seakale crowns disbudbed to one shoot are the best for forcing.

Tomatos.—The early plants indoors require plenty of air. All side shoots should be kept pinched out, and if the foliage is very dense the tips of the leaves may be removed to allow the sunlight to reach the fruits. The roots require plenty of water and should be stimulated with liquid manure and a concentrated fertiliser.

Hoeing.—The hoe should be kept constantly in use to prevent weeds from seeding and to break up the surface of the soil.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir C. NALL-CAIN, Bart., The Node, Codicote, Welwyn, Hertfordshire.

Begonia nitida.—*Begonia nitida* and its variety *alba* bloom practically the whole year through, and are useful either as pot plants or for planting out and training to pillars in a stove or a warm plant house. Well-cultivated specimens in pots will grow to a height of 4 ft. to 5 ft., and the flowers are freely produced. Cuttings should now be inserted and treated as advised for *Begonia Gloire de Sceaux*.

Richardia.—*Arum Lilies* that have been grown under cool conditions are passing out of flower, and may be stood in the open where they can receive some light protection in the event of frost. Water the plants for a few weeks, reducing the supply gradually until finally moisture at the roots is withheld entirely to allow the plants a complete rest. Some growers plant them out after they have been hardened sufficiently to allow of this being done, while others prefer to keep them in their pots, dry them off, and repot them again during August.

Bouvardia.—Rooted cuttings of *Bouvardia* should be potted singly immediately they have rooted sufficiently to allow of doing it. Use a rich, open compost, and grow the plants in a temperature of 60° to 65° until they are re-established in the soil. As they advance in growth the tops should be pinched out several times to cause them to form bushy specimens. They may then be grown in a house with a lower temperature. Good results may be obtained by planting *Bouvardias* out in cold frames during the summer and placing them in their flowering pots early in September.

Caladium.—*Caladiums* that have been started into growth in boxes or small pots should be ready for their final potting. The soil should be of a rich nature and open in texture to favour the production of large, brightly coloured foliage. As the receptacles become well filled with roots the latter should be fed twice each week with liquid manure obtained from the drainage of manure heaps. Failing a supply of this stimulant, place some sheep manure in a small bag and allow it to soak for several days in a tub of water. The liquid will be very beneficial to the plants once they have become well established in their final pots. A heavy shade and a moist stove atmosphere is essential at this stage of growth but a lighter shade will suffice in the plant's latter stages.

Abutilon Savitzii.—This *Abutilon* is a useful subject for decorative purposes during the late summer, being one of the best ornamental foliage plants of its kind. Cuttings may be inserted in small pots filled with compost of an open texture and rooted in a propagating frame. This *Abutilon* requires more heat than some others. In plenty of warmth it grows rapidly and makes fine specimens for grouping with other subjects.

Repotting. At this season of the year the repotting of various plants calls for attention. Young plants of *Streptocarpus*, *Browallia*, *Gloxinia*, tuberous *Begonias*, as well as rooted cuttings of various plants as they become ready, need this attention. It is not wise to allow young plants to get into a starved condition before they are repotted.

TREES AND SHRUBS.

THE DWARF OR SCRUB OAK

INTERESTING plantations of the dwarf or scrub Oak may be seen near the entrance to Aber waterfall, in Carnarvonshire, and on the steep bank of the River Dart, near the entrance to Dartmoor. How old these trees are it would be difficult to say, though in writings of three centuries ago both woods are referred to, and in counting the annual rings in a section of one of the stems I found the age to approximate five hundred and ten years. The Dartmouth plantation, which is known as Wistman's Wood, was referred to in his writings by Tristram Risden three hundred years ago. It is a small tract of stunted Oak trees, about four acres in extent, which occupy an elevated situation amongst granite boulders on the steep left bank of the River Dart, the individual trees of

The Aber trees which occupy the left side of the valley on the way to the well-known Welsh waterfalls, are other examples of the influence of the rocky situation and scanty supply of poor soil on the growth of the Oak.

Here the trees are generally larger in size than those in Dartmoor, but of an equally contorted description, with short, Carrot-shaped trunks that twist about amongst the rocks, rarely rising to more than 20 feet in height, but with comparatively short, thick stems and bushy heads. The plantation covers a considerable area of ground, near the middle of which stands Llewellyn's Castle, a small stone building, said to have been built for that prince on one of the most beautiful and commanding sites in the Principality. Here the trees produce a small quantity of acorns, and seedlings appear amongst the rocks, where they grow slowly and ramble about in a most remarkable manner. The timber produced by these Oaks is of very excellent quality, remarkably fine of grain, hard and difficult to cut, which may be accounted for by the unusually slow rate of growth and age of the trees, and it is rare to get trunks of sufficient size to convert for any class of constructional work. Such timber, therefore, is valueless unless for fencing and firewood, but in the matter of game shelter, and as clothing rocky ground where few other species could succeed, the dwarf Oak is not to be despised. A. D. Webster.

GARRYA ELLIPTICA.

THERE is no hardy plant which attracts so much attention in early spring as *Garrya elliptica*. Under proper treatment it can be relied upon to produce a crop of catkins yearly in any aspect, but it attains its full beauty when planted against a wall with a warm, southern aspect. I could, however, instance a plant facing east which would compare favourably with many in better situations, and perhaps the healthiest specimen I have seen was planted against the north wall of a house, all of which proves the comparative hardness of this shrub. While the margins of the leaves may become slightly browned by the action of the sun in frosty weather on a plant having a southern exposure, no such disfigurement occurs on a plant facing north, and in the latter position there are usually enough catkins produced to make a specimen interesting.

The photograph I send (Fig. 135) is of a plant probably thirty years old, growing against the south wall of the venerable old School House of St. Leonard's. It reaches to the eaves, above the second storey, and its name is asked for more often than that of any other subject in the gardens.

Garrya elliptica is easily propagated from cuttings inserted under a bell glass in spring. It also roots readily if layered, and, in common with many other shrubs, the secret of its successful cultivation for the production of catkins, and of still keeping it within bounds as a wall plant, is to prune it at the proper time, which is immediately before it breaks into fresh growth.

Flowering branches cut for decoration are both handsome and welcome from early in December until well into March. As an isolated specimen, it may not flower so profusely as the plant depicted, but, left to develop with very little pruning, it will retain its catkins longer and always attract attention. Moreover, it is not fastidious as to soil, and succeeds as well on a clayey soil as on a sandy loam. W. M. Macdonald, *The Gardens, St. Leonard's School, St. Andrews, Fife.*



FIG. 135.—GARRYA ELLIPTICA ON ST. LEONARD'S SCHOOL-HOUSE, FIFE.

which average about 11 feet in height, and rarely exceed 15 feet, with a trunk diameter of sometimes 18 inches near ground level. Most of the trees are gnarled and twisted, in both stem and branch, some assuming the most grotesque and weird shapes, and in places, owing to an excess of humidity, are thickly mantled with mosses, lichens and the common Polypody Fern, which impart to certain parts of the wood a strange, hoary appearance. Few of the trees are clear of branches for more than 3 feet in length.

How and when the plantation was formed is not known, but the probabilities are that it is of natural growth, and as acorns are produced, though sparingly, its origin may be accounted for in that way.

For many years there has been little or no increase in the size of the plantation, and the fact that the trees, both in height and the area of ground they cover, are almost similar to-day to the description given of them three centuries ago, goes far in supporting the idea that the wood is of natural growth. The trees which compose the whole area do not differ from the ordinary pedunculate variety, except in so far as a stunted growth has been brought about by the peculiarities of site and soil. A few Mountain Ash grow around the margin of the wood.

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Editors and Publisher.—Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the **PUBLISHER**; and that all communications intended for publication or referring to the Literary department, and all plants to be named, should be directed to the **EDITORS.** The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.

THE ARNISTON LARCHES.

AS to when the common Larch was introduced into England there seems to be no authentic record. It is mentioned by both Tusser and Gerard, and the name occurs in the latter's catalogue of the plants grown in his physic garden at Chelsea in 1596. But the mere occurrence of the name in this list affords no proof that the tree was then in cultivation elsewhere in the country, and it is not till 1629, when Parkinson published his *Paradisus*, that we find indubitable evidence of this. Parkinson, however, refers to it as "in our land being rare, and nursed up but with a few, and those only lovers of rarities." Evelyn, in 1664, mentions a Larch of "goodly stature," as growing at Chelmsford, but the tree appears still to have been rare at that time; in fact, it is only after the lapse of a century that it seems to have become common in England, and then only as an ornamental tree, for all that Miller has to say about it in the first edition of his *Gardeners' Dictionary* published in 1731, is that it "is now pretty common in English gardens." He also mentions that there were some large trees at Wimbledon, which produced annually a great crop of cones. At this time then, when it had just crossed the border into Scotland, where in the next half century it was destined to effect what was little short of a revolution in Scottish forestry, there seems to be no reliable evidence of the Larch having been extensively planted in England for timber purposes.

The date of introduction of the Larch into Scotland is also uncertain. According to Sir Thomas Dick Lauder, in *Gilpin's Forest Scenery* (1834), the first Larches introduced into Scotland were planted at Dawyck, in Peebles-shire, in 1725, but Loudon doubts this, and points out in his *Arboretum et Fruticetum Britannicum* (1844) that "according to Dr. Walker, whose attention to the history of exotic trees in Scotland is well known, the first Larches were planted at Dunkeld in 1727" (see Fig. 136). Dick Lauder seems to have been well aware of Dr. Walker's statement, for he states that "it is said that the first Larches introduced into Scotland were sent to the father of the late Duke of Athol, in the year 1727," and he repeats the popular story about their having been grown in a greenhouse, and how, after they were supposed to have died, they were thrown on a rubbish heap, in which they took root, and soon became vigorous. Dick Lauder goes on to say: "Such is the popular account of the introduction of the first Larches into Scotland; but from all the evidence we can collect, those introduced by Sir James Nasmyth, Baronet, at Dawick in Tweeddale, in the year 1725, appear to have been the first Larches planted in Scotland; for, from the account published in the *Transactions of the Highland*

Society, under the authority of the Duke of Athol's trustees, we learn that it was not until the year 1738 that Mr. Menzies, of Megenry, in Glenlyon, brought a few small Larch plants from London, in his portmanteau, five of which he left at Dunkeld, and eleven at Blair, as presents to the Duke of Athol. The five were planted in the lawn at Dunkeld, in an alluvial gravelly soil, abounding with round stones, and in a sheltered situation at an elevation of 40 feet above the River Tay, and 130 feet above the level of the sea." Dick Lauder does not, however, state anything about the nature of the evidence he had collected regarding the Dawyck Larches. Loudon also gives this statement from the Highland Society's *Transactions in Arboretum et Fruticetum Britannicum*, but he makes the comment that "it is possible that this account, of which one version states

sions, the largest girthing well over 11 feet at 5 feet from the ground, with fine boles, each containing over 200 cubic feet of timber. As we are informed in the *Arniston Memoirs* (1887), which were edited from the private papers of the Dundas family, in whose possession the Arniston estate has been since 1571, by Mr. George T. Omond, advocate, they were planted by the first President Dundas, second son of the second Lord Arniston, who succeeded to the estate in 1726, and by whom many improvements were effected on the property; and as Mr. Omond has reproduced the nurseryman's account for the plants in the *Memoirs*, there is no doubt whatever about the year in which they were planted. There were fourteen plants in all, two of them being four and five feet respectively, and the others were "smaller." The date on which the plants were supplied (by Robert M'Lellan) was

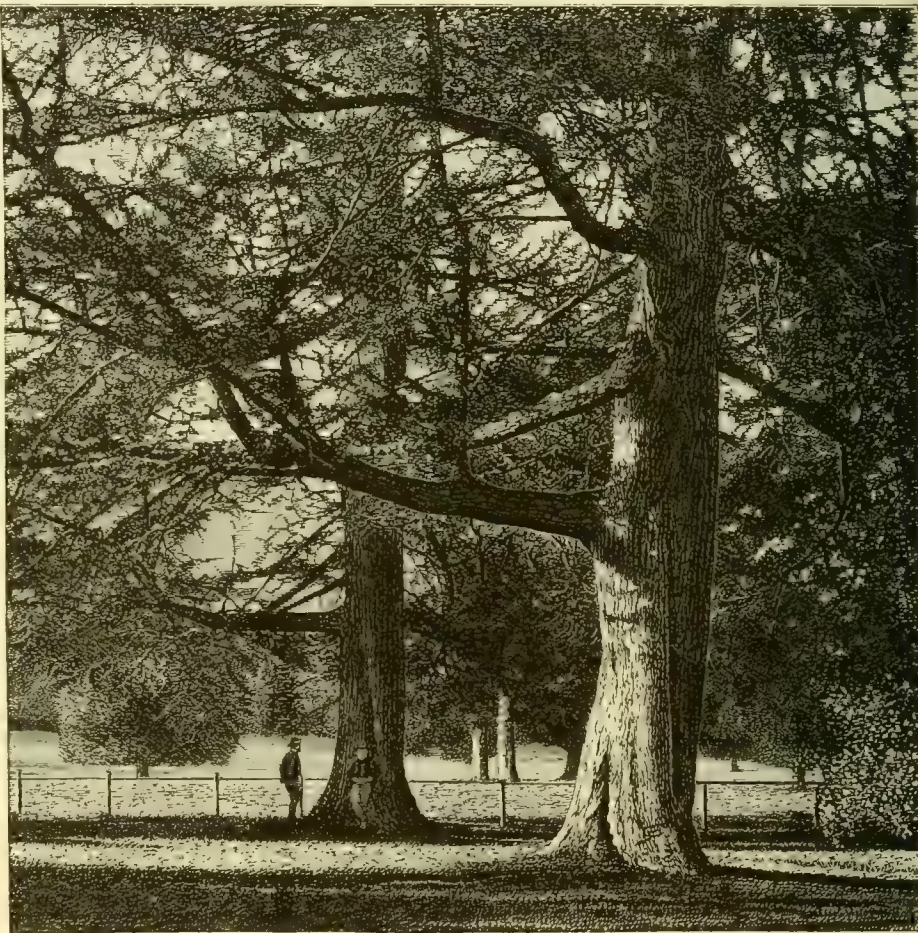


FIG. 136.—THE DUNKELD LARCHES, AS THEY APPEARED IN 1876.

that the servant of Mr. Menzies carried the Larches before him on his saddle, is quite incorrect; for we can hardly suppose that Dr. Walker would give the date of 1727 as that of the first planting of the Larches at Dunkeld, without some positive evidence of the fact."

When we come to the Arniston Larches we are on more reliable ground than in the case of either the Atholl or the Dawyck trees, for, fortunately, their history is well authenticated. It is surprising, however, that these Larches, which I have known for over fifty years, and which, as well as being among the oldest are among the finest in Scotland, have never, so far as I am aware, been referred to in any of the numerous works on arboriculture and forestry. They grow on an elevated plateau, to the west of Arniston House, in the county of Midlothian, in a part of the policies called the Wilderness, overlooking the South Esk river, on a rough gravel subsoil, about 500 feet above sea level; and while they are not quite so large as the Dunkeld Larches, they are of very ample dimen-

February 8, 1738, and we may assume that they were very soon thereafter committed to the soil.

Such is the account of the introduction of the Arniston Larches, and although it does not throw any light on the date when the Dawyck Larches were planted, it seems to definitely settle the question as to whether the Atholl Larches were introduced in 1727 or 1738. In the *Memoirs* it is stated that at that time (1738) "plantations, as well for the supply of timber as for shelter, were being made throughout the country. The Larch, introduced about the year 1725, was becoming one of the standard forest trees. A few were planted in the Wilderness..." Presumably the reference to 1725 is to the Dawyck Larches, but if, as it stated in the *Memoirs*, the Larch was becoming one of the standard forest trees in 1738, it is highly improbable, as was suggested by Loudon, that the statement in the *Transactions of the Highland Society* that it was introduced to Atholl in 1738 can be correct; for it is inconceivable that people in Perthshire, presumably who knew about such matters,

should be so ignorant of the character of the tree as to treat it as a tender exotic at the very time when a nurseryman in Midlothian was distributing plants up to five feet for general planting, and when, apparently, it was becoming one of the standard forest trees throughout the country. We must therefore conclude that the Dunkeld Larches were introduced in 1727, but whether before or after the Dawick trees is uncertain, unless we accept Dr. Walker's statement that they were really the first to be introduced into the country. At any rate the story of the Arniston Larches seems to narrow down the question of the introduction of the larch into Scotland to 1725 or 1727.

These conflicting statements of the older authorities regarding the date of introduction of the Larch have, as was inevitable, led to some contradiction in the works of later authors. Dr. Nisbet, in *The Forester* (1905) and all his earlier works, accepts 1725 as the year of its introduction into the Lowlands of Scotland, and 1727 for the Highlands. Hunter, in his *Woods, Forests and Estates of Perthshire* (1883), a work by a local author, which contains much valuable information regarding the earlier plantations of the Larch in that country, states that the famous "parent Larches" at Dunkeld "were treated as greenhouse plants," and "were planted in 1738"; and Adolphus Kent, the author of Veitch's *Manual of Coniferæ* (2nd. ed. 1900), the standard English work on the subject, refers to them as "the survivors of five planted by Duke James in 1738." And in the latest work on British arboriculture, *Trees and Shrubs Hardy in the British Isles* (1914), by W. J. Bean, of the Royal Gardens, Kew, the author, referring to the parent Larches, states that "two of the oldest, or perhaps the very oldest Larches in the British Isles are standing near the old cathedral at Dunkeld, planted in 1738." It seems quite clear, however, that with the exception of Dr. Nisbet all the writers referred to above have given a wrong date for the Dunkeld Larches. A. D. Richardson, *Edinburgh*.

INDOOR PLANTS.

VERONICA HULKEANA AS A POT PLANT.

THIS useful and fascinating plant is at this time commencing to put forth its very graceful spikes of delicate lilac-coloured flowers. When massed in the conservatory or dwelling house, and intermixed with *Adiantum Farleyense* and *Selaginellas*, or something of a bronzy tint, it cannot fail to attract attention. Another good point in its favour is the length of time it lasts fresh in flower. I find the best method of cultivation is to strike cuttings, taken from the base of the plants at the present time, placing three cuttings around the side of a small sixty-sized pot filled with a sandy compost. The receptacles should be placed in a propagating case with slight warmth; failing this, a closed cold frame will suffice. When rooted, knock the plants out of the small pots and pot them on intact in 4½-inch pots, using this time, loam, two parts, leaf mould, one part, and a good sprinkling of sand and a small quantity of burnt refuse. Grow the plants on in a cold frame, and as soon as the pots are filled with roots, repot the plants into 7-inch pots, using a similar compost as before, but with the soil in a rougher condition, and add a light sprinkling of old soot and a small quantity of bone meal. Pot fairly firmly and return the plants to the cold frame, standing them on a coal-ash base. Water the roots carefully, and syringe the plants after hot days. When the pots are filled with roots, apply weak liquid manure about once a week. Do not stake the plants, but allow them to grow in their own natural way, or much of their graceful effect will be lost. They usually attain a height of about 2 feet 6 inches. Give the plants cool treatment, and, during the winter, plunge the pots in ashes or anything that will prevent the frost from cracking them; also, when the weather is very frosty, cover the lights with mats, but otherwise, allow all the light and sunshine available to reach the plants. R. H. Crookford, *Wiston Park Gardens*.

SOLANDRA GRANDIFLORA.

THE Solandras belong to a small genus of tropical shrubs closely allied to *Datura*, and consist of about seven recognised species, of which *Solandra grandiflora* is one of the best, with its magnificent trumpet-like flowers and thick, Laurel-like leaves which are obovate-oblong; acute, and glabrous. The species was introduced into this country in 1781 from Jamaica, where it is indigenous, but it is now a favourite plant in many gardens in the tropics, where it is used freely for covering verandahs, screens and for climbing up trees.

A plant at the Botanic Garden, Cambridge, growing in a corner of one of the houses where the temperature is seldom higher than 45° during the winter, has flowered with exceptional freedom this season (see Fig. 137), and for some

markings, and even purple, while according to the *Bot. Mag.*, t. 1874, they are pale flesh colour in Jamaica, and known as the Peach-blossomed Trumpet flowers.

Cuttings of the young shoots, or ripened wood, strike freely in heat, and as the cultivation of the plant is not difficult there is no more worthy greenhouse climber than *Solandra grandiflora*, and certainly not one more handsome. F. G. Preston, *Botanic Gardens, Cambridge*.

CULTIVATION OF HYBRID CYMBIDIUMS.

IN practically every genus of the showy, popular kinds of Orchids the hybridist has effected great and astounding improvements, but it is doubtful whether his efforts have ever



FIG. 137.—SOLANDRA GRANDIFLORA IN THE CAMBRIDGE BOTANIC GARDEN.

weeks has been covered with its large flowers, as many as sixty-seven being out at one time. This freedom is undoubtedly partly due to the heat of last summer, as well as to keeping the soil dry at the roots during the autumn and winter months, this being essential after the plant has been allowed to grow freely, with moist conditions, during the early part of the season. The plant should be exposed to all the bright sunlight possible, which induces short, sturdy growth and the production of flowers.

The tubular flowers are eight inches long and seven inches across, sweetly scented, and interesting from the time the buds begin to expand. The change in the colour of the flower is very remarkable, pale olive-green tinged with yellow in the bud stage, and turning to white when open, the throat being cream, while the whole flower finally turns to buff-colour with age, and even then is very attractive. Flowers on different plants must vary in colour, for one reads of them being yellow, yellow with purple

been better rewarded than in the case of *Cymbidiums*, and the use of the erect, tall-growing species, *C. insignis*, and the distinct and beautiful *C. Parishii Sanderae*. These have been principally concerned in the production of the splendid new race of *Cymbidium* hybrids, whose foremost position among Orchids is assured by reason of their grace and usefulness and adaptability to cultivation.

For the beginner there is no better group with which to commence Orchid culture, and the cost of cultivating these plants is not greater, in fact less, than the cost of growing the majority of plants needing glass protection, nor, unless unique varieties are desired, is the initial cost of the plants a serious matter. In their native country *Cymbidiums* are usually found growing at a considerable elevation, *C. insignis* being found up to an altitude of 5,000 feet, hence they are, for Orchids, comparatively hardy and cool-growing plants under cultivation. "Cool-growing," however, must not be

misunderstood. It does not mean a cold, damp atmosphere; far from it. It simply means that the plants may be grown without artificial heat, except in bad weather in winter. I have had experience of these hybrid *Cymbidiums* in houses when the temperature has dropped almost to freezing point, and no harm has come to the plants; but at times of low temperature, the plants and the atmosphere must be comparatively dry. Such a low temperature is, of course, not advisable, 45° minimum in winter is a reasonable and safer figure.

Many of the old ideas associated with *Cymbidium* culture, as with the cultivation of many other Orchids, were, viewed in the light of present day methods of culture, extraordinary, and the idea still exists that *Cymbidiums* should be heavily shaded and treated as bog plants at all seasons. This is a very erroneous idea, resulting in deceptive growth. For a time the plants may show increased development of the pseudo-bulbs and leaves, especially young plants, but the time usually comes when such growth exhausts itself, and sooner or later the plants show signs of distress. Sunlight and sun-warmth are just as important factors in maintaining the general health of *Cymbidiums*, and to ensure satisfactory flowering, as in the successful cultivation of the majority of flowering plants. I do not for one moment suggest that these hybrid *Cymbidiums* will bear full exposure to sunshine, but the aim should be to allow them as much light as possible without risk of injuring the foliage.

Cymbidiums are, for the most part, strong-growing plants, having thick, fleshy roots, and at that period of the growing season when making up their pseudo-bulbs, in the autumn, a fairly liberal supply of water at the roots is needed, but at all other times they should be treated as ordinary greenhouse plants, always allowing them to dry out before giving the roots a further supply of moisture. Immediately after the flowering season, before the plants get well into growth, is the period when the least amount of water is required at the roots. While I have termed these plants hardy, cool-growing Orchids, they are at the same time lovers of a high day temperature, by sun heat, so long as moisture and air are abundant, but they dislike being shut up, especially at night, in a high temperature and stuffy atmosphere. During hot weather, the foliage of *Cymbidiums* is subject to attacks of red spider, but if the syringe be freely used in bright weather, both over and under the foliage, little difficulty will be found in combating this pest. During the exceptional hot weather last summer, it was very difficult to keep down this pest, and dipping the foliage of the plants in insecticide was the only remedy.

The repotting of *Cymbidiums* is not required annually, but when this operation is necessary, it is best done soon after the flowering period, before the new growths get too far advanced. It is a mistake to disturb plants that are well established in good material, and in pots of sufficient size for the development of the new season's growth, as root-bound plants always produce the best flower-spikes. *Cymbidiums* require a strong soil to grow in, and this should be a mixture of three-fifths good turfy, heavy loam, one-fifth turfy peat and one-fifth leaf soil or *Sphagnum*-moss, the latter for preference. The compost should be used in as lumpy a condition as possible, adding plenty of rough material, such as crushed crocks, charcoal and silver sand to keep the whole porous. I never use, or recommend the use of, manures of any kind for these plants, as excellent results may be obtained, and the general health of the plants better maintained, without them.

Over-potting should always be avoided, as the plants are more easily managed in the matter of watering, and they flower better when the roots are confined to a moderate amount of rooting material. Good open drainage is very essential and should always be covered with a layer of thin turf. In the process of potting the soil should be made firm about the roots, and the base of the plant kept about one inch below the rim of the pot, with the crown of the plant on a level with the surface of the soil. H. G. Alexander, Westonbirt.

MR. KINGDON WARD'S SIXTH EXPEDITION IN ASIA.*

No. 15.—MU-LI.

Mu li, which to all intents and purposes is the monastery with its six hundred monks, is situated some 2,000 feet above the Litang river, on the left bank. Immediately above the building, which forms a compact block on the steep hill-side, the limestone cliffs rise another 2,000 feet in a series of gigantic scarps. The south facing slopes, below these cliffs, are clothed with a forest of Oak, but on the sheltered slopes there are many shrubs, such as *Rhododendron* (four species), *Desmodium*, *Berberis*, *Corylus*, *Willow*, etc., and higher up, Pine woods shading all sorts of flowers—*Lilies*, *Roscoe*, *Cypripedium*, and other Orchids; *Primula septemloba* and so on.

For a few days I took stock of the position, while exploring the limestone cliff, where it was not quite naked. There were several directions in which I might proceed, as thus: (i) the limestone range we had already crossed, due south of Mu-li; (ii) the range immediately above Mu-li to the west; this forms the watershed between the Litang river and a considerable stream to the west, called the Shui-lu; (iii) the watershed between the Litang river and the Yalung, to the east, by a choice of two roads, one going northwards to Tatsienlu, the other due east. Finally I decided to visit all three regions, starting westwards first. Meanwhile, we explored the cliff above the monastery, found a *Rhododendron* like *R. racemosum* (not in flower), the violet *Nivalis* *Primula* (very abundant), a violet flowered *Ajuga*, rather a pretty weed, and one or two other trivial plants.

The weather looked quite promising as yet, for though it was cloudy, the clouds were high and there was no serious threat of rain. It seemed best to get away before the rainy season set in, and having invoked the aid of the monastery, we started westwards on June 13.

As already stated, immediately behind the monastery there rises a high limestone cliff, very craggy, and not to be climbed, which stretches north and south for several miles. To proceed westwards, therefore, this cliff has to be turned, either at its northern or southern end. The main road to the Shui-lu and on into Chinese Tibet, runs north, following the valley of the Litang river for a couple of miles, and then crosses the range by a pass about 13,000 feet above sea level. It was by this route that we returned, and it is interesting because, while the immediate slopes about Mu-li, and the cliffs above being exposed, are rather bare, covered with scattered shrubs or with forest of gnarled Oak, those facing north-east are well wooded and support a rich flora. It was here, close to Mu-li itself, that I found on the limestone cliffs a *Suffruticosa* *Primula*, forming thick cushions, a foot or more across, and several inches deep. The flowers were practically over as early as June 28, but appeared to be purple with yellow eye, the leaves curiously sticky. Some of the plants met with, laboriously built up into compact tufts, thanks to the persistence of the old leaves, must have been many years old, for the concealed stems were hard and woody. These *Suffruticosa* *Primulas* are all cliff plants, and most, if not all, limestone plants. They grow on the very barest rock where nothing else will deign to grow, the crowded leaves absorbing moisture like a sponge. Unfortunately, they require several years to establish themselves, though they are well worth growing in the rock garden. This Mu-li species resembles the beautiful *P. pulvinata* (discovered in Eastern Tibet in 1913, flowered in 1917), in that the flowers nestle amongst the leaves instead of being carried above them, as, for instance, in *P. Forrestii* and *P. redolens*. I have no doubt that this Mu-li species is a new plant.

* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 23, August 20, September 3, October 8, October 29, 1921; January 7, January 21, March 11, March 25, April 8, April 22, and May 6, 1922.

Another striking plant of these sheltered limestone cliffs, growing in the Pine woods, was a slipper Orchid, not unlike a species found on the north-east frontier of Burma in 1914, but on a larger scale.

From between a pair of large, oval, glistening leaves, lying flat on the ground, rises the large, chocolate coloured flower, with its fat pouch and spreading outer segments; but the scape is so short that the solitary flower appears to be sessile between the twin leaves. It is a species of *Cypripedium*.

Primula septemloba with umbels of drooping, purplish-pink flowers also grew here in thick undergrowth, and a *Clematis* with drooping maroon-purple flowers, which latter, however, was not common. Several ground Orchids, species of *Roscoe*, *Thalictrum*, *Lilium*, *Pyrola*, etc., were at home on these Pine-clad slopes.

The second road westwards turns the cliff at its southern extremity, and crosses the range some distance south of Mu-li. This is the main road to Chung-tien; and it was this road we followed to begin with on June 13, only we turned off due west as soon as the end of the cliff was reached, following a path which leads to the alpine pastures, and thence over the divide by a 14,000 foot pass and so down to the Shui-lu, rumbling in its deep gorge.

In the shrub belt there was not much in flower, a *Deutzia*, *Rosa sericea*, *Hypericum patulum*, white *Jasmine*, *Cotoneaster*, *Desmodium*, *Leycesteria*, etc., besides two or three species of *Arisaema*, *Amphicome arguta* and a *Vitis*. As we got higher, *Iris kumaonensis* appeared, with purple *Pleione*, *Epilobium* and *Morina*. Then came masses of pink *Androsace spinulifera* alternating with patches of violet *Primula*, making a very pretty combination.

Forest now began to replace shrub growth—*Pinus Armandii*, *Pseudotsuga*, *Picea*, *Maple*, *Birch*, *Oak* and *Rhododendrons*; lastly, *Larix tibetica*, which ascends higher than any tree here, except *Abies*, sp.

Following up a valley, we climbed steeply under the towering walls of the Mu-li cliff, where *Cypripedium luteum* and *Primula septemloba* were conspicuous in the shade.

Emerging from the forest, on to open slopes, with scattered bushes of *Rosa* (two species), *Potentilla fruticosa*, *Berberis*, sp., etc., the fierce crimson of *Incarvillea grandiflora* at once caught the eye; there were also a few white flowered specimens, these being much more pleasing to look at. A tall *Nivalis* *Primula*, with mauve flowers, was also abundant here; the flowers were over, but we found plenty next day a little higher up. The species is common in the A-tun-tzu district, on the Mekong-Salween divide—*P. sinoplangantinea*, I think it is.

We camped for the night by a small stream coming down from the limestone range. As usual in this region, it was lined with *Primula secundiflora* and *P. pseudo-sikkimensis*; I have never seen the one species without the other. Yet in the A-tun-tzu district, where *P. pseudo-sikkimensis* is common enough, *P. secundiflora* is not found. Possibly the A-tun-tzu plant is another microform of *P. sikkimensis*; namely, *P. microdonta*. The poverty of shrubs was quite astonishing. Beyond those already mentioned with *Lonicera*, *Salix*, scrub *Juniper*, and one or two more, there was nothing. This, however, is only a generalisation of the particular fact already noticed, that there are very few species of *Rhododendron* so far east, though I found two more on this very range, bringing the total number found in the Yung-ning Mu-li area to something over a dozen species, but less than 15! I have no doubt, however, that could one but get at the highest peaks, many more species would be found.

On June 14, we continued the ascent to the summit of the range, and presently came on a pretty *Anemone*, perhaps *A. rupicola*, under the trees. Numerous prostrate *Leguminosae* of all colours began to appear—species of *Oxytropis*, chiefly, with here and there a dwarf, blue *Iris*, probably the widely spread *I. kumaonensis*. P. Kingdon Ward.

MESEMBRYANTHEMUM AND SOME NEW GENERA SEPARATED FROM IT.

(Continued from page 231.)

14.—*C. saxetanum*, N. E. Br. Plant forming very dense hemispherical tufts of very small growths, each about 4-6 lines long and $1\frac{1}{2}$ lines thick, cylindric or cylindric-clavate, very convex at the apex (type A.), with a minute and very inconspicuous orifice, green, more or less tinted with purple where exposed to the sun, with or without a few inconspicuous darker green dots around the orifice. Often the growths are more or less included in their old skins. Flowers not seen alive, but on one dried specimen it appeared to be rosy, Dr. Marloth, however, states that it is "whitish or cream-coloured," possibly it varies.—*M. saxetanum*, N. E. Br. in *Journ. Linn. Soc. Bot.*, v. 45, p. 99. *M. fimbriatum*, Marloth in *Trans. Roy. Soc. S. Afr.*, v. 1, p. 406, not of Sonder.

Great Namaqualand. In fissures of rocks near Angara Pequena, flowering in May, Marloth, 4676, at Kew (4674 ex Marloth), Pole Evans.

Some of the native tufts of this species must be very old, as upon counting the number of sheaths upon a short measured length of one of the stems this species forms, I found that at a rough estimate that particular plant was at least one hundred years old. The growths form only one sheath each year under natural conditions.

CCC. Flower white, see also 14, *C. saxetanum*, and 18, *C. translucens*.

15. *C. viridicatum*, N. E. Br. Growths 6-10 lines long and 5-8 lines in their greater diameter, obconic, with a shallow groove-like depression across the elliptic slightly convex or flattish top (type F., but with a deeper notch), and often with a faint obtuse ridge on each side of the orifice, uniformly green, like young Apples, without markings, or (on the same plant in different

elliptic, slightly convex top (type E). Corolla 6-7 lines in diameter, opening late in the afternoon, scentless; petals 25-28, straw-yellow. Anthers all shortly exserted. Style very short; stigmas not attaining to the mouth of the corolla-tube.—*M. albertense*, N. E. Br., in *Journ. Linn. Soc. Bot.*, v. 45, p. 92. Sent to Kew by the late Prof. H. H. W. Pearson, as having been collected near Prince Albert, but as I have had what appears to be the same plant sent to me by Mr. N. S. Pillans from near Prince Albert Road, the latter locality may have been intended.

17. *C. fraternum*, N. E. Br. (Fig. 138).



FIG. 139.—*CONOPHYTUM GRATUM*, N.E.BR.
NATURAL SIZE.

Growths 4-7 lines long and 3-5 lines in diameter, obconic, flattish at the top, with the centre often slightly depressed (somewhat as in type J), pale greyish-green, with scattered dark green or finally purplish dots. Calyx usually exserted, 4-lobed, whitish or pale greenish, sometimes tinted with purplish. Corolla 7-10 lines in diameter, opening in the morning and closing towards evening, scentless; tube very much longer than the calyx, dull ochreous-yellow or whitish; petals pale pink, fading into yellow at the mouth of the tube, or entirely white. Stamens with orange filaments and yellow anthers. Style as long as or longer than the stamens, filiform, with 4 minute stigmas orange-red or light yellow.—*M. fraternum*, N. E. Br., in *Kew Bull.*, 1913, p. 118.

Little Namaqualand. Hills south-west of Chubiessis, Pearson, 6177

18. *C. translucens*, N. E. Br. Growths 3-6 lines long and 3-5 lines in their greater diameter, obconic, slightly convex at the top (type E), scarcely, or but slightly depressed at the orifice, "translucent green, with slightly darker distinct spots only showing under a lens, and a few yellowish spots, not confluent. Flowers open at night heavily scented." Calyx-tube much exserted, 2-3 lines long, 5-lobed. Corolla about half an inch in diameter; tube not exserted from the calyx; petals numerous, widely spreading, creamy-white. Anthers exserted, yellow.

Locality unknown, Bolus Herb, 15,183. This is evidently a very distinct species, but is only known to me from a coloured drawing made by Miss Page, and sent to me by Mrs. L. Bolus. The translucent green colouring is unlike anything I have seen.

19. *C. piluliforme*, N. E. Br. Growths very small, $1\frac{1}{2}$ -3 lines in diameter, obconic, convex on the top (type D, but very small), different plants varying from dull greyish-green to dingy purplish or purplish-green, marked with a few scattered dark purple or dark green dots, and often a line of confluent dots, transverse to the orifice, and the orifice outlined with the same colour. Calyx 4-lobed, dull dark red. Corolla insignificant, night-flowering, scentless (but stated to be slightly scented in S. Africa), about 4 lines in diameter, with 16-20 lax, irregularly arranged, very narrow petals, of a peculiar reddish-ochreous colour or dull coppery red.

Anthers yellow, all shortly exserted. Style about half as long as the tube of the corolla, with 4 filiform stigmas rising to the base of the anthers, reddish. Top of the ovary domeshaped.—*M. piluliforme*, N. E. Br., in *Journ. Linn. Soc., Bot.*, v. 45, p. 98.

Robertson Div. Near Montagu. Collector unknown.

20. *C. gratum*, N. E. Br. (Fig. 139). Growths somewhat top-shaped in side view, globose viewed from above, convex at the top, with a broad and shallow V-shaped notch across it, pale bluish-green, sprinkled with dark green dots, and the orifice outlined with dark green, very conspicuous on the young growth, but becoming fainter with age, and later a dark pink dot appears on each side of the orifice. Calyx usually exserted, 4-5-lobed, whitish. Corolla 6-7 lines in diameter, expanding in the daytime, irrespective of sunshine; tube 3-4 lines long; petals 28-32 strongly recurved, rich magenta, shining. Stamens about 35-40, in 1-2 series, shortly exserted, yellow. Style 4-5 lines long, with 4-5 stigmas about 1 line long, dull yellow, finally exceeding the stamens.—*M. gratum*, N. E. Br., in *Journ. Linn. Soc. Bot.*, v. 45, p. 93. *M. nanum*, L. Bolus in *Ann. S. Afr. Mus.*, v. 9, p. 141, not of Schlechter.

Little Namaqualand. Barren slopes north of Daunabis, Pearson, 6063.

21. *C. truncatum*, N. E. Br. Plant with age forming a dense tuft of crowded stems up to 1 inch long, densely covered with the remains of old sheaths, firm in substance and of a tan-brown colour. Each branch terminated by an obconic growth about 4 lines long and 3-4 lines in diameter, scarcely or but slightly exceeding the old sheath, apparently flattish or slightly convex on the top, and of a light brown colour in the dried state, but Thunberg describes them as being subtruncate and subretuse—truncate, green and dotted, and as having a 4-lobed calyx or perianth. But the specimen is in fruit only, and I see no trace of calyx-lobes, although as it is 5-angled it was doubtless 5-lobed. The



Photo by Dr. Rodier Heath.

FIG. 138.—*CONOPHYTUM FRATERNUM*, N.E.BR.
NATURAL SIZE.

years) with some very small inconspicuous darker green dots. Calyx 5-lobed, whitish. Corolla, about 9 lines in diameter, opening after sunset, scentless, with about 30 recurved-spreading very narrow white petals. Stamens exserted; anthers yellow. Style very short; stigmas 5; about 1 line long, very pale yellowish.—*M. viridicatum*, N. E. Br., in *Journ. Linn. Soc. Bot.*, v. 45, p. 101.

South Africa. Locality and collector unknown.

BB.

Growths more or less marked with dots or lines (species 16-49). See also a few species mentioned under B.

D.

Dots all scattered and separate (species 16-22). See also species noted under B, and 27 *C. Nevillei*, and 30 *C. parvipetalum*.

16. *C. albertense*, N. E. Br. Growths 4-7 lines in diameter, at the circular or broadly



FIG. 140.—*CONOPHYTUM TRUNCATELLUM*, N.E.BR.
NATURAL SIZE.

capsule is just exserted from the orifice so as to rest on the top of the growth, and is distinctly 5-valved, and about $2\frac{1}{2}$ lines in diameter. *M. truncatum*, Thunb., in *Acad. Caesar. Leop. Carol. Nat. Curios. Ephem.*, v. 8, *Append.* p. 5 (1791), and *Fl. Cap.*, p. 412, not of other authors.

Uniondale Div. Among rocks in Kamanassie Karoo.

The above description is made from Thunberg's type specimens, which I have had the privilege of examining. This species has never been introduced into cultivation, although the name has been erroneously applied to various cultivated plants.

22. *C. truncatellum*, N. E. Br. (Fig. 140). Growths 6-10 lines high and 6-12 lines in diameter, very broadly obconic, circular in outline at the top, which is flat or more usually shallowly depressed at the centre (type J), with a slight but usually distinct blunt ridge on each side of the orifice, light glaucous-green, sprinkled

all over the top with small dark green dots, sometimes mingled with purple dots, calyx exerted or included, 5-lobed. Corolla 7-8 lines in diameter, opening at about 5 p.m., closed during the day, delicately scented; tube 2.5 lines long; petals 30-50, recurved-spreading, very narrow, pale straw-coloured or light yellow. Stamens numerous, in 2 series; anthers yellow. Style 1-1½ line long; stigmas 5-6, about 1-1½ line long, attaining to about half the length of the corolla-tube, pale greenish.—*M. truncatellum*, Haw. *Misc. Nat.*, p. 22 (1803).

Locality unknown. Introduced by Masson in 1795. *N. E. Brown*.

(To be continued.)

TASTING DAY AT LONG ASHTON.

GRADUALLY pre-war conditions are being restored in various directions, and the revival of Tasting Day at the National Fruit and Cider Institute on the first Thursday in May marks the resumption of an annual practice now of many years' standing which was interrupted by the war. While its primary object was to demonstrate the results of the experiments on cider-making conducted during the 1921-22 season, opportunities were provided for visitors to see something of the other activities of the station.

In the cider house were displayed some fifty samples of cider, each made from a distinct variety of Apple. This method of separate treatment allows a judgment to be formed of the vintage merits of each sort tested, and its suitability for use alone or its requirements for blending as the case may be. With the number of samples available almost unlimited scope was afforded for testing the bewildering combinations to be obtained by blending different types and varying their proportions. It was interesting to note the effect of the very hot and dry summer of last year on the quality of the cider. As expected, the juices proved to be abnormally rich in sugar, but the fruit yielded very little juice. It appears likely to be demonstrated that an excess of heat and drought, such as that experienced last summer, does not lead to the production of cider of the best quality.

To anyone acquainted with the farm orchards of the cider districts it is evident that among the almost innumerable sorts of Apples to be found in them, a large percentage must be unworthy of their place from both cultural and vintage points of view. These tests of cider-making with individual varieties, which have now been carried out at Long Ashton for many years, have led to definite conclusions as to the varieties which can be recommended, and it is hoped that further planting of cider orchards will be restricted to these.

Of more immediate interest to fruit growers generally were the tests made with the commercial varieties, Bramley's Seedling and Lane's Prince Albert. In course of time, as grading becomes an established practice in the marketing of Apples, there will be an increasing amount of blemished and undersized fruit for which the grower will need to find a profitable outlet. The possibility of its use for cider-making is now being explored, and, if the results shown at Long Ashton on this occasion can be regarded as typical, there is good reason for hope in that direction. By themselves the ciders made from the varieties named would not rank high; but the demonstrations given of methods of blending with true vintage varieties of suitable character proved that good marketable ciders can be produced by their use, even when so high a proportion as 50 per. cent. of the commercial variety is used in the blend.

Another important line of work with which the station is concerned, viz., that on methods of preservation of fruit and vegetables, which it is conducting in conjunction with the Campden Experimental Station on Fruit and Vegetable Preservation, was illustrated by exhibits of a comparatively new method of preserving fruit for jam making purposes by direct treatment in the cold with a very dilute solution of sulphur dioxide. The results thus far are extremely

promising, the quality of the jam produced being distinctly superior to that made from fruit pulp. It seems likely that the practice of pulping may be superseded by it.

Space will not permit of more than brief reference to the many points of interest which were to be seen during the course of the tour through the fruit plantations, and mention will be confined mainly to some of the newer lines of work in hand. In these considerable extension has made possible a large programme of "field experiments." This includes continued work on the control of big bud in Black Currants by the use of lime-sulphur sprays of different strengths and different dates of application, and also on that of the Loganberry beetle with arsenate of lead and paraffin emulsion.

Extensive manual experiments are now under way to test the comparative values of organic and inorganic nitrogen, and especially to find out the most favourable time of year at which to apply fertilisers to fruit trees. The fruit-breeding programmes of former years have produced large numbers of young seedlings, of which a large proportion has been planted out to undergo field trials.

In conjunction with the Cheddar Fruit Growers' Association, a considerable trial of Strawberries has just been commenced. Work is also being done on Strawberries to discover the possible existence of definite strains in the variety Royal Sovereign.

The collection of little-known Apple varieties of promise is being continually increased, and it is intended to initiate next autumn a scheme for collecting and testing such kinds which from time to time are reported in old farm orchards.

At a later date in the summer it is likely that another field day will be arranged, when further opportunity will be afforded for reviewing in more detail the experimental work on fruit culture now in progress.

THE GRAPE VINE.*

(Concluded from page 246.)

PESTS OF THE VINE.

It is impossible for me to deal adequately with all the insect pests and diseases of the vine; I can only touch on a few of the more common. Red spider is the most troublesome insect. There are two kinds of red spider, the more common and smaller of the two lives on the under-side of the leaves, where it spins its web and multiplies with great rapidity. The other is larger and brighter in colour and lives on the upper side of the leaves and is easily seen by the naked eye. Sometimes the presence of red spider is not detected till brown patches appear on the leaves caused by the insect living on the chlorophyll. For red spider or any other pest which leaves the foliage light in colour, a dressing of sulphate of iron at the rate of one-half pound to ten square yards of the border will tone up the leaves and give them a rich green colour in a few days. Every endeavour should be made to eradicate the spider before it has time to damage the leaves, and a strict watch kept on any leaves near the hot-water pipes, which should on no account, be allowed to become excessively hot after the end of March. Directly red spider is detected, sponge the affected leaves, using warm soapy water. This may be a tedious operation, but it is effective. Thrips attack the leaves in much the same way, and perhaps cause more damage, but fortunately this pest is not often met with on vines. Its presence can generally be traced to Azaleas or some other plant which may have been placed under the vines to recuperate. The most certain way to dispose of a severe attack of spider or thrips is to fumigate with "XL-ALL" fumigant three times in succession, or more if necessary, at intervals of nine days, so as to destroy the larvae as it advances into active life. I do not advise excessive moisture in the atmosphere, which is often resorted to for the destruction of this

pest. This remedy is nearly as bad as the disease, inasmuch as it invariably results in a variety of diseases no less virulent than those we are dealing with—mildew, to mention only one. Mildew is caused chiefly by a stagnant atmosphere, and, if not at once arrested, will certainly destroy the crop. It attacks the young leaves, and descends from them to the bunches, which have then the appearance of having been dusted with flour. The best preventive of mildew is to have no young leaves or tendrils of any sort on the vine, but to remove them as they appear. When the disease is first noticed on leaves that cannot be spared, such as on young canes, apply flowers of sulphur to the leaves attacked, when the mildew will disappear. Freshly slaked lime may be placed on the borders with good results, but sulphur is the standard specific for mildew. Rust can hardly be termed a disease, but some of the finer-skinned varieties are very liable to it. It cannot be cured, but can be prevented by avoiding everything likely to produce it. Rubbing the berries with the hands or the hair when working among them, or allowing the pipes to become excessively hot through careless stoking, will cause rust on the berries. Scalding is a malady which often gives trouble, one or two varieties of vines being very susceptible to it, Lady Downes and Muscat of Alexandria in particular. It generally occurs when the berries are more or less half-grown, but, fortunately, if the vines are healthy, it only lasts about three weeks. It is caused by faulty ventilation, the moisture in the atmosphere condensing on the berries before the sun reaches them in the morning. This appears to be the principal cause, but not the only one, for scalded berries are found in bunches where the sun's rays never reach them. This moisture causes the skin of the berries to become tender, with the result that the cells collapse as they expand with a rising temperature in the early morning. Admit a little air by the top and bottom ventilators, both day and night. A dry atmosphere is required, so that moisture will not condense on the berry. The amount of air should be increased early in the morning. If these details are observed, there is little to be feared from scalding.

"Shanking" is a very serious disease, and difficult to trace to its source, but it will be found, in nine cases out of ten, to be caused by having too much organic matter in the soil of which the border is composed. Organic matter has the effect of producing too many roots of a long, spongy nature in the early season. These die back at a critical time—at the stoning period, usually. These roots favour the development of large quantities of leaves and wood which fails to ripen properly, and so the trouble is carried on from year to year. This excessive root action may be obviated by limiting the top growth early in the season, retaining only a limited number of primary leaves and suppressing all others. This will reduce the pressure on the roots after the plant starts into growth, and, instead of spongy roots, thin, wiry, branching rootlets will develop. We have practised this method of combating shanking for several years, and there is seldom a shanked berry now on vines that formerly gave a lot of trouble with this complaint. If aerial roots are noticed, be prepared for shanking, because it is a sure sign that top and root growth are not properly balanced. Mealy bug is a marvellously persistent pest. Every conceivable specific has been used for its destruction, from coal tar to prussic acid gas. To rid vines of mealy bug entirely takes time and patience; on old, gnarled rods it is well-nigh impossible. There is nothing better than to scrub the rods twice during the winter, and again after growth has commenced, with a strong solution of "Gishurst compound," using a stiff brush. The white, mealy substance from which the insect derives its name is proof against water, unless very hot, but melts when touched with a drop of methylated spirit.

When the grapes are thoroughly ripe in early October, there is nothing to be gained by leaving them on the vine, for, as a matter of fact, the bunches keep equally as well in a well-constructed grape room.

* A lecture delivered by Mr. Malcolm Macnaughton, Seane Palace Gardens, Perth, in the Technical College, Dundee, before the members of the Dundee Horticultural Association.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

Orre's "Flower Garden."—Having the 1838 edition of this work, Mr. Joseph Jacobs' note (on p. 193) interested me, though I never came across the second edition. It is a well-bound volume, containing about half a score of excellent, coloured plates of bulbs, annuals, perennials, etc., with a number of engravings of vases, fountains, geometrical gardens, etc. It is to be supposed that this work was published in January, as the author (whoever he may be) promised a volume in March on tender or exotic plants, which was to embrace the situation and structure best adapted to greenhouses, stoves, and conservatories, a comparison of the best methods of warming, illustrated by diagrams; the management of the houses and plants, with select lists of plants arranged according to their height and colour, "as in *The Flower Garden*," and the whole will be written by Mr. McIntosh, gardener to His Majesty the King of the Belgians at Claremont." Has Mr. Jacob or Mr. Brotherston seen this volume? It has not come my way. Mr. Paxton, when at Chatsworth, is frequently quoted as an authority on many subjects; in fact, the book abounds with the opinions of others from different parts of the country, which almost tempts one to try one's hand at authorship if it were feasible to call in outside help to such an extent as given in the first edition. *James Mayne.*

Carnation Bis Greenfield (see pp. 158 and 184). Whilst admitting that the colour and size of the flower of this variety are good, and the plant vigorous, it lacks—most important of all—perpetuality in flowering. The true perpetual Carnation produces flowers in succession, but Bis Greenfield fails to do this here under good treatment. It is therefore entirely out of place as a perpetual variety, and is not to be compared with such sorts as Brilliant, Edward Allwood, Scarlet Carola, or even Mrs. McKinnon. I may add that after growing Bis Greenfield for 18 months the variety has produced one bloom only. *Midland Grower.*

Giant Larches.—Your correspondent, Mr. Mark Mills, gives in your issue of April 29, p. 213, the measurements of some fine Larch trees at Coombe House. It may interest Mr. Mills to know that we have on the lawn here, three Larches, with the following measurements:—No. 1, circumference 3 ft. from ground, 11 ft. 8 inches; height, 90 ft. No. 2, circumference 10 ft. 10 inches, height 84 ft. No. 3, 9 ft. 8 inches, height 85 ft. In the absence of the lower branches, the spread of the trees is not very great, the widest being 60 ft. Like Mr. Mills, I should like to know the age of these specimens. Another feature in the garden here is an old zig-zag fruit wall. Can anyone give me the approximate date when this kind of wall was built, and state if there are other examples still standing? *L. Dawes, Charlton Lea Gardens, Old Headington, Oxford.*

The Setting of Muscat Grapes. At the date of writing (May 3) our Muscat Grapes have set and are swelling, and I would like to give an account of the method practised by us. About a week before the bunches come into flower the border is watered. When the first signs of flowering appear, the night temperature is kept at 70°, with a little air admitted by both the top and bottom ventilators. Every morning about 10 o'clock the whole surface of the border is damped with tepid water through a rose can. The moisture in the house then condenses on the bunches and has the effect of loosening the caps; about noon, when the air is dry (as it is up till late evening), the vine rods are struck heavily with the fist, whereupon the flower caps are easily dislodged and fertilisation takes place. The above method I have practised for many years, and always with first-class results. *Arthur Allardice, Burwarton Gardens, Bridgenorth.*

Musa Cavendishii (see pp. 106, 142, 202, 234).—The various notes on the fruiting of the Banana in gardens have doubtless been read

with much interest by many old gardeners. I had not seen Bananas growing for some years until I planted a house with them at Hall Place, Tonbridge, where Mr. Pringle grows them very well indeed. Having served as a young man in two gardens where these fruits were grown, I was naturally keenly interested when I took charge of the gardens at Impney to find the centre of a house planted with Bananas. I enclose a photograph (see Fig. 141) of a bunch I grew there in 1898. The bunch had 283 fingers and weighed 114 lbs.; it was one of many I grew there over 100 lbs. in weight. The plants were grown in a bed 6 feet by 4 feet, raised 20 inches above the ground level, without bottom-heat, from which two ripe bunches were produced each year. Some fruits were sent to the late Mr. John Wright, V.M.H., who expressed the opinion that it was the largest bunch with the finest Bananas he had ever seen. He informed me that Mr. Ollerhead had been awarded a Gold Medal by the Royal Horticultural



FIG. 141.—A HOME GROWN BUNCH OF BANANAS (*MUSA CAVENDISHII*) CONTAINING 283 FRUITS AND WEIGHING 114 LBS.

tural Society for a bunch weighing 97 lb. The chief needs of this exotic fruit are plenty of heat and moisture and heavy feeding, both solid and liquid, especially when the plants are throwing out their bunches and when the fingers are swelling. The plants develop plenty of suckers, which may easily be fruited and the bunches ripened in 18 months or 2 years. *F. Jordan.*

—In reply to Mr. Snell's inquiry on p. 234, to the best of my recollection the Banana grown at Wimbledon House, with a bunch of fruit weighing about one hundred lb., was *Musa Cavendishii*. Possibly one might find out by referring to Wright's *Fruit Growers' Guide*, as I believe Mr. Ollerhead wrote the article on Banana growing in that book. *Thos. E. Funnell, Quakers' Hall Nursery, Sevenoaks.*

SOCIETIES.

NATIONAL VIOLA AND PANSY.

THE monthly meeting and first monthly show of the National Viola and Pansy Society for 1922 was held at headquarters, the Crown Hotel, Birmingham, on the 3rd inst., Mr. H. J. Milner in the chair. There was a good attendance of the members and six new members and one vice-president were elected. The number of entries, as was to be expected after the adverse weather of late, was small and far below the average. Mr. D. Calderbank gave a very instructive and interesting lecture on "Manures (Organic and Inorganic): Their Values and Application."

ROYAL CALEDONIAN HORTICULTURAL.

MAY 2.—The ordinary monthly meeting of this Society was held at 5, St. Andrews Square, Edinburgh, on this date, Mr. David King, President, in the chair.

A paper on "Daffodils" by the Brodie of Brodie was, in the unavoidable absence of the author, read by Mr. W. G. Pirie. The paper dealt largely with the question of raising new varieties, and the author also discussed the cultivation of the plant. Speaking of the latter, he advised growing the plants in the kitchen garden, after a vegetable crop, rather than in the flower garden, where the bulbs were apt to get dug over. As manures, he recommended finely ground bone-meal and wood ash, with no farmyard manure. In crossing for the raising of new varieties, he advised the use of really good, but not necessarily expensive, varieties, with fairly long flower-stalks.

The exhibits were:—Seedling Daffodils from the BRODIE OF BRODIE (awarded a cultural Certificate); Seedling Daffodils, from Mr. W. G. PIRIE, Dalhousie Estate (awarded a Silver Medal); *Genista fragrans*, new dwarf variety (awarded a First-Class Certificate), from Messrs. GORDON BROTHERS, Edinburgh.

It was intimated that the first examination for the certificate in horticulture, recently instituted by the Society, was held last month, and that Mr. A. E. LIVINGSTON, North Borland, Dunlop, Ayrshire, had obtained the First-Class Certificate.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

At the monthly meeting of this Society, held in the R.H.S. Hall, on Monday, May 8, Mr. Chas. H. Curtis presided, and ten new members were elected. Two members withdrew interest amounting to £4 12s. 2d., and the sum of £31 5s. 1d. was passed for payment to the nominee of one deceased member.

The Committee decided to appoint agents in every part of the country to introduce new members, and such agents will receive a stated sum for every member introduced and elected. The sick pay for the month on the private side came to £58 5s. 10d., and on the State section to £60 17s., while maternity claims amounted to £8. Grants from the State section to five members towards the cost of dental treatment amounted to £20 15s.; six further applications were received for extra benefits, and were dealt with.

Obituary.

Gabriel Luizet.—We regret to announce the death of Mons. Gabriel Luizet, the well-known President of the Société Pomologique de France, which occurred on the 27th April. Gabriel Luizet was a descendant of the well-known firm of nurserymen at Lyon; though he had been retired for some time his interest in all gardening matters, and particularly fruit, was as keen as ever. All who have attended the annual conference of the French Pomological Society will recall his genial conduct of business, and his great knowledge of pomological subjects. His latter years had been spent in compiling lists of synonyms of fruit, which

will form in some degree an index to the various pomologies. This manuscript, we understand, has been presented to the Pomological Society of France, to be published after his death, and it is hoped that circumstances will permit its early preparation.

ANSWERS TO CORRESPONDENTS.

CHRYSANTHEMUMS: *R. I. H.* The varieties of Chrysanthemums named in your list are best grown in the bush form, with the exception of Mrs. G. Monro, which may be taken on the first crown bud. The plants of this variety will, in all probability, show a break bud about the first week in June; this should be removed and three growths may be allowed to develop forthwith. These growths will show another bud each some time during August, and these buds should be retained and the growths removed. The other varieties are best grown as bush plants to produce sprays and should have their top removed at once to induce them to develop several growths. These growths will make another break during the summer, when they may be reduced to three to each separate stem. If single flowers are required, take the first bud that shows from this natural break. These late varieties are best grown in pots; should this season prove to be a wet one, the difficulty is to ripen the wood sufficiently to produce flowers in winter. It is not necessary to use sticks to each separate growth of these varieties; place one support in the centre of each plant and tie all the growths to it.

GIANT VEGETABLE MARROW: *T. F.* You can obtain a Marrow of extra large size by selecting a robust-growing plant and removing all the fruits but one. If planted in a rich medium, such as an old manure compost, the plant will make vigorous growth and develop a Marrow of very large size. Take care to water the plant freely in dry weather and use a liquid stimulant occasionally.

HARD TENNIS COURT: *R. D.* We do not know of any book on the making of hard tennis courts. Write to the En-Tout-Cas Co., Ltd., Syston, near Leicester, for their booklet No. 30.

LAND FOR WIDENING A ROAD: *R. R. and S.* The question of whether or not the local Council are entitled to interfere with your land depends upon their Parliamentary powers and we assume you have already received some preliminary notice from them. You should consult a solicitor without delay.

NAMES OF FRUIT: *H. W. Allen's* Everlasting.

NAMES OF PLANTS: *E. C.* 1, *Cytisus albus*; 2, *C. præcox*; 3, *Magnolia Soulangeana*; 4, *Euonymus radicans*; 5, *Berberis stenophylla*; 6, Too withered; 7, *Juniperus chinensis*; 8, *Thuya plicata*; 9, *Statice Suworowii*; 10, *Acubia japonica* var. *dentata*; 11, *Erica mediterranea* var. *hybrida*; 12, *Cupressus pisifera* var. *plumosa*. *J. O. M.* *Elaeagnus umbellata*.—*Cornishman*. *Pelargonium* Raspa Improved.—*R. I. C.* 1, *Cydonia Maulei*; 2, *Juniperus chinensis*; 3, *Cedrus Libani*; 4, *Pseudotsuga Douglasii*; 5, *Cupressus Lawsoniana* var. *gracilis*; 6, *Cupressus nootakensis*.—*G. T.* *Acer platanoides* (Norway Maple).—*J. C. B.* *Phillyrea media*.—*J. W. B.* Probably *Madame de Graaff*.—*A. R.* 1, *Thymus serpyllum*; 2, *Saxifraga Wallacei*; 3, *S. cuneifolia*; 4, *S. Hostii* var.; 5, *Alyssum saxatile*.—*A. B. H.* *Trachystemon orientale*.—*A. N.* We do not recognise the variety of *Pelargonium*.

RED GRAVEL TENNIS COURT: *G. E. P.* Without making an examination of the court it is difficult to advise you on how to improve it. It is probable that you have not sufficiently watered and rolled the surface. This should be done to the court in its present condition, and a further coating of brick or ironstone mine dust applied, when the court should again be well watered and rolled.

Communications Received. M. C. A. S.—H. M. R. W. T. L. D.—D. H. D. J. W.—C. M. C. E. T. H. E. A.—A. C. W. J. W. J. M.

THE WEATHER.

THE WEATHER FOR APRIL.

THE second month of spring proved fine and quiet, but very cool, rather keen north-westerly, northerly and easterly airs were unusually prevalent. The mean temperature was 52.4°, or 3.4° below the average. Ground frosts occurred on eleven out of the first twelve nights and again from the 17th to the 20th inclusive, and several were very severe, while on five of the nights the frost invaded the shade also; northerly winds at Southport, generally produce clear skies. The total duration of sunshine amounted to 196.3 hours, which was 21.6 hours in excess of the local normal. Rain was mainly confined to the nights, but took the form of passing showers; the aggregate was 1.54 inch, or 0.26 inch below the average. Evaporation was reduced by a similar amount, owing to the calms and the cool air. Wind movement was no less than 82 miles per day below normal. Gale-force was only attained on the 24th. Hail fell on several days, but fog was restricted to the early morning of the 6th. There was an average amount of ozone.—*Joseph Bazendell, The Penrhy Observatory, Southport.*

THE WEATHER IN SCOTLAND.

APRIL was a cold month with a mean temperature 3° below the normal. Rain fell on 14 days and yielded a total of 1.50 inch, against a normal of 1.70 inch for 13 days; the wettest day was the 14th, with 0.80 inch. Of bright sunshine we had an aggregate of 155.8 hours, being an average of 5.2 hours per day and a percentage of 37; there were only three sunless days. The barometric pressure, with a mean 29.74 inches, varied from a highest of 30.53 inches on the 18th to a lowest of 29.02 inches on the 15th. The mean temperature was 41°, with a mean maximum of 50° and a mean minimum of 32°, giving a mean range of 18°. The highest maximum of 57° was registered for the 26th, and the lowest minimum of 24° for the 1st; in 16 nights the temperature fell below the freezing-point. On the grass, with a lowest of 17° on the 6th, the mean minimum temperature was 26°; there were 22 nights of ground frost. There was a fall of snow on the 3rd, and hail on the 3rd, 8th and 26th.—*John Davidson, Training College Gardens, Kirkton-of-Mains, near Dundee.*

MARKETS.

COVENT GARDEN, Tue-day, May 16th, 1922.

Fruit: Average Wholesale Prices.

s. d. s. d.	s. d. s. d.
Apples, Australasian.	Lemons, Murcia 15 0-21 0
—Cox's Orange	—Messina, cases 14 0-16 0
—Cripps' 14 0-16 0	—boxes 9 0-12 0
—Cripps' 14 0-15 0	Nuts
—New York	—Brazil 46 0-48 0
Pippin 14 0-16 0	Oranges
—Jonathan 13 0-14 0	—Murcia 23 0-27 0
—Sturmer Pippin 14 0-16 0	—Blood 18 0-30 0
—Others 11 0-12 0	—Jaffa 26 0-28 0
Apricots, Spanish,	—Denia 20 0-30 0
half crate 10 0-15 0	Peaches, per doz. 15 0-30 0
Bananas, singles 15 0-25 0	Pineapples 2 0-5 0
—doubles 20 0-25 0	South African
Cherries, French 17 0-22 6	Grapes
Figs, per doz. 4 0-12 0	—Barboursa 14 0-15 0
Gooseberries 1 0-2 0	—Raisinblanc 12 0-15 0
English per lb. 20 0-30 0	—Pears, Nells 6 0-7 0
Grape Fruit 20 0-30 0	—Kaiser 4 0-5 0
Jamaica 25 0-30 0	—Glout, Moreau 6 0-7 0
Grape-Fruit 25 0-30 0	Strawberries
—Black Hamburg 5 0-8 0	English forced
—Belgian 4 0-5 0	per lb. 6 0-12 0

Vegetables: Average Wholesale Prices.

s. d. s. d.	s. d. s. d.
Artichokes, green 4 0-5 0	Peas
Asparagus, forced, per bundle	—Guernsey per lb. 1 3-2 0
—Cavillon 1 0-1 2	Potatoes
—Devon 8 0-14 0	—Dunbar, per ton 13 0-14 0
—Evesham 3 0-8 0	—English, white, per ton 9 0-10 0
—Lauris 1 3-2 0	—King Edward, per ton 11 0-13 0
Beans	—Cornish, per lb. 0 4-0 4
—Guernsey 1 0-2 0	—Guernsey, new 0 5-0 6
—Worthing 1 0-2 0	—Jersey 0 5-0 6
—Broad Beans 8 0-10 0	—Teneriffe, case 20 0-22 6
Beets, per bus. 3 0-4 6	—Spanish, cwt. 36 0-40 0
Cabbage 4 0-5 0	Radishes, round, per doz. 2 0-3 0
Carrots, per cwt.	Rhubarb
—washed 40 0-45 0	—forced, doz. 1 6-2 0
—new, doz. bun. 14 0-16 0	—outdoor 7 0-8 0
Cauliflower, doz. 5 0-10 0	Spinach per bush 3 0-4 0
Chicory 10 0-10 0	Spring Onions, doz. bun. 3 0-4 0
Cucumbers, flat 16 0-20 0	Turnip Tops, bag 4 0-6 0
Endive 2 0-5 0	Tomatoes
Garlic, per lb. 0 8-0 9	—Canary Island 18 0-22 6
Greens, per bag 10 0-15 0	—English and 16 0-18 0
Lettuce, per doz.	—Pink and white 16 0-20 0
—Dutch, crate 4 0-6 0	—Guernsey 16 0-17 0
Marrow 0 10-1 3	Turnips, per cwt. 15 0-18 0
Mint, per doz. 6 0-18 0	New turnips, doz. 1 0-1 4
Mushrooms, per lb. 2 0-3 0	
Onions, Egyptian 12 0-15 0	
Parsley, per bus. 4 0-5 0	
Peas	
—French, per basket 7 0-8 0	

REMARKS.—Brighter weather has been conducive to an improved demand, and the increased volume of produce has moved satisfactorily. Very large quantities of Australasian Apples have been offered.

and their prices have slightly depreciated. Fruits from Cape Colony are comparatively low in quantity, and the season is now drawing to a close. The first Spanish Apricots have been marketed, and realised fairly good prices, as also have the earliest French Cherries. Choice fruits, such as Peaches, Strawberries, Melons and Figs, are inclined to be quoted easier, due to increased quantities. Bananas are a steady trade, and Oranges are slightly firmer in price. English Tomatoes are more plentiful; a good demand for these fruits is being encouraged, both by the improvement in the weather, and the indifferent condition of latest consignments of Tomatoes from the Canary Islands. Cucumbers are in heavy supply, and in very brisk demand. French Beans are quoted lower, as also are hothouse forced Peas. Supplies of English Asparagus show improvement, and with forced Asparagus finishing, there may be a better demand for Asparagus from Evesham, Cambridge and Devon. Mushrooms are a steady trade at slightly better values. Green vegetables are rather more plentiful. The prices for old Potatoes are as quoted last week. Large arrivals of new Potatoes from Spain are competing with supplies from Jersey, Guernsey and the West of England, and as a consequence, the prices all round are comparatively low.

Cut Flowers, etc.: Average Wholesale Prices.

s. d. s. d.	s. d. s. d.
Adiantum decorum, doz. bun. 9 0-11 0	Lily of the Valley, per doz. bun. 12 0-36 0
Asparagus plumosus, per bun. 4 0-5 0	Marguerites, yellow, per doz. bun. 3 0-4 0
long trails, 6's 2 6-3 6	Narcissus, —poeticus 2 6-3 0
med. sprays 1 0-1 6	—double White, per doz. bun. 6 0-9 0
short 1 0-1 6	Orchids, per doz. 12 0-18 0
—Sprenger, per bun. 2 6-3 0	—Cattleyas 12 0-18 0
long sprays 1 3-1 6	Cypripedium 6 0-9 0
med. 0 9-1 0	Pelargonium, per doz. bunch, —double scarlet 15 0-18 0
short 0 9-1 0	Richardias (Arums), per doz. 4 0-5 0
Azalea, doz. bun. 6 0-8 0	Roses, per doz. blooms—
Camellias, per box 2 6-3 0	General Jacqueminot per doz. 1 6-2 0
Carnations, per doz. blooms 2 6-4 0	—Madame A. Chateaux 2 6-3 6
Cornflower, per doz. bundle 5 0-6 0	Melody 2 0-4 0
Croton leaves, various, per bun. 2 6-4 0	—Ophelia 3 0-5 0
Daffodils, single —Emperor, per doz. bun. 5 0-7 0	—Liberty 3 0-3 6
Fern, French, per doz. bun. 1 0-1 3	—Richmond 2 6-3 6
Forget-me-Not, per doz. bun. 6 0-8 0	Statice, mauve, per doz. bun. 5 0-6 0
Gardenias, per box 3 0-5 0	Snailax, per doz. trails 4 0-5 0
Gladioli Peach blossom, per bunch 2 3-2 6	Stephanotis, per 72 pips 3 6-4 0
Gladioli, The Bride, per bun. 2 6-3 0	Stock, double White 8 0-18 0
Gypsophila, per doz. bunch 6 0-12 0	Sweet Peas, —Coloured 6 0-12 0
Heather, white, per doz. bun. 8 0-10 0	—White, doz. bun. 6 0-12 0
Iceland Poppies, per doz. bun. 6 0	Tulips, per bun. —white 0 9-1 0
Iris, blue, per doz. 1 0-2 0	—Darwin, mauve per bun. 1 0-1 6
mauve, per bun. 1 0-2 0	—Darwin, rosy red, per bun. 1 0-1 6
—Spanish Yel. low, per bun. 2 0-2 3	—Darwin, pink per bun. 1 0-1 6
—white, per bun. 1 0-2 0	Viola, per doz. bun. 2 6-3 0
Lilac, white, doz. sprays 4 0-6 0	
Lilium longiflorum 5 0-6 0	

REMARKS.—Large consignments of cut blooms continue to arrive from home growers, and also from the Channel Islands, but many of the flowers from the latter source have suffered in transit, the weather being much too warm for Irises and Tulips. The most welcome arrivals are Narcissus poeticus, Narcissus biflorus, and Narcissus flore plena (double white). The first consignment reached the market on Thursday, the 11th inst.; so far the blooms are only medium in quality. The supplies of Irises and Tulips from home growers are sufficient to meet all requirements. Most stands have been crowded with outdoor Tulips, the Darwin being good in quality. Some fine Daffodils are being received from Scotland in excellent condition. The newest subjects from home growers are Gladioli, The Bride, Nigella, Stephanotis and Iceland Poppies. Narcissus poeticus is taking the place of N. ornatus. The supply of Carnations exceeds the demand. Roses, which were a glut up to Wednesday morning, were in demand on Thursday, owing to a shortage, and their prices increased considerably, but supplies were again on the increase this morning. Richardias (Arums) show signs of finishing. Lilium longiflorum continues to be plentiful and cheap. The chief supplies from France are Gypsophila, Paeonies, Statice sinuata and Cornflowers.

POT PLANTS.

REMARKS.—The supplies of Ferns and other foliage plants are lessening. Bedding plants are at present receiving most attention from buyers. The principal flowering plants on sale are Pelargoniums (Geraniums), Marguerites, Heliotropes, Hydrangeas, Ericas, Stocks, Camerarias, Spiraes, some fine plants of Rambler Roses and Rhododendrons in pots.

GARDENING APPOINTMENT.

Mr. W. T. Smith, previously Gardener to G. L. Bryan, Esq., Littlecote, Hungerford, Berkshire, as Gardener to Sir Ernest Whitt, at the same address. (Thanks for 3s. for R.G.O.F. B.A. Ens.)

THE

Gardeners' Chronicle

No. 1848.—SATURDAY, MAY 27, 1922.

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 56.4.

ACTUAL TEMPERATURE.—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, May 24, 10 a.m. Bar. 30.1; temp. 75°. Weather—Sunny.

The Effect of Bordeaux Mixture on Plant Processes.

The laborious experiments which have been carried out by numerous investigators during the past few years on the effects which spraying with Bordeaux mixture produce on plant activities are of considerable interest to gardeners. Every gardener nowadays, it is to be presumed, considers carefully the question whether he shall or shall not use Bordeaux mixture for spraying fruit trees and Potatos. He generally weighs the probable advantage against the certain disadvantage in the form of labour and time spent on the operation and cost of material, and, at all events in the case of Potatos, meteorological conditions and the situation of his garden—whether in a dry or wet district—usually give the casting vote. If the season is a wet one, of overcast days and muggy nights, or if the garden is situated in a moist district, the gardener generally elects to spray this crop; but if on the other hand the season is fine and dry and the district is one with a low average rainfall, spraying is often omitted. There are, of course, many large Potato growers, for example in Lincolnshire, who have adopted spraying as part of the routine of Potato cultivation, and who spray this crop always twice or thrice during the growing season. If, however, it could be shown that spraying with preparations of copper sulphate produces beneficial results apart from its undoubted effect in preventing "blight," the practice would undoubtedly become more general, and growers in this country would spray with Bordeaux mixture as regularly as do the Potato-growers in Ireland. In the present state of knowledge, however, it cannot be said that spraying with copper sulphate preparations does produce beneficial results. That it produces well-marked and definite effects on plant growth is, of course, well known. For example, it has often been

pointed out by growers that sprayed plants keep green longer than unsprayed plants, stand longer, and ripen their tubers later. It is also probable that, because of the longer season of growth induced by spraying with Bordeaux mixture, the crop yielded by sprayed plots is larger than that yielded by unsprayed plots even when disease has been absent from both. Clearly the advantage of the heavier crop may at times be outweighed by the disadvantage of delayed ripening, for as everyone knows, the keeping power of Potatos is affected adversely by unfavourable weather conditions at the time of lifting, and as the autumn wears on, the weather is apt to grow worse. Nevertheless, and particularly for gardeners who grow successional Potato crops, an increased yield is a strong point in favour of spraying; since even if the year proved a good one and no blight occurred, the cost of the operation would, at least in part and perhaps in whole, be recovered in the value of the increased crop. Moreover, the gardener, at all events, has a ready means of discounting the retarding effect of spraying. By sprouting the sets he is able to delay planting till the risk of the haulm being affected by late spring frosts is but slender and yet get his crop in early. There is, of course, no need here to dwell upon the advantages of sprouting the sets, though it may be worth while to mention that in large scale experiments which we had an opportunity of witnessing last year, sprouting made a difference in the yield of one ton to the acre. As to physiological effects of spraying with Bordeaux mixture, experiments by Messrs. Dugger and Benns* and by other investigators show conclusively that the rate of water loss (by transpiration) is increased as the result of spraying. They also make the further interesting observation that the increase of transpiration takes place not, as might have been expected, by day, but at night. They incline to the view that the mode of operation of the film of copper sulphate on the leaves is physical and that the increased rate of loss of water at night is due to guttated drops of water excreted from the leaves running as films on the copper sulphate particles, and thus getting evaporated more quickly. In support of this view, they point out that films of other substances, iron, aluminium and magnesium hydrate, produce an effect analogous to that brought about by copper sulphate. The explanation does not seem to us to be very satisfactory, and before accepting it we should require to know whether the increased natural transpiration rate is or is not accompanied by increased growth. It is evident that further investigation of the problem is required, and it is much to be desired that it should be so carried out as to provide a conclusive answer to the question—of some practical importance—whether spraying produces such an increase of crop as to make it a paying proposition even in seasons when blight does not make its appearance or work its havoc on a large scale.

Royal Visit to Kew.—In the early part of last week Her Majesty Queen Mary, accompanied by His Royal Highness the Duke of Connaught, paid an unofficial visit to the Royal Gardens, Kew, and stayed for some time in the Azalea garden, admiring the Azaleas and Magnolias, and also in the Queen's Cottage ground, where the Bluebells covered acres of woodland with their azure blooms.

The Dahlia in America.—In an interesting bulletin on "Dahlias and their Culture," published by the New York Agriculture Experi-

ment Station, by Mr. F. H. Hall, it is stated that several plantations of from fifty to one hundred and twenty or more acres are to be found near the Atlantic seaboard, and that others, of hundreds of varieties, extend in an almost unbroken line of states to the Mississippi, while a few lie in the eastern foothills of the Rocky Mountains and a large number again in California, Washington, and Oregon. The Pacific Slope became, during the world war, and has continued since, one of the leading Dahlia-producing sections. From coast to coast, collections, some of them very choice, are grown in thousands of amateurs' gardens, and, yearly, increasing numbers of plants are seen in dooryards, lawn borders, and plant beds near city, village, and rural homes. An indication of the great interest in Dahlias in America at present is shown by the fact that in 1920 and 1921, 284 new varieties, from about fifty growers in fifteen States, were entered for test on the trial grounds of the American Dahlia Society, at the Connecticut Agricultural College. Probably as many or more varieties were announced by growers, but not presented to the Society for registration.

Back-Yard Gardens in U.S.A.—The late Mr. J. H. Patterson, Chairman of the National Cash Register Company, was a pioneer of industrial welfare and hygiene in his country. He started gardens for boys, giving them tools and seeds, and later formed schools of gardening, offering prizes and forming neighbourhood improvement associations. This work, which he commenced in 1894, was the beginning of the back-yard and vacant land movement in America. In 1917 there were 3,000 of these back-yard gardens at Dayton. Mr. Patterson also started similar gardens for girls in 1912.

New Species of Pedicularis.—Since the beginning of the great war, numerous species of Pedicularis collected in the Far East have arrived at the Herbarium of the Royal Botanic Garden, Edinburgh. The study of these specimens was entrusted to Mr. Gustave Bonati by Prof. Isaac Bayley Balfour, and the result of that study is now published in Vol. XIII, Nos. 63 and 64 of *Notes from the Royal Botanic Garden, Edinburgh*. Mr. Bonati describes thirty-four species or varieties of Pedicularis, and groups them into the series Longiflorae, Macranthae, Longipes, Oliganthae, Polyphyllatae, Pectinatae, Debiles, Paucifoliae, Racemosae, Tristes, Lyratae, and Melampyriiflorae. In his study of this genus Mr. Bonati determined eighty-two specimens collected by Mr. G. Forrest, five collected by Father Monbeig, thirty-three collected by Father Maire, one by Mr. Ridley, forty-one by Mr. F. Kingdon Ward, eight by the late Mr. Reginald Farrer, five by Mr. C. Schneider, and two by Mrs. Clemens. The particulars of these new species, together with Phtheospermum auratum, occupy forty-six pages. The issue quoted also includes descriptions of numerous new species of other genera of plants and a descriptive list of new Orchids of Yunnan and Northern Burma.

Conference of Allotment Holders.—A conference of allotment societies affiliated to the Agricultural Organisation Society within a radius of fifteen miles of Charing Cross will be held on Wednesday, June 14, at 6.30 p.m., at 40, Broadway, Westminster, S.W.1, to discuss the provisions of the Allotments Bill recently introduced to the House of Lords.

The Jersey Potato Trade 100 Years Ago.—An interesting side light is thrown on the condition of the Jersey Potato trade one hundred years ago in the *Times* of the 19th inst., in a paragraph from the *Times* of May 20, 1822. The paragraph reads as follows: "A vessel with 40 tons of Potatos arrived here a few days since, from Jersey, for which the master had given in that island 20s. per ton; immediately on her anchoring she was visited by a speculator in the article who purchased the cargo at 45s. per ton; on his way from Spithead to the Point he met a second speculator, who gave him 50s. per ton, which the third purchaser retailed in a few hours after the arrival of the vessel.

* "The Effect of Bordeaux Mixture on the Rate of Transpiration," *Annals of the Missouri Botanical Garden*, Vol. II., 1918.

at 80s. per ton. If they were sold retail at the then market price £7 6s. 8d. was obtained for what a few days before cost twenty shillings.

Legacies to Gardeners.—Mr. Dudley Stuart White, of Dockelle House, Penrith, Cumberland, who died on March 31, aged 62 years, leaving estate of the gross value of £9,263, and net personally £7,571, bequeathed all his property equally between his gardener, Mr. Thomas Robinson, and his housekeeper, Mrs. Ellen Clarke, and nominated them as executor and executrix.—Dame Sarah Elizabeth Moreshead, of Tregaddick, Blisland, Bodmin, Cornwall, and of Forest Lodge, Binfield, Berkshire, who died on April 7, aged 78, left an annuity of £100 to her gardener, Mr. G. Jacobs, and a life annuity of £80 to her second gardener, Mr. Henry Day.

British Empire Exhibition of 1924.—Considerable progress has already been made at Wembley Park with the arrangements for the great British Empire Exhibition to be held there in 1924. Many large beds and groups of Rhododendrons, which had been overgrown with Brambles and weeds, have been effectively cleared of intruders, and promise, in due course, to become features of beauty in the grounds. Some fine groups of *Prunus Pissardii* have also been rescued, and the undergrowth has been cleared from some of the finer trees so that their beauty may become fully developed. Building and excavating in connection with the Stadium, which is to hold 150,000 people, has already commenced, and the turf on the putting greens and fair-way of the old golf course is being carefully preserved for use during the coming autumn to provide the green sward on the five acres of playing area within the Stadium. Near the Wembley Park Station entrance a large lake offers exceptional opportunities for the display of plants and flowers which are naturally associated with water scenery, and it is hoped that the authorities will take full advantage of the facilities this fine sheet of water affords.

Spring Flowers in Hyde Park.—On a recent occasion in the House of Commons Viscount Curzon asked the Hon. Member for the Pollok Division of Glasgow, as representing the First Commissioner of Works, whether any steps had yet been taken to restore the flower-beds in Hyde Park in conjunction with any large horticultural firms. In replying for the First Commissioner of Works, Sir John Gilmour stated that a generous gift of British-grown bulbs had been made to Hyde Park through the Chamber of Horticulture. The question of restoring the flower-beds in that park in conjunction with large horticultural firms had been considered in the past, but there proved to be many serious objections to the proposal, including the cost to the firms. He said the First Commissioner would be willing, however, to reconsider the matter carefully should any proposal be made. Our readers will remember that a number of Gladioli presented by Dutch growers were used in the flower borders of Regent's Park last season, and that the Chamber of Horticulture offered to provide a quantity of Daffodil and Tulip bulbs for the flower beds in Hyde Park. This offer was accepted, and at the present moment the Tulips from these British-grown bulbs are providing a fine floral picture, the leading varieties being Clara Butt, Mr. Farncombe Sanders, Bartigon, Pride of Haarlem, Caledonia, Inglescombe Yellow, and William Copeland.

Iris Exhibition and Conference at Vincent Square.—In connection with the special Iris Exhibition and Conference to be held by the Royal Horticultural Society at Vincent Square on Wednesday and Thursday, June 7 and 8, three classes will be provided for new seedling Irises shown by the raisers and not yet in commerce, i.e., not yet offered in any catalogue. These classes are (1) three spikes of one seedling (prize presented by Messrs. R. W. Wallace and Co., Tunbridge Wells); (2) one spike each of three seedlings (prize presented by Messrs. C. G. Whitelegg and Co., of Chislehurst and Orpington); (3) one single spike of a new seedling (prize presented by Mr. Amos Perry, Enfield). Entries for these classes should be sent so as to reach the Secretary of the R.H.S. not later than

Friday, June 2. All varieties shown must be named, and all exhibits must be staged not later than 10 a.m. on Wednesday, June 7. At 5 p.m. on June 7 there will be an informal conference on Irises, when Mr. W. R. Dykes will give an account of the Paris Conference, and invite discussion on any topics or plants of interest. On Thursday, June 8, there will be a meeting at 11.30 a.m., when Mr. F. J. Chittenden will explain the scheme of Iris classification recently published by the society. At this special meeting all growers of Bearded Irises are invited to send specimens of the varieties they have in flower in order that they may be arranged in the hall in accordance with the classification scheme.

Mr. George Yeld.—From his youth up, Mr. George Yeld, formerly of York, and now of Oundle, has been a gardener, but his scholastic duties and his work as an alpinist have somewhat obscured his horticultural activities, or, rather, have not permitted him to come prominently before the horticultural world. Over a quarter of a century has passed since we first made Mr. Yeld's acquaintance at York Gala. He was then busy at work on the improvement of *Hemerocallis*. Mr. Yeld was educated at Brasenose College, Oxford, and in



MR. GEORGE YELD.

1867 went to St. Peter's School, York, as assistant master; here he taught for fifty-two years, and for about half that period was second master. In his little garden at York he grew Day Lilies and Irises extensively, made crosses and raised seedlings, and many of the latter were grown, after first flowering, in Messrs. Backhouse and Sons' nurseries. Mr. Yeld was quickly successful with *Hemerocallis*, and his variety Apricot is still a popular border plant. But even greater success attended his work among Irises, and, if he had done nothing else but raise Lord of June, Neptune, Asia, and Prospero, he would deserve well of all lovers of first-class plants. In 1919 and again in 1920 Mr. Yeld was awarded a gold medal at York Gala for seedling *Hemerocallis* and Irises of his own raising. Mr. Yeld is an occasional contributor to these pages, and his "Lilies of the North," contributed to the Lily Conference, and his "Hybrid *Hemerocallis*," contributed to the Third International Conference on Genetics, are papers of special value, but Mr. Yeld's literary work includes that of editing the *Alpine Journal* for twenty-five years. It was in 1877 he joined the Alpine Club, and for several years in succession he explored the Eastern Graian Alps, his experiences being given in an interesting little volume entitled *Scrambles in the Eastern Graian Alps, 1878-1897*. With

Mr. G. P. Baker he visited Daghestan (Eastern Caucasus) in 1890, and made the first ascent of Basardusi, 14,722 feet—the monarch of that part of the Caucasian chain. History and sport have claimed some of Mr. Yeld's attention, and in his retirement he finds recreation in golfing and gardening; we feel sure, however, that, in Iris time, sport will not make such progress as art.

Bluebells and Lilac at Kew.—Favoured by the summer weather of Saturday and Sunday, May 20 and 21, large numbers of people visited Kew, where they found the Bluebells in perfect condition in the Queen's Cottage grounds. The Lilacs, in various parts of the gardens, and particularly near the Temperate House, provided another beautiful and fragrant attraction, while the Azaleas furnished gay colouring, and many Rhododendrons were in bloom. The Chestnut trees at Kew, and also at the not far distant Bushy Park, were already beautiful, but will not be at their best until Sunday, May 28.

Underground Water Levels.—In an interesting communication to the current issue of the *Meteorological Magazine*, Mr. Spencer Russell states that to judge by the present condition of the chalk walls at Detling, to the north of Maidstone, it is practically certain that there will be hardly any yield of water during the coming summer. Regular observations, covering a period of nearly forty years, of the water level in a well at the Croft, Detling, show that the saturation level is usually highest between mid-March and mid-April, and is succeeded by a gradual decline to the lowest position in November or December. On March 1, of this year, the saturation level was only three inches above the well bottom (the well is 112 feet in depth, in chalk throughout), and the well became entirely dry on March 21, a condition of affairs which is still maintained, though it has never before occurred, at this season, during the past seventy years. It is on record that the supply failed in 1858, and again in 1902; the well was dry throughout December of the latter year, a rise set in, however, during the first week of 1903, and by mid-April, the saturation level was ten feet above the well bottom. In another well, half a mile south-west of the Croft, dug in the chalk, and just reaching the gault at a depth of sixty-three feet, the yield failed on October 3, 1921, the well continuing dry to March 20, 1922. On March 27, two inches of water were recorded, eighteen inches on April 3, twenty-four inches on April 10, and twenty-five inches on April 17. On April 24, the water had fallen to fifteen inches, showing a definite decline in the saturation level of ten inches.

Edmonton to Peace River and North-West Territories.—A very informative guide, entitled *Peace River Guide*, sent us by the Superintendent of Emigration for Canada, deals with the Peace River basin, in which is situated the important township of Edmonton, the capital of Alberta. The district is an important one agriculturally, and the value of its produce and life stock in 1920 amounted to \$184,415,554.98. In Edmonton, is the important nursery of Messrs. Walter Ramsay, Ltd., which is claimed to have the most northern glasshouses in America. The province of Alberta alone has an area of 255,580 square miles.

Bath and West and Southern Counties' Show.—The exhibition of the Bath and West and Southern Counties' Society, to be held at Plymouth on June 1, 2, 3, 5 and 6, will include many exhibits of interest to horticulturists. In addition to a horticultural exhibition, there will be demonstrations of the conversion and utilisation of English timber; practical instruction in beekeeping, by the Devon Beekeepers' Association; an address by Prof. D. A. Gilchrist on "Seeds, Mixtures, and the Improvement of Grass Lands"; a small-holders' exhibition on Saturday, June 3, and demonstrations showing grafting and pruning on the Whit Monday. Besides exhibits of agricultural produce, cattle, sheep, goats, pigs, etc., there will be classes for implements, machinery, forestry, nature study, and handicrafts.

NOTES FROM WISLEY.

A SEVERE frost in mid-May is greatly dreaded by gardeners, and justification for this fear was furnished at Wisley on the night of May 12, when 14° of frost were registered on the grass. The damaging effects were most evident among the Potatoes and the Pear blossom, while the flowers of some of the Azaleas out in the open were blackened. The more protected specimens in the wood were not touched, and the promised gorgeous display of bloom was not checked.

Though the scent of some individual varieties of Azalea is delightful, the combined odour of Azaleas which fills the wood is not altogether pleasant, and is suggestive of decaying vegetation. On the whole, Azaleas have come through the year of drought better than the Rhododendrons.

A smaller shrub, and one suitable for the rock garden, is *Cydonia Sargentii*; the flowers are bright orange red, and the fruits make a good conserve.

Although it has recently been cleaned out the pond at the foot of the rock garden is again covered with the leaves and flowers of the Cape Pondweed (*Aponogeton distachyon*). This pretty plant has curious inflorescences which look like little white boats on the water, and are very fragrant, accounting for the alternative name of "Water Hawthorn." *Aponogeton* appears to be rather curious in its likes and dislikes, and often refuses to establish itself in certain ponds. The presence of lime seems to be fatal to success with this plant. Where, however, it does succeed, the Cape Pond weed may grow so freely and spread so rapidly as to need thinning occasionally.



FIG. 142.—IRIS DOMINION EXHIBITED AT THE CHELSEA SHOW BY MESSRS. R. WALLACE AND CO.

Among the latter, *Rhododendron kewense* (a hybrid between *R. Hookeri* and *R. Griffithianum*) is flowering well; the flowers are large pale pink, and pleasantly scented: Another distinct and well-known *Rhododendron* in flower is *R. Thomsonii*, with semi-glaucous leaves and blood-red flowers. In a normal season it flowers much earlier. Other flowering shrubs are similarly late; the deliciously scented *Viburnum Carlesi* has not long been in flower, nor has the Snowdrop Tree (*Halesia tetraptera*) which, like *Exochorda grandiflora*, is planted far less than it deserves.

The *Halesia* is given its older name of *carolina* in *Trees and Shrubs, Hardy in the British Isles*, which was conferred on the plant by Linnaeus before Ellis adopted the name of *tetraptera*.

Near the higher rock pools the beautiful *Caltha polypetala* is to be seen. The flowers are very much larger than those of our native *C. palustris*.

One of the best of the *Polygalas*, *P. Vayredae*, is happy looking, the flowers being magenta, with a touch of yellow. The yellow *Linum capitatum* is also in bloom, and *Veronica pyroliformis*, a rare plant, is also flowering finely.

In the Alpine house is a collection of Saxifrages, some of which were shown at the fortnightly meeting of the Royal Horticultural Society on the 9th inst. Here also is to be seen *Lewisia Howellii*, and *Ranunculus aconitifolius*—"Fair Maids of France"—seldom seen nowadays, though at one time a favourite in cottage gardens. J. E. G. White.

Popular Flowers in India.—Mrs. Bryan, wife of Rev. Alison Bryan, of the American Presbyterian Mission, and daughter of Mr. W. Outhbertson, sends a note of flowers in bloom at the end of April in Ootacamund, Southern India, which is, of course, in the hills. She writes: "Last evening we visited the Botanic Gardens. As we are accustomed to the bareness of the plains the gardens seem beautiful, and they are especially interesting to me because of the great number of old friends among the flowers. Pelargoniums grow everywhere in great profusion, and climb up over bushes and houses just as Roses do at home. Just at present there are great masses of bloom everywhere. Other old friends I was glad to recognise were: Lupins, Delphiniums, Petunias, Candytuft, Sweet Williams, Pentstemons, Irises, Foxgloves and Nasturtiums. I saw the finest Sweet Peas I have yet seen in India, but that is not saying much! I am going to buy some acclimatised seeds and try them at Kodai. The little garden round the house where we are staying is very gay in spite of the fact that rain is badly wanted—Roses, Pelargoniums, Begonias, Pentstemons, Hollyhocks, Pansies (very small), Heliotropes, Hydrangeas, Cosmos, Honeysuckle, and many others make a very gay colour scheme. Fruit here is also very fine, and we greatly enjoy it. So far we have Mangos, Tree Tomatoes, Plums, Peaches (small and very bitter but refreshing), Pears, and the usual Bananas and Papai, as well as Pineapples."

Appointments for the Ensuing Week.—Monday, May 29.—Wakefield and Northern Tulip Society's show (two days). Wednesday, May 31.—Irish Gardeners' Association's meeting; Elgin Horticultural Society's meeting. Thursday, June 1.—Linnean Society's meeting at 5 p.m.; Bath and West and Southern Counties Society's show at Plymouth (five days). Friday, June 2.—Paisley Florists' Society's meeting; British Mycological Society's spring Foray at Norwich (five days). Saturday, June 3.—Darwen and District Agricultural Association's Hort. Show.

"Gardeners' Chronicle," Seventy-Five Years Ago.—*British Queen Strawberry.*—Much diversity of opinion exists among gardeners as to the best variety of Strawberry for forcing. I have tried Keen's seedling, Alice Maude, Prince Albert, and others, but I can find none to equal the Queen in flavour, quantity, and size. I commenced the early part of January for my first crop, which ripened off nicely by the end of March; and for my second in February, which is nearly over. I gathered the other morning from half-a-dozen 8-inch pots twenty-two Strawberries, weighing 10½ ounces; seven from one plant weighed three ounces; several weighing more than three-quarters of an ounce, being 5 inches in girth. I have others that bid fair to weigh an ounce. The compost I use is one-third old lime rubbish, one-third burnt turf, and one-third leaf mould and rotten dung, using a good drainage. I was led to use lime from noticing the Alpine to grow freely on old walls. The plants were lifted, and potted in 5-inch pots, shaded for a few days, and afterwards fully exposed. They were repotted into 8-inch pots, and watered with manure water occasionally during summer. In repotting I am careful to elevate the crown of the plant. Perhaps some of your correspondents may state how Strawberry forcing has succeeded with them this season.—E. Shepstone, Charlton Gardens, May 1, "Gard. Chron.," May 29, 1847.

Publications Received.—*Early British Botanists and their Gardens.* By R. T. Gunther, University Press, Oxford. Price £2 2s. *County Court Practice Made Easy.* By a Solicitor. Effingham Wilson, 16, Copthall Avenue, E.C.2. Price 4s. net. *Hardy Perennials.* By A. J. Macself. Thornton Butterworth, Ltd., 15, Bedford Street, Strand, W.C.2. Price 7s 6d. net. *Fruit Foes.* By T. W. Sanders. *Vegetable Foes.* By T. W. Sanders. W. H. and L. Collingridge, 148, Aldersgate Street, E.C.1. Price 4s. 6d. each. *Olive Growing.* By C. F. Kinman. Farmers' Bulletin 1249. Government Printing Office, Washington.

The Week's Work.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

Vines Eyes.—Vines raised from eyes of the previous year, and intended for cutting back or planting out next spring, should receive their final shift into 7-inch pots. Having been grown in bottom heat, the compost, consisting of fibrous loam, lime-rubble, and a little bone-meal, should be warm and dry enough to bear ramming well. See that the ball of soil and roots is moist before the plants are turned out of the pots, as no amount of watering afterwards will restore them to a proper growing condition. Replunge the vines in a bed with gentle bottom-heat, syringe them lightly, and shade them from bright sun for a few days until fresh root action has commenced. The temperature by night may range between 65° to 68°, and that by day 75° to 80°, air being admitted and the ventilators closed again in time for the temperature to rise to 85°. When the pots are filled with roots, the latter will require plenty of water and weak liquid manure. It will be necessary to syringe the canes to prevent red-spider from attacking the foliage.

Spring Planting of Vines.—Vines may be planted as late as the first or second week in June, and with favourable weather the canes will make rapid progress, provided they are well rooted. A border 4 feet wide and 2 to 2½ feet deep, resting on ample drainage, is quite large enough for the first year. Plant shallowly, packing a little of the warmest compost firmly about the roots with the hands. Cover the surface of the ball with one inch of soil, and train the roots carefully in the desired direction. When the vines have started into fresh growth a good soaking with water at a temperature of 85° through a rose will settle the soil firmly about the roots. Keep the house close, moist, and lightly shaded for a few days until the vines recover from the disturbance.

THE KITCHEN GARDEN.

By JAMES E. HATHAWAY, Gardener to JOHN BRENNAND, Esq., Baldersby Park, Thirsk, Yorkshire.

Tomatoes.—Plants raised from seed sown in March should be ready for planting out-of-doors. If a border under a wall is not available some other sheltered position should be selected. If the plants have not been well hardened defer planting them for a week or so; the larger the plants are the better. An excessively rich soil is not desirable, as it is better to mulch and feed the roots after the plants have set their first clusters of fruit. Put the plants 2 ft. apart and make the soil moderately firm. Keep the plants to one stem and remove the side shoots as soon as they are big enough to be nipped out.

Ridge Cucumbers.—Place a heap of litter, leaves and any garden refuse in a warm spot, and set Ridge Cucumbers on it about 15 inches apart. The heap should be covered with old potting soil about 1 foot deep.

Vegetable Marrows.—If these plants have been hardened they should now be planted out in trenches at 3 feet apart.

Broad Beans.—A final sowing of Broad Beans should be made, choosing the green seeded type, such as Sutton's Green Giant. Remove the tops from Broad Beans in flower.

Watering.—Newly planted crops are often ruined through neglecting to water them in dry weather. The plants should be damped overhead both night and morning; the later in the evening the better. Seed beds and seedlings should also be carefully watered.

General Remarks.—A sharp watch should be kept for slugs, mice and birds, as they quickly ruin the crops.

HARDY FRUIT GARDEN.

By H. MARKHAM, Gardener to the EARL OF STRAFFORD, Wrotham Park, Barnet.

Protecting Materials.—Gradually remove protective materials from Peach and other trees where the fruits have set, the leaves now being sufficiently forward to serve as a protection against any further frost. Blinds should be rolled up carefully when perfectly dry and stored until they are wanted another season, fish netting that will be required for the protection of ripe fruits of Strawberries, Raspberries, etc., should be gathered up and numbered according to size and quality to prevent confusion when the time comes for their use. All poles, boards and other things that have been in use should be stored carefully at once.

Peach and Nectarines.—These trees have set a very satisfactory crop of fruits, but, owing to cold nights, the latter are not swelling so fast as could be wished, and the growth is much retarded. Disbudding should not be done too severely for the present.

Mulching.—The drought of last year will long be remembered by fruit growers, and especially where the land is light and resting on sand or gravel. Those who mulched the roots of their trees early were well rewarded for their labour, both the fruits and growth being greatly benefited. I would strongly advise growers to be on the safe side by mulching their trees early. If the surface soil is very hard it should be slightly pricked over with a fork before applying a mulch of half-rotted farmyard manure. Trees growing on south walls and bush trees should be the first to receive attention. Young, vigorous trees, and any that are lightly cropped, growing on deep land, will not need mulching. Remove all suckers springing from the roots of Plums and Peaches at an early stage of their development. In some cases it will be necessary to remove a little of the surface soil, especially if the suckers are numerous, and cut the latter off as close to the roots as is possible.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the DUKE OF MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Epidendrum vitellinum.—This brightly coloured Orchid may be grown in a cool house the whole year round. There are summer and autumn-flowering varieties. Many failures to grow these plants successfully may be attributed to the use of too much fire heat; few Orchids will stand a much lower temperature provided the compost is in a dry condition. Repotting is best done when the new growth begins to send forth fresh roots. Shallow pans half-filled with drainage material form the best receptacles. Very little moisture is needed at the roots when the season of growth is completed.

Summer Quarters.—Those plants which succeed best in an equable temperature the whole year round may, notwithstanding it is late in the season, be removed from the intermediate house, where they have passed the winter, to the cool house, where they may remain until the autumn. They include *Laelia harpophylla*, *L. pumila*, *L. praestans*, *L. Jongheana*, *L. Dayana* and others, also *Dendrobium infundibulum*, *D. Jamiesianum*, *Odontoglossum Kramerii*, *O. naevium*, *Miltonia vexillaria* and its hybrids, as they pass out of bloom, also *M. Phalaenopsis*, *M. Endresii*, and *M. Schröderiana*, with *Ada aurantiaca*, and many others which will succeed best during the winter in a light position in the intermediate house. During the summer or the hottest months they prefer the conditions found in a cool house. The most suitable time to remove them will vary in different districts, but it may safely be done when the temperature of the cool house rises to 60° without the aid of fire heat. For some little time after removing them it is advisable to keep the plants a trifle drier at the roots than they have been in the warmer division. Some *Masdevallias* thrive remarkably in these conditions, especially those of the *M. Chimaera* section, *M. tovarensis*, and a few others. Removing them also affords an opportunity of observing the presence of insect pests.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir C. NALL-CAIN, Bart., The Node, Codicote, Welwyn, Hertfordshire.

Azaleas.—Plants that were forced into flower early will have almost completed their season's growth, and any that require repotting into larger receptacles or top-dressing should be attended to forthwith. Good fibrous loam and peat in equal parts, with a liberal dash of silver sand added, will provide a suitable compost for these plants. After repotting keep them in a moist atmosphere for a short time; afterwards harden them gradually until they are finally stood out-of-doors, where they may remain during the summer, but given shade from the mid-day sun. Examine the plants for thrips, and should any of this pest be detected lay the plants on their sides and spray them with nicotine-emulsion, letting the insecticide well wet the under sides of the leaves.

Cyclamen.—Young plants of Cyclamen that were raised from seed sown last August, and have been grown on as advised, should be ready for their final potting. The compost should be of an open nature, and consist of good, fibrous loam and leaf mould in equal parts, with plenty of sand, broken charcoal, and a little bone-meal added. Cyclamens require moisture, but they fail to grow satisfactorily in water-logged soil. After potting, the plants may be stood in a cold frame on an ash base near to the glass. They should be sprayed lightly overhead both night and morning. Close the frames early in the afternoon until the plants have become well established in the new soil, and shade them from bright sunshine. When the evenings become warmer the lights may be removed during nights when rain is not expected.

Euphorbia pulcherrima (Poinsettia).—Stock plants of Poinsettia that were introduced into heat to produce cuttings are breaking into growth freely. The cuttings should receive the same treatment as advised in a previous calendar for those of *Euphorbia jacquinaeflora*.

THE FLOWER GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

Tree Paeonies.—These Paeonies have developed fine growth, and are advancing to the flowering stage. During the present month care should be taken to protect the growths from frosts, as they are somewhat tender. They form beautiful specimens in the shrubberies, where undoubtedly they are seen to the greatest advantage, with their magnificent large flowers of various hues. Growths from the stock on which they are grafted should be removed.

Antirrhinums.—These old-fashioned favourites, of which there are many lovely named varieties, should be planted out this month. They form admirable beds by themselves. The spikes are most useful for cutting for vase decorations, and, where grown for supplying out blooms they should be planted out in rows, with a thin stick to each for support, which in its turn should be secured to stout string running along the rows and attached to stouter stakes.

Border Chrysanthemums.—These plants should now be set out in their growing quarters. They make good beds, in a similar way to Antirrhinums, and are useful for supplying blooms late in the season. When planted, carefully stake and support the plants, and frequently, during their growing period, look over them with a view to supporting any shoots that need it.

Dahlias.—In the less favoured districts Dahlias have not yet been planted out, as the young plants are decidedly tender, but this can now be carried out provided the plants have been well hardened. We grow them at Aldenham chiefly in reserve beds for cutting purposes, and choose for their quarters a good, deeply-worked soil, that is fairly rich, as they are somewhat gross feeders. From the time they are planted they should be supported securely by means of stakes that are sufficiently strong for the class of plant, as they form heavy tops when in flower, and the growths are very brittle, being easily damaged by strong winds.

NOTES ON TULIPS.

As I write these lines we are in the midst of the out-of-door Tulip season of 1922. The "earlies" are getting past their best. Already Pink Beauty is in full blow, and Le Réve and Couleur Cardinal are more than showing colour. One is aware, too, that such Darwins as Fra Angelico, Allard Pierson, Jeffries, and Sieraad van Flora are getting ready, and will not be long behind. Nowadays from early April until somewhere about the third week of May there are few gardens which are entirely devoid of Tulips. What a show they make!! How they would be missed!! There is a rare Dutch book called *Dapes Inemptae*, by Petrus Hondius, published at Leiden in 1621 (that is fourteen years before the famous mania time), which in many ways is the counterpart of our Thomas Tusser's *Five Hundred Points of Good Husbandry*, treating, as it does, of the ordinary life of the country. The author is very sarcastic about the growing fondness for Tulips. This is what he says:—

"Here in Netherland
One can find at hand,
So many fools who in their gardens
Solely praise this flower."

And again:

"Fools who build their gardens
For one flower and no other."

Old Hondius must have been one of those people who never let themselves go. Accordingly he had not much sympathy with those who scrapped all other plants to make room for Tulips. Possibly it was wanton of them to neglect herb growing. Herbs were so much more useful, and there were no motor-cars, and doctors and chemists were none too plentiful. All the same, he had a few Tulip beds:—

"In my garden five, six beds
For tulips have been raised."

Most of us to-day copy the old Dutchman. We grow other things, but we must find room for some Tulips.

My purpose in this article is to suggest a few varieties which I would like those who have not already grown them to try. They are a promiscuous selection taken haphazard from different sections as my fancy dictates; *Tulipa dasystemon* (1). This is a dwarf plant, growing about six to eight inches high, with pretty, simple-looking yellow and white flowers, which always remind me of the bee-loving annual, *Limnanthes Douglasii*. Unlike so many of the species which have come to us from Mid-Asia, it has a splendid constitution, and in my garden seeds freely. It is a good plant for the rock garden. Pink Beauty (2). There is only one thing to say about this early Tulip, and that is, that it is one of the very best in this section. Personally, I think Rose Beauty would have been a more appropriate name. It is only in its younger stage that there is any pink about it. Fully developed it has petals of the deepest rose, with a big flame of white on their exterior. It is a Tulip which emphatically has a smart, well-groomed appearance.

Monsieur S. Mottet (3). At last I am told that this variety is being again offered by the trade, so doubtless some of our retail houses will have it in their catalogues this autumn. It was in that of Messrs. James Carter and Co. a few years back, but they dropped it because customers complained that it did not branch as it was advertised to do. Branching with this Tulip depends on good cultivation in rich soil, and it may be also, seeing what has happened to mine last year, on a plentiful supply of sun. It is a fairly tall grower, with long, egg-shaped flowers, which flush with age. There are several on a stem, and as they are borne at different heights a bed of them is not the rather stiff affair that a bed of most other Tulips is.

The variety Boadicea (4) is one of the finest of all cottage Tulips. It has large, mahogany-red flowers, edged with deep orange, borne on fairly

tall stems. They are long in shape, and their petals are bluntly pointed. Everyone likes Boadicea when they come round my garden. It is exceedingly handsome as a cut bloom. Salomon (5). This is classed as a Dutch breeder, or in some catalogues, where that distinction is not made, it will be found under the Cottage section. It features in colour and shape the Darwin Euterpe. It is a beautiful clear rosy mauve, with a pure white base, just as if it were one of our own florist's Tulips. Cramoisi Royal (6). On the recommendation of Mr. Bull, of Ramsgate, I planted a bed of this variety last autumn. For an "early" it is a tall grower, like Prince of Austria. It belongs to the same colour section as the well-known Proserpine. It might be described as a pigeon's-blood-ruby red. It has

terparts) have an equal fascination when used as purely decorative flowers in vases.

Illuminator (9). Everyone knows what a good cottage Tulip Golden Crown is. Illuminator is a sort of improved Golden Crown with rather brighter colouring. It comes into bloom a few days later. Marconi (10.) Which is it to be of the dark-purple Darwins? It is impossible in any ordinary garden to grow them all. There are Marconi and Courbet; Giant and Gryphus; St. Simon and Vespuccio; Viola and Viking; which is it to be? After Moralist and The Bishop we might, if we wish for a redder-toned purple, try Marconi. It has a large flower of fine form and substance; grows two feet and a half high; and lasts well. Rose Tendre (11). This is an early Tulip of the



FIG. 143.—PERPETUAL BORDER CARNATIONS EXHIBITED AT CHELSEA SHOW BY MESSRS. ALLWOOD BROTHERS. BRILLIANT—ROSALIND—HIGHLAND LASSIE.

come in for much admiration, and I agree with my visitors about the colour, but the flowers have, many of them, a curious habit of nodding, not because the stem is at all weakly, but just as if they had from some unknown cause a stiff neck. It may only be the result of the inclement spring. I will have to "winter" and "spring" it a second time before I know. Hyppote (7), the Darwin, wants bringing out of its obscurity. It is a beautiful silvery mauve; I have watched it now for some years, and familiarity has gained the old proverb, and bred nothing but admiration.

Do Little (8). This fine old Tulip is a precious relic of a past age when Tulip shows were all the rage in very many parts of England. Alas! it passed out of favour with the florists because its shape was wrong, and its pretty, rosy-red markings were too irregular. All the same, it makes a most effective cut flower, with its bright splashes and blobs of colour on a pure white ground. Neither Mabel nor Mrs. Collier nor Annie Mac (Do Little's modern coun-

Cottage Maid type. It is absolutely first-class in pots and for forcing. It is also a good bedder if placed in a suitable position. Pinks do not look their best in a garden unless they can be seen more or less against the sun. I cannot appreciate them when I see them with a bright sun more or less behind me. It seems to take away all their good looks, and they appear insipid and faded. The point of view from which pink Tulips are to be seen should be studied. Marksman (12). If is a bright orange-scarlet flower is wanted Marksman is the very thing. A bed of it by itself spells splendour. It is the same colour as the old British army. Sentiment and sight recommend it. It has not the stature of Ronald Gunn and other tall Darwins, but it is none the worse for that, though one does not always want giants in one's beds. Another point about these lower growing Tulips is that when they occupy a bed all to themselves there is no necessity for any carpet plant below them—Marksman certainly does not. Brilliance unadorned is brilliance's self. *Joseph Jacob.*

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CHINESE CLIMBERS AT ALDENHAM.

HAVING dealt already with some of the most noteworthy and beautiful of the more or less erect Shrubs discovered by Mr. E. H. Wilson during his Chinese travels, I now follow with a selection of climbing plants among which are to be found some of the famous collector's most striking discoveries.

ACTINIDIA.—Although known to both Fortune and Maries, we really owe the present existence in our gardens of *Actinidia chinensis* to Wilson. It has probably the largest and most ornamental foliage of the genus, and, in its native home is highly esteemed for its Gooseberry-like, edible fruits. The upper surface of the leaves is dark green, the underside very hairy, and of greyish tone, whilst the young shoots are clothed with conspicuous red hairs. *Actinidia venosa* is another good species, well adapted for any position where a rapid climber is required. The fine foliage is seen to advantage when clothing, as at Aldenham, a stout Larch pole in the shrubberies.

CELASTRUS ANGULATUS.—An admirable climber, of strong growth, well adapted for covering old tree roots, or for any position where the rambling shoots can be naturally disposed. The large, handsome leaves are sufficient to make this a desirable addition, but its freely produced fruits have been found at Aldenham to be highly decorative, as is the case with so many of the older members of the genus. The seed cases are yellow, and open, when ripe, to reveal the vermilion-coloured fruits.

CLEMATIS.—*Clematis Armandii*, a remarkable evergreen climber, which was introduced by Wilson in 1900, and first flowered at Coombe Wood, has, fortunately, proved quite hardy at Aldenham, and is certainly one of the most striking members of a large genus, noteworthy for the many good garden plants it contains. It is a vigorous grower, requiring ample room to accommodate the rampant stems. Failing a suitable wall, or pergola, it may be grown successfully in the shrubbery, trained around rustic poles. The sweetly-scented, white flowers, each about 2 inches across, are freely disposed among the glossy green leaves in April, and change to rose with age. *Clematis montana rubens* introduced at the same time as the preceding, has proved one of the most charming of hardy, climbing plants. Although capable of covering large areas, it is well adapted to those of smaller dimensions, as the excellent

illustration in Mr. W. J. Bean's *Trees and Shrubs Hardy in the British Isles* shows, and even young plants blossom freely. On well-established specimens, the rosy-red flowers are produced freely in June, and the reddish colour of the foliage and young stems make it additionally attractive. *C. m. Wilsonii* differs from the well-known *C. montana* in its later blooming (July and August), and the greater size of the flowers, which are fully 3 inches across, and pure white. In addition to being one of the most beautiful of climbing plants, its late-flowering period gives it an added value. *C. nutans* is a free-growing species which cannot lay claim to great floral beauty; nevertheless it is a most delightful plant in the late summer and autumn, when the pale primrose-coloured flowers, which are bell-shaped, are borne in large numbers and emit a most pleasant odour of Cowslips. It is particularly happy when growing over old



FIG. 144.—*HOLBOELLIA CORIACEA*.

stumps, or similar rustic work. *C. Spooneri* is a handsome species, with fleshy leaves densely covered with yellowish, silky hairs, and carrying large white flowers of much substance. In its native habitat it is said to grow naturally over rocks fully exposed to the sun, and at Aldenham it enjoys a warm position.

COCULUS VARIABILIS.—As the name implies, the foliage of this free-growing climber is variable in shape, but in general appearance suggests a Catalpa. The leaves are about 6 inches long by 4 inches wide. It is well worth growing for the fine, deep green, luxuriant foliage. The flowers are inconspicuous, and the fruits are described as black, with a blue bloom, produced in slender panicles about a foot in length.

DRACAENA SINENSIS. For the more favoured parts of the country, this uncommon plant will

be a pleasing addition. At Aldenham it is grown on a south wall, and protected in winter, with the happy result that it grows and blossoms abundantly. The sweetly-scented flowers are white, with lilac markings, produced in umbels very much in the same way as those of *Hoya carnosa*, and are succeeded by very interesting green fruits not unlike small Cucumbers.

HOLBOELLIA CORIACEA.—To the small number of evergreen climbing plants which we now possess, this *Holboellia* (Fig. 144) is a welcome addition, and apparently a perfectly hardy member of the genus. At Aldenham it succeeds well when trained to a rustic pole in the shrubbery, where the glossy green foliage shows to advantage, especially during the winter season. I do not know whether it has flowered in this country, but Mr. Wilson states that the male flowers are white, the female purple, and the purple fruits of large size.

LONICERA.—On account of the persistent character of its foliage, *Lonicera Henryi* is a most useful Honeysuckle, and though the purplish flowers are not conspicuous, these are succeeded by blackish-purple berries, which remain in good condition through the winter months, and make a better show than the flowers. *L. tragophylla* (Fig. 145) is very effective when grown on poles. This species, which I first saw flowering at Coombe Wood in 1904, has long, bright yellow flowers freely produced in terminal heads. They are among the largest and most conspicuous of any produced in this popular genus, but lack the well-known and delightful fragrance of the common Honeysuckle.

(To be concluded.)

FAILURE OF SOUTHERN PLANTS TO COLONISE IN THE NORTHERN HEMISPHERE.

Sir Herbert Maxwell, in his interesting note on p. 245, refers especially to Australasian composites, and mentions the genera *Olearia* and *Senecio* as not colonising in the northern hemisphere. The composites are very generally self-sterile, and I suggest that this is the reason why no fertile seeds are produced by the plants in question. This, I think, may be the explanation, because from the probable methods of propagation all the plants of the same kind would merely be parts of the same individual. In this case good seed would most likely be impossible. No one knows how far the Compositæ are self-sterile, and it would form a very useful and interesting investigation to find out. I can answer for a few, especially the Canarian *Cinerarias*—which are *Senecios*. I have combined all introduced species with the common greenhouse *Cineraria* into one plant, while I know that a single plant of any one of them, with perfect pollen and perfect ovaries, is no better than dead for the production of pure seed if one wants to preserve the type of its species or any individual peculiarity. It is a curious fact that the most diverse species of some self-sterile genera, like *Passiflora* (self-sterile certainly in some species), and *Cineraria*, will readily cross, while individual plants are absolutely barren without extraneous pollen of some kind. The physiology of self-sterility appears to be quite unknown; Darwin's dictum that "Nature abhors perpetual self-fertilisation," does suggest a good reason why it should exist—and, indeed, it is exceedingly effective—but we do not know how it comes about. I may be forgiven, perhaps, if I make a further suggestion, hardly justified perhaps, because it has little or no application to the subject of Sir Herbert Maxwell's article. It is, if the seeds were good, they might be little likely to grow under the conditions they meet with. Quantities of good seed are shed in gardens that never germinate, while if gathered and sown in pots or pans they grow perfectly well. Kinds of Elm within my experience hardly ever come up from self-sown seed, but the same seeds grow readily if promptly sown in boxes.—*R. Tricin Lynce*

TREES AND SHRUBS.

PRUNUS AMYGDALUS MACROCARPA.

Of all the Prunuses that have flowered here this year, none has created greater interest than *Prunus Amygdalus macrocarpa*. The flowers are over 2 inches across, very pale in colour, almost white, with a dark reddish centre. It is at once one of the most handsome members of its genus, and possibly the largest flowered. Why this magnificent variety is not more generally cultivated it is not easy to understand. It is, of course, a variety of the Almond, in which the flowers are very much larger than the type. It makes an excellent standard or low tree, and should be planted in a sunny bay with a background of dark evergreens. When grown against a background, say, of Conifers or Hollies the masses of flower are seen to best advantage. South-Western Suburbia is noted for the luxuriance and beauty of its flowering Almonds. The very mention of the name Almond brings to mind the observations by the late R. Hooper Pearson at Wandsworth on the time of flowering, and I am pleased to see the notes continued in these pages. The Almonds are among the most beautiful of all early-flowering trees, and provide a feast of soft pink colour. Not only are the flowers of *macrocarpa* much larger than the type, but the variety is notable also for its very large fruits, which are over 3 inches in diameter. This variety finds a place in Southern gardens by virtue of its large fruits. Like other Almonds it will produce good, eatable nuts in England, but it is for the beauty of its large and numerous flowers that it is specially recommended. *Herbert Couley, Tunbridge Wells.*

BEDDING OUT SIXTY YEARS AGO,

THE examination recently of old note-books, which contained lists of bedding plants used about sixty years ago, methods of arrangement, with plans of beds, and other cognate material, startled me on account of the changes that have taken place in flower gardening since then. At the period indicated "bedding-out" had reached its zenith, yet among the plants included there do not appear East Lothian Stocks, Violas, Snapdragons, Begonias, and others now so popular, while some rarely seen in these days enjoyed the esteem alike of gardener and employer. The former usually was hampered for space to keep plants through the winter, for means of propagating in spring, and for bringing them forward to the time of planting. It is not unbelievable that there existed among gardeners a foolish desire to extend this kind of floral display to extreme limits at the expense of other departments, thus adding largely to their responsibilities and labour.

At the same time, these lists demonstrate how the oft-repeated assertion that flower gardens were furnished almost solely with scarlet Geraniums, blue Lobelias, and yellow Calceolarias is inconsistent with fact. The names of the plants used are as follows: *Arabis lucida variegata*, *Ageratum mexicanum*, *Calceolaria* (two yellow and two brown sorts), *Centaurea ragusina*, *Fuchsia Madame Cornillon*, a variety with white corolla, upright habit, and, as I remember it, of such distinction that I would be glad to have it now. There were also *Gazania splendens*, *Pelargonium Cerise Unique*, six scarlet flowered sorts, of which Tom Thumb was dwarf, and Warren's Scarlet so tall that it had to be staked; two were rose-coloured, one white, three with variegated white leaves and two—Golden Chain and Mrs. Pollock—with yellow foliage. *Gladioli* were brought forward in pots, and planted with other bedding plants. There were eight kinds of bedding Dahlias, of which one apparently was a pompon, named German Daisy, and sixty show and fancy varieties planted in conjunction with Double Hollyhocks and Sweet Peas. Of *Heliotrope*, two kinds were set out in beds by themselves, as such a sweet-smelling flower demanded. *Humea elegans* was used for pot plants. *Koniga variegata*, *Perilla nankinensis*,

Saponaria calabrica, and its white form, and *Verbenas*, in five colours by name, of which the largest number were of Purple King, were others.

In addition to all these, there were Ten-week Stocks, Asters, *Phlox Drummondii*, Marigolds, and other short-lived plants, odd specimens of scented-leaved *Pelargoniums*, laced Pinks, florist Carnations, and a large collection of Roses. Plans of the beds show that many of these were standards arranged along the side of the flower garden, and each rising from a little bed, which was carpeted with some dwarf-growing plant. The best of the Roses were Jules Margottin, Charles Lefevre, John Hopper, Général Jacqueminot, Sénateur Vaisse, and Maurice Bernardin. The varieties mostly are described, and their qualities noted. Mme. Désiré Giraud, for in-

FIG. 145.—*LONICERA TRAGOPHYLLA* (SEE P. 270).

stance, is "white, striped with lively rose," a not unusual combination in an H.P.

Iron standards, with connections forming a continuous chain, was another feature of the garden, and these were furnished with "Ayrshires," no names of these being given. Only seven tea-scented Roses are named as grown, the inevitable Gloire de Dijon being one, with *Devoniensis*, *Maréchal Niel*, and *Souvenir d'un ami*, "deep rose," others. A rose hedge was formed of hybrid Bourbons: C. Duval, Charles Lawson, Coupe d'Hébé, Frederick the Second, Paul Perras, and Paul Ricaut. Mention is made of only one bed of Roses, and that furnished with a variety of H.P.s.

The arrangement of the bedding plants is meticulously described, spaced, and numbered. Many were set 15 to 18 inches apart, Dahlias and Hollyhocks as much as 6 feet, being planted alternately, the latter just a little behind the first named. Many of the beds contained only one kind of plant, some were edged, and the borders, not massed, but in single lines of one sort—hence called ribbon borders. One of these,

10 feet in width, was planted in this way. Commencing at the front the plants were Geranium Golden Chain, *Verbena Purple King*, "*Geranium*" Bijou, white-leaved; *Perilla nankinensis*, chocolate; *Calceolaria Kavi*, light yellow; Geranium Prince of Wales, scarlet; *Ageratum mexicanum*, blue; and *Dahlia albaforibunda*, white.

In addition to the plants named as occupying beds, etc., numbers of *Pelargoniums*, *Verbenas*, etc., are described, and were probably on trial. Some of these afterwards became popular. Novelty in Dahlias and Hollyhocks are not only described, but prices quoted, the latter being as much as 15s. each.

Most of the garden mould appears to have been trenched annually and liberally manured with one-half cow manure and one-half stable manure. The only fertiliser mentioned is guano, a note having reference to a foreman watering some newly-potted plants with water to which a handful of the potful of water was added!

A great deal of time was occupied in the spring months in shifting plants from one structure to another, and to frames. One recollects thousands of plants being rooted in manure-heated frames, splendid stuff, that might be considerably damaged subsequently for lack of provision to carry them forward. Vineries and Peach-houses had tiers of shelves on the back walls, and hanging shelves for the purpose. Scarcely any were forwarded in boxes or planted in frames, even *Calceolarias* and *Verbenas* being potted up.

Bedding plants are, of course, only one item in many noted. I find so many rods of Grape vines and their names, the same with Peaches, and rough sketches of pits, with dimensions, and the names of their occupants, also of the greenhouse and stove, mostly plants, scarcely any of which are now grown. Working hours were from 6 a.m. to 6 p.m., but in times of stress the writer noted how he rose at 4.30 a.m. to thin Grapes or to mow lawns. One night, as late as 10 p.m., he and another had to let down the blinds on all the walls as security against a sudden frost. One of his summer duties was syringing Peach trees on walls every day. Here and there are items of expenditure, and living cost little, if anything, less than before the war, but eggs were from 5d. to 6d. per dozen, and ham—not bacon—5d. per lb., which shows a difference. Wages were from 11s. to 14s. weekly, so that many things besides the furnishing of flower gardens have changed considerably in the intervening years.—R. P. Brotherton.

ORCHID NOTES AND GLEANINGS.

ODONTIODA HENRYI, ORCHIDHURST VARIETY.

FLOWERS of this superb, dark scarlet hybrid between *Cochlioda Noezliana* and *Odontoglossum harvengtense* (*crispum* × *triumphans*), sent by Messrs. Armstrong and Brown, Orchidhurst, Tunbridge Wells, represents one of the finest of this favourite class, and probably the largest, its flowers being equal in size and shape to those of a good *Odontoglossum crispum*, but of the clearest scarlet colour. A good strain of the cross was raised at Tunbridge Wells, and flowered in 1912, when Mr. Goodson showed it. Later, another batch, in which a finer form of *O. harvengtense* was used, was successfully raised, and proves very superior to the original.

ODONTOGLOSSUM PURPLE QUEEN.

A FIRST flower of a very good novelty obtained by crossing *O. Delta* and *O. Corona* comes from C. J. Lucas, Esq., Warnham Court. *O. Delta* is between *O. Othello* (*Adrianæ* × *Harryanum*) and *O. Rolfeae*, a combination which has proved very successful at Warnham Court. The flower is circular in outline, and broad in all the segments, which are pure dark violet in colour with a few very slight white markings. The lip is almost circular and flatly displayed, the area in front of the yellow crest being closely marked with violet colour; the front of the lip is white.

ROYAL HORTICULTURAL SOCIETY.

EXHIBITION AT CHELSEA.

May 23, 24 and 25.

A week-end of perfect summer weather, followed by a Monday of tropical temperature, is not the best possible prelude to a great Chelsea Show; but, no matter what the vagaries of the weather, whether spring be early or late, the Chelsea Show is always good, and a worthy demonstration of British horticultural skill. Fortunately, rain fell on the eve of the show, and this gave the out-door exhibits a much-needed refreshing shower, and laid the dust. The heat was so great on the day before the

variety and the numerous novelties were eloquent of the skill of the raiser and the collector. Orchids were numerous and beautiful, but scarcely up to the high standard set in 1921. Tulips were a special feature, as many years have elapsed since a display of these flowers was possible at the end of May. Rhododendrons and Azaleas were grandly represented by leading firms, and other flowering shrubs, either distinct or beautiful, filled considerable space. The old style of tables of hardy flowers has

Messrs. Jas. O'Brien (hon. secretary), Arthur Dye, J. E. Shill, A. McBean, W. H. Hatcher, T. Armstrong, Gurney Wilson, H. G. Alexander, Stuart H. Low, Pantia Ralli, Fred K. Sander, W. H. White, J. Cypher, H. T. Pitt, C. Cookson, E. R. Ashton, Richard G. Thwaites, J. T. Barker and C. J. Lucas.

The plan of arrangement in the Orchid section was practically the same as last year. Groups of varying extent were arranged around the sides of the large tent, and two sections of cross staging arranged. In extent, the exhibits did not appear quite to equal those of last year, the contributions by amateurs especially being wanting.

AWARDS.

FIRST-CLASS CERTIFICATE.

Odontoglossum Faustina Claygate Lodge variety (eximium $\times$ Dora), from J. J. BOLTON, Esq., Claygate Lodge, Claygate (gr. Mr. S. Lynes). A grand flower and one of the best of its class; the broad sepals and petals have a white ground, heavily blotched with claret-red, the margins and front of the lip being white.

Brasso-Laelio-Cattleya Jupiter His Majesty (B.-L.-C. Veitchii $\times$ C. armainvilliersensis), from Messrs. STUART LOW AND CO., Jarvisbrook, Sussex. The noblest and one of the grandest of Brasso-vola crosses, the immense flower being pale blush rose, with showy purple colour on the front of its broadly expanded lip.

Odontoglossum Purple Emperor (The Czar $\times$ Dusky Monarch) (see Fig. 146), from Messrs. CHARLESWORTH, Hayward's Heath. A triumph of successful *Odontoglossum* raising; the flower, which is of large size and has great depth of colour—deep, pure purple of the darkest shades—possesses fine substance.

AWARDS OF MERIT.

Brasso-Laelio-Cattleya Jupiter, Jarvisbrook variety, from Messrs. STUART LOW AND CO. A model flower of pale rose tint with yellow disc to the lip, and purple blotch in front.

Odontioda Radiant (Chantecler $\times$ Royal Gem), from Messrs. J. and A. McBEAN, Cooksbridge. A grand scarlet flower tinged with orange, and with light markings on the lip.

Odontioda Eulalia (Coronation $\times$ Vuylstekeae). The large flower is of the shape of Coronation, and is heavily blotched with rose-purple on a light ground.

Odontioda Orange King (Chantecler $\times$ unknown), from Mons. C. VUYLSTEKE. A good form with light orange-scarlet flowers.

Cymbidium Nelly var. *Golden Glow* (Pauwelsii $\times$ Albatross), from Messrs. SANDERS, St. Albans. A welcome change in colour from the ordinary type, the prettily shaped flowers being clear light yellow.

CULTURAL COMMENDATION.

To Mr. Collier, gr. to Sir J. COLMAN, Bart., for a plant of *Dendrobium acuminatum* with four fine spikes.

GROUPS.

Sir JEREMIAH COLMAN, Bart., Gatton Park (gr. Mr. Collier), was the only amateur to show a large group and in it he well demonstrated the excellence of his Orchid collection, both in extent and in the very fine cultivation of the plants. *Dendrobiums* formed the centre, several specimens of the rare *D. Dalhousseanum luteum*, with plants of the hybrid *D. illustre*, *D. Gatton Sunray*, and other yellow *Gatton* seedlings being included. The *Gatton Odontoglossums* and *Odontiodas* were well shown; a batch of the clear yellow *Odontoglossum Wilckeanum Colmani* was effective among a fine series of



FIG. 146.—*ODONTOGLOSSUM PURPLE EMPEROR*. EXHIBITED AT CHELSEA SHOW BY MESSRS. CHARLESWORTH AND CO. AWARDED A FIRST-CLASS CERTIFICATE.

show opened that, no matter how willing the workers were, they could not do themselves justice; consequently the exhibits were not so complete as usual early on the opening day. However, all was ready by judging time, 8.45 a.m. on Tuesday.

The great tent covered a larger area than usual, and as the refreshment tents were placed in the adjacent Ranelagh Gardens, there was ample room for a larger number of formal and other gardens near the great tent. These presented a greater variety of style than on any previous occasion, and proved a great attraction.

From this statement it will be gathered that Chelsea Show this year was larger than any other since the International Exhibition of 1912. It was probably more gorgeous in colouring than its predecessors; indeed, the masses of brilliant blooms needed an ampler setting of foliage, or green lawns. In point of quality there was not much evidence of progress, but the wonderful

almost disappeared, and a steady improvement in grouping on the ground is evident year after year. Greenhouse and stove plants have rarely been so well displayed, and Roses, Begonias, Calceolarias, Clarkias, Carnations, Cinerarias, Schizanthus, Hydrangeas and Hippeastrums were all of outstanding quality. The scarcity of vegetables and fruits was a matter of general regret.

The attendance was good, and early in the opening day the notable visitors included Princess Mary, the Queen of Spain and her two daughters, Viscount Lascelles and Lord Rothschild.

The Chelsea Show entails a vast amount of labour and organisation, and we congratulate the R.H.S. and the exhibitors on a notably great achievement.

Orchid Committee.

Present: Sir Jeremiah Colman, Bart. (in the chair), Prince Shimadzu, Sir F. W. Moore.

hybrid *Odontoglossums* and *Odontiodas*. *Lycaste*, a speciality at Gattton Park, was well represented, the forms of *L. Skinneri* varying from the fine, pure white form to the richly-coloured variety *Mrs. Hamilton Smith*. A set of pure white *Brasso-Cattleyas* had for the best the forms of *B.-C. Gattton Lily*, though rich colour in other members of the section, and superb *Laelio-Cattleyas* were not wanting. As always in the Gattton collection, species were well represented, a notable example being the several specimens of the rare Philippine *Dendrobium acuminatum*, one of which bore four strong spikes of pretty pink flowers.

A neat group of scarlet *Odontiodas* and showy *Odontoglossums*, *Cypripediums* and scarlet *Cochlioda*, from Mr. HARRY DIXON, Wandsworth Common, completed the side.

MESSRS. SANDERS, St. Albans, filled a long

Laelio-Cattleya Dominiana arranged with *L.-C. luminosa aurea*, of yellow and purple colour. A good general selection of other *Cattleyas*, *Laelio-Cattleyas* and *Brasso-Cattleyas*, with remarkably fine hybrid *Odontoglossums* and *Odontiodas* were also well displayed, with various *Sopironitis* crosses. The best selection in the group was *Odontioda Eileen* (Odm. *Dreadnought* × *Oda. Coronation*), a broad, *Odontoglossum*-like flower of superb quality with white ground, effectively blotched with pale mauve; *Brasso-Laelio-Cattleya Triune* var. *Triumph*, a noble, blush-white flower with broad, rose-purple lip; and *Cattleya Dusseldorf* *Aquinae* a new form, of light rose colour with dark rose front to the lip and purple tips to the petals.

MESSRS. CHARLESWORTH AND CO., Haywards Heath, commenced the side staging with a mag-

Alcippe) and the beautiful commemorative *Charlesworth* *Alpha* var. *grandis* (*Miltoniodes Ajax* × *Oncidiodes Cooksoniae*), a very fine departure from the type, of great beauty and with graceful scarlet flowers.

Continuing the side staging, an important group by MESSRS. MANSELL AND HATCHER, Rawdon, Leeds, was arranged with brilliant *Odontiodas*, showy *Odontoglossums* and delicately tinted *Brasso-Cattleyas* and *Laelio-Cattleyas* as the leading feature; white *Cattleyas*, including the pretty *C. Donon*, were noted, and among many well-grown species was a superb plant of the emerald green and black *Coelogyne pandurata*.

MESSRS. FLORY AND BLACK had a select group of *Odontoglossums*, *Laelio-Cattleyas*, and *Sopironitis* crosses, for which they are famed.



FIG 147.—*ROSA LUCENS*, THE PREMIER. EXHIBITED AT CHELSEA SHOW BY MESSRS. PAUL AND SON.

stage with superbly grown specimens admirably arranged. The centre was of fine specimens of *Cattleyas*, fronted by white and coloured forms *Laelio-Cattleya Fascinator* and other *Laelio-Cattleya Mossiae* and the charming white *C. Evelyn Sander* and *C. Magali Sander*, two of the best whites. Fine hybrid *Cymbidiums* arched over the group, mingling with the drooping *Cattleya citrina*, rich scarlet *Odontiodas* and showy *Odontoglossums*. In the centre were tall specimens of the now rare *Cyrtopodium punctatum* and *Ansellia africana* with many spikes. There were also fine specimens of *Phalaenopsis Rimestadiana* and a fine series of *Miltonias* from pure white with nearly black mask to rose colour. One of the best of the *Odontoglossums* was *O. ardentissimum* conspicuous, whilst choice *Odontiodas* were the glowing red *Oda. brilliantissima* and *Oda. Grenadier*. Their new *Angulocastes* were also shown.

MESSRS. STUART LOW AND CO., Jarvisbrook, Sussex, had an equally fine group on the cross staging, the centre being of very dark forms of

nificent group extending over sixty feet by six feet, and filled in one side, the angle and return, with a magnificent series of plants, in which most of the Orchids of the season were well represented, and especially their grand strain of the pure white *xanthotes* section of *Odontoglossums*, various combinations of which with pure white flowers, having an occasional straw-yellow blotch, were staged in three batches. A bank of *Cymbidiums* filled the corner; batches of richly coloured *Laelio-Cattleyas* and scarlet *Odontiodas* were well harmonised. *Miltonias* of large size and various tints attracted the eye, and above all stood many showy novelties, a selection of which includes *Odontoglossum Purple Emperor* (*The Czar* × *Dusky Monarch*) (see Fig. 146), a grand flower well worthy of its name; *Odontoglossum Llewellyn* var. *purpureum* (*amabile* × *Georgius Rex*), another rich purple variety. Odm. *Asian* var. *Goliath* (*Solon* × *Aquitania*) a superb novelty; *Brasso-Cattleya Apollo* (*B.-C. Digbyano Mossiae* × *C. Mendeli*), *Laelio-Cattleya Circe* var. *gloriosa* (*Hypatia* ×

Cattleya Cowanae and other whites were effectively displayed with coloured *Miltonias*.

MESSRS. J. CYPHER AND SONS., Cheltenham, had a beautiful group arranged in their customary artistic manner, the principal feature plants being graceful Palms, the striped yellow and green *Dracaena Victoriana*, and the rose, green, and white *Phyllanthus*. The central Orchid was a grand example of the large, bluish-white *Brasso-Cattleya Digbyano-Mossiae* with twelve flowers, the earliest and still one of the best of *Brasso-Cattleyas*. *Brasso-Laelio-Cattleya Veitchii* in various forms, one being the richest in colour yet seen, and other *Brassovola* hybrids and *Cattleyas* and *Laelio-Cattleyas* were in profusion, also scarlet and yellow *Eppendurms*, *Cypripediums*, and other rare species and hybrids.

MESSRS. J. AND A. McBEAN, Cooksbridge, the great demonstrators of excellence in *Odontoglossums* and *Odontiodas* especially, staged a very remarkable group of good things, the kinds mentioned, with their scarlet, purple,

and white flowers mingling with the drooping sprays of hybrid Cymbidiums, and having on each side selections of Cattleyas, Laelio-Cattleyas, and Brasso-Cattleyas. Among the best noted were Odontioda Cheringes var Admiration (Oda Joan $\times$ Odm. Lawrenceanum), a large scarlet-red flower; Oda. President Harding, a large Odontoglossum-like flower closely spotted with pale mauve; Oda. Borham var. Bronze Wings (Oda. Charlesworthii $\times$ Odm. Vulcan), a large, bronzy orange variety, the plant bearing ten flowers; and Oda. Radiant (Oda. Chantecler $\times$ Oda. Royal Gem), a very fine novelty. Among the best Odontoglossums were Odm. Arabic (eximium $\times$ Midnight), a grand flower, heavily blotched with claret purple; Odm. St. George and Odm. in new varieties.

Messrs. ARMSTRONG AND BROWN, Tunbridge Wells, staged a select group of exceptionally fine hybrids, all of which were of grand quality. Among the Odontiodas, the forms of their Oda. Henryi Orchidhurst variety were bright scarlet, one plant bearing twenty flowers and buds, and the variety splendens two immense scarlet-red blooms. Superb forms of other types were shown, and among the Odontoglossums with their large, pure white Odm. Promerens xanthotes Orchidhurst variety and Odm. Promerens Royal Purple

Shown by the Rev. A. T. BOSCAWEN, Ludgvan Rectory, Cornwall.

Rhododendron orbiculare.—An interesting species with roundish green leaves that are grey on the underside. The flowers, about 1½ inch across, are campanulate, rose-pink, with rounded lobes at the mouth. From ten to twelve flowers are borne in each cluster. Shown by the Hon. H. D. McLAREN, Talycafn.

Rhododendron Falconeri.—Yet another old favourite plant, a Himalayan species introduced about 1850. Unfortunately, it is hardy only in the warmer parts of the country, and in other places it needs the protection of a temperate house. The flowers, closely placed in large rounded clusters, are white, and the large leathery leaves are glossy green on the surface and rusty brown on the underside. Shown by Messrs. GILL, Falmouth.

Hydrangea Parsifal.—This handsome fringed, deep rose-pink Hydrangea, shown in fine condition, was described in our issue of April 29, p. 218, in connection with the Hague Show. Shown by Messrs. WM. CUTBUSH AND SON, Highgate.

Polargonium Sir Percy Blakeney.—A rich scarlet coloured Ivy-leaved variety of sturdy growth. As our readers will remember, Sir Percy Blakeney was "the Scarlet Pimpernel"

and become bright pink with age. There are a few brown dots in the throat. Shown by Mr. P. D. WILLIAMS.

Rhododendron Jeffery Millais.—In the width of its flowers this is probably the largest of the new Rhododendrons shown at Chelsea. The blooms, carried in large, erect, elongated trusses, are bluish white, with a few brown and green spots on the upper segment. Shown by Mr. P. D. WILLIAMS.

Stellera chamaejasme.—A neat little plant, with Pimelia-like heads of tiny white or bluish flowers. These heads are rounded and borne at the ends of slender growths clothed with short, reflexed grey green leaves. Shown by MAJOR STONE, High Down, Goring, Sussex.

Carnation Cream Saffron.—A pale cream-coloured variety that is probably a sport from the richer-hued Saffron. Shown by Mr. C. ENGELMANN, Saffron Walden.

Iris Orestes.—An interesting regelio-cyclis Iris of modest growth and with flowers of bronzy red or rich brown colouring, with purple blue shading of the stigmas, and some fancy yellow markings at the base of the falls. Shown by Messrs. BARR AND SONS, Covent Garden.

Carnation Steerforth.—A border variety of large size and capital form. It has a white ground, and is heavily edged and flaked with brilliant crimson. Shown by Mr. JAS. DOUGLAS.

Carnation Vicroy.—A large and handsome yellow ground fancy border Carnation. The rich crimson colouring is shaded with purple on the inner petals. Towards the margins the yellow ground shades almost white as it enters brilliant crimson. Shown by Mr. JAS. DOUGLAS.

Carnation Orangeman.—A showy border variety, with colouring as indicated by its name. Shown by Mr. JAS. DOUGLAS.

Rhododendron Coalition.—A quaint name for a beautiful variety of richest orange pink colouring, shaded with paler pink. One of the showiest varieties seen for some time. Shown by Mr. LIONEL DE ROTHSCHILD, Exbury, Hampshire.

Primula obovata Salmon Queen.—A particularly fine form of a well-known and useful greenhouse plant. The flowers are of good size and form, of a bright salmon, pink shade. Shown by Messrs. SUTTON AND SONS, Reading.

OTHER NOVELTIES.

Messrs. W. CUTBUSH AND SON exhibited a rich crimson scarlet Rhododendron named Barnet Glory. Cytisus Donard seedling, a rose and lawn-coloured hybrid between C. Dallimorei and C. ochroleuca, from the Donard Nursery Co., appears to be as free growing as it is free flowering. Rhododendron Dawn, a lovely pink variety, was sent by Mr. LIONEL DE ROTHSCHILD, Exbury. Dendroceon rigidum, carrying many of its Buttercup-yellow flowers, was well shown by Messrs. R. VEITCH AND SON, Exeter. Cytisus proliferans, with grey young leaves and whitish flowers, came from St. Keverne, where Mr. P. D. Williams grows it finely.

Mr. H. J. ELWES' little box of succulent plants proved a source of great interest, especially as it was housed in the cage with the new plants; Pileocereus senilis, Cotyledon sp., with pendent reddish flowers; C. setosa, with yellow blooms; and Urbinia Purpusii were included in this little collection.

Roses.

Roses have always a great fascination for the public and the Rose exhibits are always certain of a full share of the attention of visitors at flower shows. The Roses have always formed a great feature at Chelsea, and, although the season has been most unfavourable to their development, yet some of the finest floral displays were to be found in the Rose exhibits.

Messrs. W. PAUL AND SON, Waltham Cross, arranged a half-circular group of Roses at the end of one of the tents; this was formed entirely of a magnificent collection of these favourite flowers. The general effect was splendid, there being ample fine pillar and standard sorts without any sense of crowding, and below these were magnificent pot plants of the H. T., T. and other large-flowered varieties. The centre-piece was a charming plant of the brilliant Paul's



FIG. 143.—DIANTHUS ALLWOODII EXHIBITED BY MESSRS. ALLWOOD BROS. AT THE CHELSEA SHOW.

were remarkable variations. Fine forms of their Odm. Victory strain and other seedlings were also shown, and the distinct Brasso-Cattleya Dietrichiana, Orchidhurst variety, some seedling Cymbidiums, one a distinct yellow form; while Cattleyas and a very dark Laelio-Cattleya were also noted.

Mons. CHAS. VUULSTEKE, Loochristy, Ghent, the only Continental exhibitor gave a welcome display of various fine and richly coloured Odontiodas of new types, two of which will be described in the list of awards.

Floral Committee.

Present.—Mr. H. B. May (in the chair), and Messrs. W. H. Morter, C. R. Fielder, W. B. Cranfield, W. G. Baker, J. W. Blakey, George Harrow, G. Reuthe, W. J. Bean, Reginald Cory, J. F. McLeod, John Heal, Jas. Whytock, W. N. Page, H. R. Darlington, H. V. Warren, F. Page Roberts, Hugh Dickson, A. G. Jackman, W. B. Gingell, D. B. Crane, and R. C. Notcutt.

FIRST-CLASS CERTIFICATES.

Teloplia speciosissima.—An old inhabitant of our gardens, but one seldom seen in flower in such fine form as on this occasion. It is the Australian Waratah, and a member of the national order Proteaceae. The big heads of flowers and bracts are brilliant crimson-scarlet, carried at the ends of stout growths clothed with oblong or obovate leaves toothed at the margins. The species was introduced in 1789, and figured in *Gard. Chron.*, vol. XVII., p. 677.

of fiction. Shown by the BLAKENEY NURSERIES, Plumtree, Nottingham.

Rhododendron Norman Gill.—A lovely variety evidently of Aucklandii breed. The widely expanded blooms are bluish coloured, and carried in a large shapely cluster. A charming and dainty Rhododendron. Shown by Messrs. GILL, Falmouth.

Pink Red Indian.—This charming Pink has large, admirably formed flowers, broad and smooth petalled, and of a rich reddish rose colour.

Pink Bridesmaid.—A very pretty Pink, with broad slightly fringed petals of purest white, with palest scarlet markings at the base.

Pink Lord Lambourne.—This handsome variety, of large size and rich carmine red coloured, marked at the base of the petals with brilliant crimson, was greatly admired for its size and rich colouring. These three Pinks were shown by Mr. C. H. HERBERT, Birmingham.

Hydrangea Prof. Bois.—This is a large-flowered form of rich pink colouring, and, as shown, it is capable of carrying enormous heads that suggest the variety may become popular for market use. Shown by Mr. H. J. JONES, Ryecroft Nursery, Lewisham.

Rhododendron Robert Fortune.—An effective variety, with upright spikes of widely opened pure white flowers. Shown by Mr. P. D. WILLIAMS, St. Keverne, Cornwall.

Rhododendron St. Keverne.—This gorgeous variety has elongated, campanulate flowers of light and bright scarlet hue. When the flowers are fully open, they lose some of their brilli-

Scarlet Climber, which showed to advantage immediately in front and on either side of White Dorothy Perkins. Of the general collection, Sunburst, Mme. Caristie Martel, palest lemon; Mrs. Aaron Ward, Gloria (a new, fragrant, cerise coloured H. T. variety); Florence, and Mrs. Chas. Hunter (a beautiful rosy-pink H. T.), Prince de Bulgarie and Mme. Charles Lutaud were of outstanding merit.

Mr. C. TURNER, Slough, showed Roses in association with their fine Lilacs. The centre of their group was massed with H. T. and H. P. varieties, such as Mrs. Geo. Shawyer, Lady Ashtown, Flame of Fire, a pretty shade of Apricot with golden sheen; Golden Emblem, a very charming yellow Rose of the Pernetiana type; and Richmond. They also showed their

Messrs. FRANK CANT AND CO., Colchester, had a massed bank of Roses on tabling, so cleverly arranged that the value of each variety could be readily appraised, and the inclusion of standards with blooms of exhibition quality, which overhung the general collection, was a happy thought. The new varieties, Capt. F. S. Harvey Cant—a pink H.T. variety—and Mrs. F. S. Harvey Cant, pale blush, in the style of Yvonne Vacherot were prominent in the centre, and other sorts of note were Mrs. Alfred West, a big bloom of rosy-pink colour, and Mrs. Rosabel Walker, a rich red H.T., shaded with maroon on the older outer petals—a glorious bit of colour for the garden, as it is almost sunproof.

Messrs. J. CHEAL AND SONS, Crawley, filled

The general collection included perfect specimens in pots of notable H.T. and T. varieties. One of the most charming features of this glorious bank of Roses was a group of the pale blush semi-double variety of *Rosa luscens* named the Premier (see Fig 147), which forms bold pillars as much as 12 feet high, furnished with bloom from the bottom to the top of the plants.

Messrs. J. PIPER AND SON, LTD., included many beautiful Roses in their collection of miscellaneous plants. The richly-coloured Paul's Scarlet Climber showed to advantage against trellising, which added a pleasing feature as a background on which, besides Roses, were trained Clematis, Vines, and other climbers.

A bank of beautiful Roses was exhibited by Mr. E. J. HICKS, Twyford, the group being



FIG. 149.—PORTION OF MESSRS. SUTTON AND SONS' GOLD MEDAL EXHIBIT AT THE CHELSEA SHOW.

new pillar variety Fairy Queen semi-double, of delicate lemon-yellow, with a fine boss of golden stamens, and sweetly scented.

Messrs. B. R. CANT AND SONS, Colchester, showed Roses on tabling, a screen of Climbers and Ramblers at the back giving a good effect. In front were arranged masses of fine blooms of such sorts as Padre, a glorious shade of orange-scarlet, flushed with yellow at the base; Sovereign, a Pernetiana variety of gold colour with buff shading; Covent Garden, Constance Casson, a Pernetiana with pretty blooms of gold colour, heavily suffused with rose, and with extra large foliage; and Phoebe, a lemon-yellow hybrid tea variety.

Messrs. LAXTON BROS., Bedford, showed two pyramidal groups of their new polyantha Rose Pink Delight with their exhibit of Strawberries.

Mr. GEO. PRINCE, Oxford, had a small, but select group of Roses, arranged in big epergnes. The most notable sorts were Premier, Mrs. Foley Hobbs Richmond, Melody, Mme. Butterfly—a pretty bloom of delicate shell-pink colour—and Melody.

eight panel beds with polyantha Roses in their formal garden out-of-doors (see Fig. 151), and also utilised Roses in the borders and on the pergola.

Messrs. W. CUTBUSH AND SON, Highgate, made a very effective display with Roses, at the end bay of their fine group of flowering plants. Polyantha varieties, which this firm grows and shows so well, were utilised as a groundwork, and rising above them were charming standard, weeping standards, and pillar varieties. Amongst the polyanthas was the new fine red semi-double Rudolf Kluis, but the pick of all was the larger-flowered soft pink, Baby Tausendschön. Pink Delight is a pretty single variety rather taller than most of this section.

Messrs. PAUL AND SON, Cheshunt, had some of the brightest and freshest Roses in the show, a large mass of beautiful blooms in a small space, forming a pleasing feature near the central exit. The pillar and standard plants of such sorts as Excelsa, Ethel, Hiawatha, Lady Godiva, and the American Pillar, were blooming profusely, these serving to introduce variety.

arranged in the usual style adopted by modern exhibitors, that of massing pot plants, with tall pillar and rambler varieties rising above them at intervals. Ophelia occupied the place of honour in the centre—one of the best Roses for all purposes.

Mr. R. MURRELL, Shepperton-on-Thames, showed a pretty polyantha Rose named Coral Cluster.

The Rev. J. H. PEMBERTON, Avering-Atte-Bower, exhibited a small group of Roses of varieties mostly of his raising. In a group of polyantha sorts were arranged the taller Pemberton's White Rambler and a new pink climber named Havering Rambler.

Carnations and Pinks.

One of the features of the show was the magnificent collections of Carnations, and that from Messrs. AIRWOOD BROS., Wivelsheld Nurseries, Haywards Heath, was one of the largest groups ever staged in the history of horticulture. It occupied the whole of one end of No. 1 tent, the centre being tastefully arranged with fine blooms of the perpetual-

flowering varieties, while on either side was a well-arranged walled garden (see Fig. 148) bedded out with the twenty-four varieties of *Dianthus Allwoodii*, and relieved here and there with lead vases filled with the same subjects. Just near was also a circular group of *Allwoodii* *Dianthus* grown in pots, so that the habit of this free-flowering section could be readily observed. There was a magnificent pot of the variety *Rufus*; this specimen, we believe, has now been exhibited at the Chelsea Show for four consecutive years. Of the perpetual-flowering varieties, a fine *epergne* of the magnificent *Edward Allwood* occupied a central position, and other flowers of note were *Chintz*; *Wivelsfield White*; *Jessie Allwood*, a new yellow *Malmaison*; *Wivelsfield Pink*; and *Marian Wilson*, orange yellow with red markings. Amongst the *Allwoodii* varieties, *Marion*, rose; *Betty*, white, with red centre; *Rufus*, a large deep rose flower; and *Susan*, pale lilac, with deep red eye, were of great merit.

Another highly effective group came from Mr. C. ENGLEMAN, *Saffron Walden*, who dis-

shown by Mr. JAMES DOUGLAS, Great Bookham, Surrey, and amongst recent introductions were *Steerforth*, white ground, pencilled with crimson; *Highland Mary*, cream, marked with pink; *Crystal Clove*, white; *Douglas Dale*, orange salmon; *Kelso*, apricot ground, marked lavender grey; and *Maréchal Niel*, a fine yellow self. The same firm also showed a representative collection of well grown *Auriculas*. Close by Mr. H. LAKEMAN, Thornton Heath, showed a table group of border *Carnations*, the vases being arranged in three tiers, prominent varieties being *Lieut. Shackleton*, yellow ground with pink markings; *Orangeman*, orange-scarlet; *Columbine*, pink and white; *Grey Douglas*, slate grey; *Elaine*, white; *Border Yellow*, and *The King*, crimson. Mr. C. H. HERBERT, Acocks Green, Birmingham, showed a unique collection of hybrid *Pinks*, including *Victory*, a fine crimson self; *Model*, a perfectly-formed flower, with rose petals and deep crimson base; *Red Indian*, dull red self; *Queen Mary*, deep rose with crimson eye; *Sweet Will*, pink, with dark red base; and

In the effective display of greenhouse plants by Messrs. JAMES CARTER AND CO., Raynes Park, S.W., Sweet Peas were shown in ornamental wicker baskets, and included *White Perfection*; *Picture*, shell pink; *Viscountess Lascelles*, lavender; *Mrs. Stirling Stent*, salmon rose; *Royal Scot*, scarlet; and *Tangerine*.

Messrs. DOBBIE AND CO., Edinburgh, had a splendidly arranged group of Sweet Peas, the style of arrangement being original, and each variety was so displayed that it was an exhibit in itself. The principal varieties were *Geo. Shawyer*, a beautiful salmon rose flower; *Orchid*, lavender; *Majestic*, cream; *Royal Scot*, scarlet; *Renown*, deep rose, suffused with salmon; *Tangerine*, salmon; *Dignity*, pink; *Dobbie's Maroon*; and *Constance Hinton*, white.

Messrs. IRELAND AND HITCHCOCK, Marks Tey, displayed flowers of excellent quality and of exceptional colour. The chief varieties included were *Matchless*, cream; *Annie Ireland*, picotee; *Mascotts Helio*, rosy lavender; *Mascotts White*; *Le Mahdi*, bluish purple; and *Shamrock*, rosy mauve.

From Mr. J. STEVENSON, Wimborne, came a very pretty collection of Sweet Peas arranged in *epergnes* with *Asparagus* foliage. Of novelties the sun-proof orange-red self, named *Poppy*, was particularly meritorious; and *Wild Rose*, pale soft rose; *Diana*, a good lavender; and *Cynthia*, a pale lavender flower were also very fine.

Mr. ROBERT BOLTON AND SON, Halstead, Essex, staged a neat table group of Sweet Peas, chief among which were the new *Elsie Dene*, lavender; *Comrade*, apricot pink flushed with lilac; *Wonderful*, a good sun-proof scarlet; *Artistry*, rose-lavender; and *Picture*, pink.

Ferns.

Stove and greenhouse Ferns which in by-gone days were such an important feature of the spring show, were sparsely represented on the present occasion. The only contribution was by Mr. H. ELLISON, who included such genera as *Adiantum*, *Davallia*, *Lomaria* and *Platynerium* with his collection of succulent plants, and many well coloured little plants of *Saxifraga sarmientosa* tricolour.

Somewhat similarly Mr. AMOS PERRY associated hardy Ferns with a very large collection of *Irises*, *Tulips*, *Kurume Azaleas*, and general border plants. The Ferns were shown in considerable quantity and of high quality. Of the many interesting and valuable plants on view, space permits to mention only of a few. *Athyrium Felix-foemina plumosa cristatum*, *A.F.f. p. corymbiferum*, *A.F.f. curtum cristatum*, and *A.F.f. congestum polydactylum*, of the crested varieties were very graceful of cool appearance and altogether charming. The genus *Osmunda* was also well represented, and included *Osmunda regalis cristata*, *O. r. purpurascens*, and *O. Claytoniana*.

Begonias.

The only exhibit of tuberous-rooted *Begonias* was by Messrs. BLACKMORE AND LANGDON, and this was of the very high quality associated with these growers. The ground work was composed of an admirable collection of double-flowered sorts. Each plant seemed to be a perfect specimen, dwarf and compact, bearing ample healthy foliage and an unusual number of very large and perfectly double *Camellia*-shaped blooms. Although these flowers were of unusual size, they were of refined quality and free from any suggestion of coarseness. Of the many varieties we selected the following as being typical of the collection: *James Braid*, crimson; *Mrs. J. S. Brunton*, mid-pink; *Mrs. T. Crawford*, salmon-pink; *J. W. Pyeman* deep vivid scarlet, and *Irene Tamblay*, rich orange. Above these varieties were placed on tall stands elegant plants of such "basket *Begonias*" as *Stella*, *Coralina* and *Mrs. Bilkey*.

Hardy Flowers.

A very tastefully arranged formal garden was erected by Messrs. R. W. WALLACE AND CO., Tunbridge Wells, in No. 1 tent. Rectangular in shape, of an area of about forty-five feet by forty-six feet, it was approached by four



FIG. 150.—TUDOR GARDEN EXHIBITED BY MR. HERBERT JONES AT THE CHELSEA SHOW.

played a choice selection of well-grown blooms in the form of a circular column rising from the ground sixteen feet in height. The apex consisted of a mass of the very fine scarlet variety, *Tarzan*; and other choice varieties were *Laddie*, pale salmon pink; *Crystal White*; *Edward Page*, deep pink and very fine in form; *Cream Saffron*, a sport from the yellow *Saffron*; *Goliath*, light pink; and *White Pearl*.

Mr. KEITH LUXFORD AND CO., Harlow, set up a nice table group of *Carnations*, which included the new yellow *Maine Sun-hine*; *Aviator*, scarlet; *Mrs. C.W. Ward*, pink; *White Benora*; and *Mary Allwood*.

Messrs. STUART LOW AND CO., Enfield, effectively displayed such varieties as *Reginald Cory*, glowing cerise; *Mrs. T. Ives*, salmon pink, a very excellent variety for summer bedding; *Eileen Low*, salmon pink; and *Sir Mackay Edgar*, an improved form of *British Triumph*. Perpetual *Malmaisons* were represented by the *Hon. Charlotte Knollys*; *Miracle*, a beautiful large cerise flower; and *Hugh Low*, a new blush pink variety.

The Right Hon. LORD LAMBOURNE, C.V.O., Bishops Hall, Romford, sent a collection of good flowers, representing such varieties as *Edward Allwood*; *White Enchantress*; *Wivelsfield Beauty*, a fine yellow fancy; *Wivelsfield Claret*; *Saffron*; and *Mary Allwood*.

Border *Carnations* of distinctive quality were

Bridesmaid, pale salmon, with deeper coloured base.

A part of the group of miscellaneous flowering plants from Messrs. W. CUTBUSH AND SON, Barnet, was set aside for perpetual-flowering *Carnations*, and the blooms were displayed in grey wicker baskets and vases interspersed with trails of *Asparagus* and *Smilax* foliage. Excellent flowers of *Winsor*, pink; *King Albert*, maroon red; *White Wonder*, white; *Laddie*, salmon pink; and *Thor*, scarlet, were shown.

Sweet Peas.

Sweet Peas were again exceptionally good, and some thoroughly attractive exhibits were arranged by specialists in this flower. A mammoth group came from Messrs. ALEX. DICKSON AND SONS, LTD., Hawtmark, Belfast. Large *epergnes* were set along the back, each framed with trails of *Smilax* worked on the black background, and towards the front were tripods and large vases and bowls filled with flowers of grand form and colour. In all, about forty varieties were shown, chief of which were the two novelties, *Fairie Queen*, old rose on cream ground and *Powerscroft*, pure lavender. *Hawtmark Cream*; *King Mauve*; *Royal Scot*, scarlet; *Tangerine*, bright salmon; *Constance Hinton*, white; *Elegance*, blush pink; *Conquest*, old rose on white ground; *Hawtmark Pink* were others of special merit.

broad entrances centrally placed on each side. Raised about two feet above the ground level, and flanked by stone walls, the stone path led to a circular bed of bearded Irises. Here we found magnificent plants of Dawn, white; Hermoine, pink; Isolene, Dominion, deep blue (see Fig. 142); King, Asia, Lent A. Williamson, and Lord of June. The side beds were occupied with ornamental Acers, Rhododendrons, and Azaleas, interplanted with Lilliums, of such kinds as L. R. O. Backhouse, L. monodelphum Sovitzianum, L. regale, L. unbellatum erectum and L. u. incomparabile, L. Krameri, a beautiful white flower, and the brightly-coloured L. elegans aureum maculatum. The outer borders at a lower level were filled with some charming subjects, including the scarlet Habranthus pratensis, Veronica gentianoides pallidiflora, and masses of dwarf Irises, Rhododendrons, Azaleas and Primulas. It was a delightfully cool and pleasing exhibit, and attracted the admiration of the many visitors. Messrs. W. H. ROGERS AND SONS, Southampton, had a table group of hardy plants, among which were *Primula hybrida* Flambeau, a cross between *P. pulverulenta* and *P. Cockburniana*; *Cupressus obtusa* tetragona minima, and *C. o. caespitosa*, *Sempervivum alpinum decorum*, and a spray of *Tricuspidaria Hookeri*.

From Messrs. SKELTON AND KIRBY, Pirbright, came *Viola gracilis* and *V. g. lutea*, *Androsace Chumbyi*, a good clump of *Arenaria balearica*, and *Aethionema Warley Gem*, while close by Messrs. R. TUCKER AND SONS, Oxford, arranged *Edraianthus serpyllifolia*, *Oxalis adenophylla*, *Dianthus alpinus*, and *Trillium grandiflorum* among the Yorkshire Arnside stone. Messrs. WATERER, SONS AND CRISP, LTD., arranged a grand group of herbaceous plants with *Lupinus Sunshine*, and long-spurred *Aquilegia* hybrids occupying a prominent position. Bearded Irises were represented by *I. pallida*, *I. germanica*, *Alcazar*, a very fine flower, and *Isolene*. *Paeony Peregrine*, a pink single, and a number of Tulips were also included in the group. Messrs. REAMSBOTTOM AND CO., Geashill, Ireland, staged their famous strain of *St. Brigid Anemones*, while Mr. H. HEMSLEY, Crawley, exhibited among other choice plants *Anemone rivularis*, *Dianthus Freynii* nana, *Cistus unicolor*, and *Lychnis lapponica*, together with his named varieties of hybrid alpine *Antirrhinums*. The Misses HOPKINS, Shepperton-on-Thames, showed a small rock garden exhibit planted with suitable subjects. From Mr. W. WELLS, JUN., Merstham, came a very choice collection of alpine plants in pots. *Anemone sylvestris*, *Globalaria nudicaulis*, *Phlox Vivid*, *Mazus rugosus*, and *Primula siberica* were but a few of the many good things on view.

Messrs. GEO. JACKMAN AND SON, Woking, had a representative display of herbaceous plants, including Irises *Isolene* and *Alcazar*, *Lavatera Olbia*, *Lupinus Sunshine*, *Campanula Telham Beauty*, and the pale blue *Delphinium Capri*. Mr. G. W. MILLER, Wisbech, brought named varieties of *Trollius*, the pick of which were *Orange Princess*, *Earliest of All*, and *Mrs. J. B. Hall*, while delightful strains of *Polyanthus* and *Pansies* were also seen on this stand. Mr. G. REUTHE, Keston, staged an interesting group of rock plants, and the dainty *Thalictrum anemonoides*, *Anemone sylvestris* grandiflora, *Oxalis enneaphylla*, and *Dianthus murale* were noteworthy subjects.

A highly decorative group of Irises and herbaceous plants were shown by Mr. AMOS PERRY, Enfield. *Regelio-cyclus* Irises were represented by *Beatrice*, *Isis* and *Pothex*, and other choice Irises were *I. Hoogiana*, *I. Vaga*, *I. Susiana*, and the yellow *I. bosniaca* major. Azaleas provided a wealth of colour at one end of the group, and these formed a fitting background to the herbaceous plants, which included *Geum Dolly North*, a good orange flower, *Pyrethrum Queen Mary* and *Euphorbia polychroma*. Interesting, too, were the hybrids between *Cheiranthus alpinus* and *C. Allioni*; and the pretty *Aquilegia calcarata*, a dwarf Tibetan species with deep purplish-blue flowers attracted attention. Messrs. STORRIE AND STORRIE, Glencarse, Perthshire, exhibited a magnificent strain of long-

spurred *Aquilegias* of bluish pink, orange-red, scarlet, white and yellow colours. Their invincible strains of *Auriculas*, *Polyanthus* and *Ox-slips* were also displayed in goodly quantity.

Messrs. BEES, LTD., Liverpool, made a very pleasing exhibit of herbaceous and rock plants, among which were noted *Gentiana acaulis*, *Trillium grandiflorum*, *Lilium croceum*, *Achillea umbellata*, *Roscoea cautiloides*, *Androsace Watkinsonii*, and a very desirable strain of long-spurred *Aquilegias*. Messrs. WHITELEGG AND CO., Orpington, made a feature of *Iris Hoogiana* and *I. regelia* Korola. Some very prettily veined flowers of *I. regelio-cyclus* hybrids were also staged, and of named varieties *Thalia*, *Vera*, *Freya*, and *Una*.

The CHALK HILL NURSERIES, LTD., Reading, showed their fine Chalk Hill giant strains of *Mimulus* and *Pansies* of wide range of colours. Sprays of *Pelargoniums* were also shown by the same firm, the chief varieties being *Snowstorm*, white; *Maxime*, *Kovalesky*, pale salmon; *The Speaker*, double orange pink; and *Victory*, pale salmon. Messrs. MAXWELL AND BEALE, Broadstone, showed *Saxifraga cochlearis* lingu-

Primulas was staged by Dr. J. Macwatt, Duns, Scotland, included amongst which were the pale yellow *P. sikkimensis*; *P. burmanica*, rose-purple; *P. helodoxa*, deep yellow; *P. Watsonii*, *P. longiflora*, and *P. granifolia*. Mr. R. Prichard, Wimborne, brought *Cotyledon simplicifolia* *Onosma sericeum*, *Lychnis pyrenaica* rosea and a pretty, dwarf white *Cistus*. From Messrs. J. CHEAL AND SONS, LTD., Crawley, came *Alyssum saxatile plena*, *Phlox Newry Seedling*, *Sedum ternatum*, and *Pentstemon Scouleri*. The same firm also showed their *Star Dahlias* in choice varieties.

Mr. E. SCAPLEHORN, Hayward's Heath, occupied a narrow table length with a rare rock garden effectively planted with *Daphne Cneorum* major, *Primula helodoxa*, *Armeria alpina* nana, *Saxifraga longifolia*, and *S. lantoscana*. *Viola* blooms were seen in variety in the collection from Mr. H. CLARK, Taunton, *Moseley Perfection*, yellow; *Maggie Mott* lavender; *Mrs. Fisher*, violet; and *Oxhill Purple* being represented by high-grade blooms.

Mr. G. R. DOWNER, Chichester, specialised in

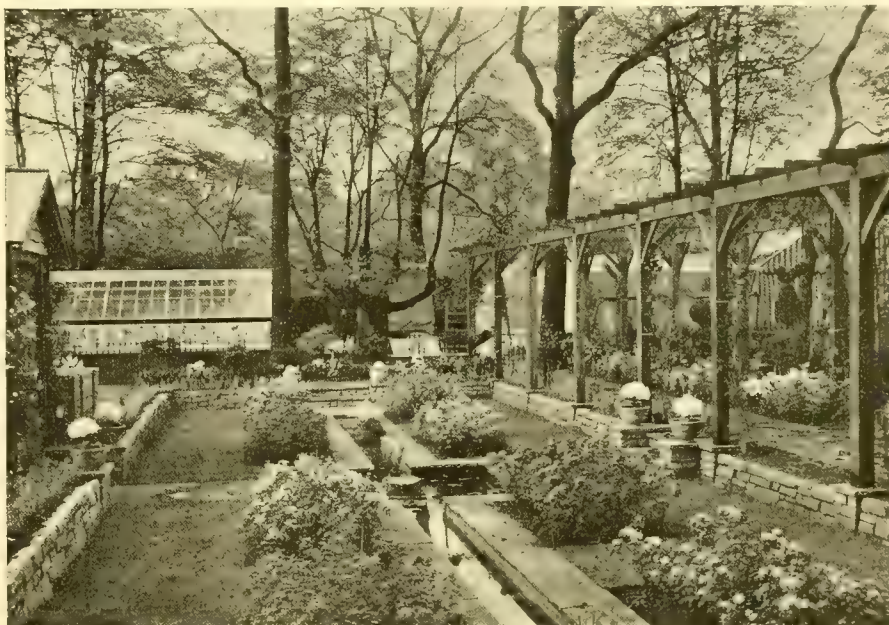


FIG. 151.—PORTION OF MESSRS. J. CHEAL AND SONS' FORMAL ROSE GARDEN AT THE CHELSEA SHOW.

lata, *Dryas octopetala*, *Gazania montana*, *Phlox Vivid*, and other choice plants amongst rockwork. Messrs. M. PRICHARD AND SONS, Christchurch, arranged a large collection of plants occupying a whole table length. Here were to be found masses of *Veronica Hulleana* with pale lavender racemes, *Primula Aileen Aroon*, *Erigeron Bertram Gentle*, *Dianthus Adoree*, a very charming plant; *Dianthus Prichardii*, a new race of hybrid Pinks, and the new double *Arenaria verna plena*.

Messrs. BOWELL AND SKARRAT, Cheltenham, displayed the bright Azalea *Hineman*, together with *Iris Hoogiana*, *Viola pedata* bicolor, *Androsace arachnoides*, and *Cytisus Beanii*. Messrs. CLARENCE ELLIOTT, LTD., Stevenage, made a pleasing rock garden on the table, and noteworthy subjects employed were *Pentstemon Bridgesii*, *P. Six Hills Hybrid*, *Primula capitulata*, *Oxalis adenophylla*, and *O. enneaphylla*, *Lewisia Howellii*, and the pretty double pink *Silene acaulis flore plena*. Messrs. CARTER, PAGE AND CO., London Wall, E.C., made use of *Maianthemum biflora*, the scarlet *Verbenia chamedraefolia*, *Campanula hirsuta* alba and *Leontopodium alpinum* in a neat rock garden arrangement. The same firm also showed a pretty group of *Dahlias* representative of the many classes of this autumn flower.

A very interesting collection of hardy

seedling *Lupins*, the only named variety being *Pink Pearl*, a magnificent flower, with large spikes of rosy purple bloom. A number of varieties of *Phlox subulata* was also shown in the group.

Mr. JOHN FORBES, Hawick, showed *Violas*, *East Lothian Stocks*, *Auriculas*, and *Phlox Arendsi* in variety, and just near Mr. F. J. WARD, Ashted, set out *Viola Dot alba*, *Aquilegia glandulosa*, and *Mimulus Scarlet Queen* in rock work. Messrs. B. LADHAMS, LTD., Southampton, displayed *Erigeron B. Ladhams*, *Edwardsia grandiflora*, *Primula Sieboldii*, and *Verbascum B. Ladhams*, and from Messrs. Baker's, Ltd., Wolverhampton, came a neat rock garden, backed with brightly coloured Azaleas, and planted with such good things as *Saxifraga bathoniensis*, *Helichrysum bellidioides*, and *Myosotis rupicola*. Opposite, the same firm made a feature of the fine yellow *Trollius Goldquelle*, and a good strain of *Sunbeam Poppies*.

Messrs. G. & A. CLARKE, LTD., Dover, had a circular ground group of herbaceous plants, prominent position being given to *Gerbera* hybrids of striking colour, *Eremurus himalaicus*, *Saxifraga rotundifolia*, *Astilbe Venus*, and *Lupins* and Irises in variety. Mr. J. C. ALLGROVE, Slough, displayed baskets of *Iris Kharput*, deep blue; *Alyssum saxatile citrina*; *Aster Purdomii*, and *Primula Forrestii* in front of his large collection

of flowering shrubs Mr. A. D. THOMPSON, Adelphi, and Mr. ERNEST DIXON, Putney, S.W., erected neat miniature gardens on the tables, as well as showing larger gardens out of doors.

Trees and Shrubs.

General collections of trees and shrubs were not so extensive as in some former years. The most noteworthy, from some points of view, was the excellent display of Maples by Messrs. W. FROMOW AND SONS. In a large angle formed by the tents at the Hospital entrance they arranged a great variety which has probably never been surpassed for effect. The rich yellows of many specimens of *Acer japonica aureum* and the intense crimsons of the large bushes of *A. palmatum sanguineum* provided glorious masses of colour. The rather

showed, in large quantities, many of the rarer shrubs in which he specialises. The branches of *Embothrium coccineum* were densely furnished with brilliant flowers. Many interesting *Rhododendrons*, such as *R. Dalhousiae*, Thomsoni, and Loder's White were well shown. *Mitraria coccinea*, *Crinodendron* (*Tricuspidaria*) *Hookeri*, and *Dacrydium cupressoides* were also very attractive amongst the many trees and shrubs. The uncommon Norfolk Island *Forget-Me-Not*, *Myosotidium nobile*, was largely represented.

In the large tent Mr. J. C. ALLGROVE exhibited such hardy shrubs as *Cornus florida rubra*, bearing large quantities of very showy flowers. There were also many *Lilacs*, *Maples*, *Veronicas*, *Rhododendrons*, *Azaleas*, and the

also very charming. In the centre of their large group the DONARD NURSERY Co. massed their new Donard Seedling Broom, which is stated to be a cross between *C. Dallimorei* and *C. ochroleuca*. It is a very graceful, vigorous, and free-flowering variety, with flowers much like the former, but brighter and more fawn-coloured. *Leptospermums*, *Pittosporums* in variety, the variegated *Myrtle*, *Lomatia pinnatifolia*, *Picea Pinsapo aurea*, *Retinospora squarrosa subulifera*, and a brilliant little plant of *Acer Chisio* were also very noteworthy.

A large corner space was attractively filled by Messrs. WM. CUTBUSH AND SONS with a delightful grouping of *Polyantha* *Roses*, followed by general shrubs, the chief of which were Japanese *Maples* of rich colouring, various *Rhododendrons*, *Azaleas* of all types, particularly the mollis and dainty little *Kurume* varieties. *Hydrangeas* and *Brooms*, with *Astilbes* and other herbaceous plants.

A couple of groups from Messrs. FLETCHER BROS. were well filled with various *Rhododendrons*, such as *Alice*, *Pink Pearl* and *Boule de Nègre*, *Brooms*, dwarf *Conifers* and *Bay trees*.

Clematises of great excellence were largely contributed by Messrs. G. JACKMAN AND SONS. These were particularly vigorous plants, bearing numerous large flowers of great beauty. The chief of what may be termed the standard varieties were *Nelly Moser*, *Lasursterne*, *Gloire de St. Julien*, *Lady Caroline Nevill*, *Lord Neville* and *Fairy Queen*. Several excellent new sorts included *Crimson King*, which may be described as a greatly improved *Ville de Lyon*, *Lady Betty Balfour*, of Jackmanni appearance, but greatly improved in size and richness of colour; and *King of the Belgians*, a silvery mauve patens variety. Of the double-flowered sorts, the most noteworthy were *Lady Lovelace*, pale purple; *Duchess of Edinburgh*, white; and *Belle of Woking*, pale lavender. *Floriferous Clematises* were also shown by Messrs. JOHN PEED AND SON, who included *Duchess of Edinburgh*, Mrs. Geo. Jackman, *Marcel Moser* and *Duke of Norfolk* in a general collection.

Rhododendrons and Azaleas.

Several very large groups of handsome *Rhododendrons* were arranged by Messrs. WATERER, SONS AND CRISP and these were in the pink of perfection, making a glorious display of colour. One large group was filled solely with *Alice*, a large pink variety nearly equal in size to *Pink Pearl*, which figured largely in other groups, and of deeper shade of colour. The new variety *Bernard Crisp*, of pale blush pink colour, which deepened at the edges, and *Corona*, a smaller truss, which has cardinal red buds opening to pink and passing to blush shades were also very charming. The brilliant *Doncaster* and very large bushes of *George Hardy* were other noteworthy varieties in this excellent display. In another part of the tent Messrs. WATERER, SONS AND CRISP displayed *Maples*, and many *Ghent Azaleas* bordered with *Ledum palustre*. A handsome group of such valuable *Rhododendrons* as *The Gem*, Mrs. E. C. Stirling and *Pink Pearl* was attractively arranged by Mr. LEWIS, and these hardy evergreen shrubs were also freely used by Messrs. WALLACE AND CO., and Messrs. KENT AND BRYDON in their formal gardens.

The more tender varieties were shown by Messrs. R. GILL AND SONS, who also had sprays of the brilliant *Embothrium coccineum*. Of their many *Rhododendrons* several varieties of *R. Aucklandii*, *R. Nuttalli*, *R. Dalhousiae*, *R. Falconeri* and *R. Norman Gill* were very handsome. The last-named is a cross between *R. Aucklandii* and *R. Beauty of Tremough*, and the trusses of large flowers are a delightful blush pink shade. A smaller collection was shown by LADY ABERCONWAY (gr. Mr. F. C. Peddle), *Bodnant*, *N. Wales*. Besides a number of the large-flowered sorts, apparently of *R. Aucklandii* origin, there were trusses of *R. Roylei*, *R. Sargentiana*, with small pale primrose flowers, the fragrant *Lady Alice Fitzwilliam* and *R. bullatum*. A glorious display of *Azalea mollis* and *Ghent*

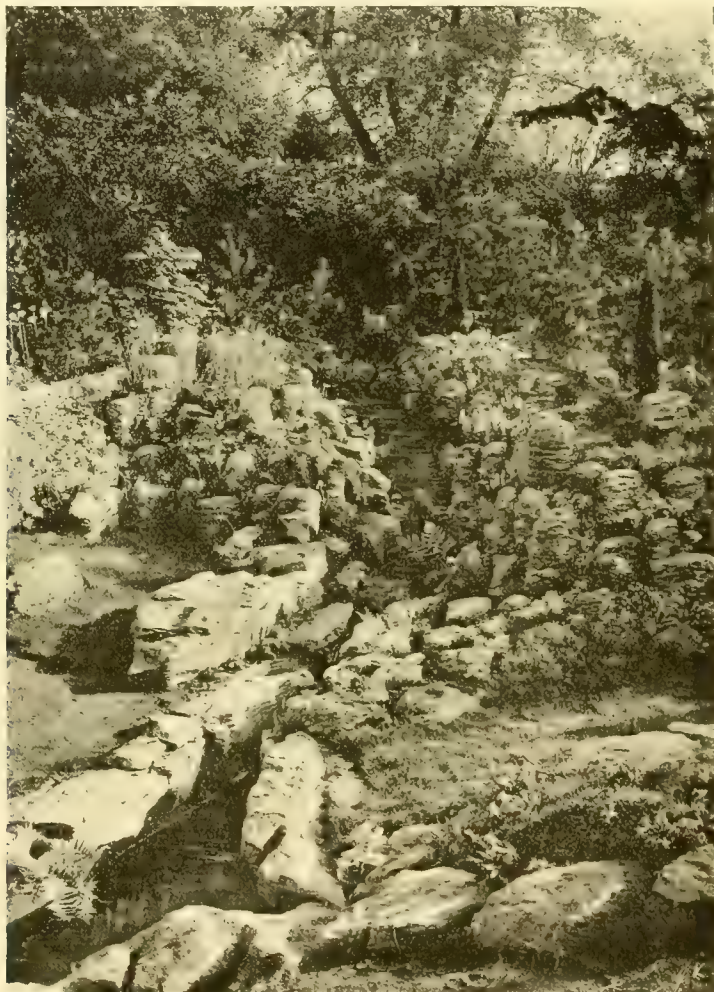


FIG. 152.—ROCK GARDEN EXHIBITED BY MESSRS. G. G. WHITELEGG AND CO. AT THE CHELSEA SHOW.

slow-growing *A. p. roseo-marginatum* was also in excellent condition and most delicately beautiful. A tall specimen of *A. p. septemlobum* was bearing numbers of brightly coloured fruits, while a smaller example of *A. p. aureum* was in flower. Not only was there a very great variety on view, but the disposition was very praiseworthy.

Outside the Embankment end of the large tent Messrs. L. R. RUSSELL, LTD., had a graceful arrangement of miscellaneous trees and shrubs. Trained examples of ornamental Vines predominated, and of these mention may be made of *Vitis Ciotat*, a very graceful climber; *V. armata Veitchii*, and *V. Thunbergii*. There were also several useful species of *Ceanothus*, such as *C. rigidus* and *C. Veitchianus*, just coming into flower, and *Eleagnus glabra variegata*, *Rhus typhina*, and various *Pittosporums*, while in the foreground we noted batches of an erect-growing *Rosemary*.

In a couple of graceful groups Mr. G. REUTHE

fragrant *Staphylea colchica*. Another noteworthy feature was the sprays of *Davidia involucrata*, bearing large quantities of the conspicuous white bracts surrounding the flowers. Associated with these shrubs were many valuable border plants, including tall spikes of *Eremurus*, various *Paenies*, *Iberis gibraltarica*, *Veronicas* in variety and the like. Near by Mr. R. C. NORCUTT had a graceful group of standard *Brooms*, *Pyruses*, and *Lilacs*, with brightly coloured Japanese *Maples*, *Kurume* and *Ghent Azaleas*, *Ericas*, excellent bushes of *Kalmia latifolia*, and *Daphne Cneorum*. In an adjoining group Mr. NORCUTT exhibited many varieties of *Lilac*, both as bushes and as cut sprays.

An elegant arrangement was made by Messrs. J. CHEAL AND SONS with many standard *Pink Pearl Rhododendrons*, *Maples*, *Laburnums*, *Staphylea colchica*, and *Brooms*. The little bushes of *Prunus Malus* varieties, *Ceanothuses*, *Kalmias* and *Kurume Azaleas* were

varieties was made by Messrs. R. AND G. CUTHBERT. These filled a considerable area, and the plants bore enormous quantities of bloom, providing masses of glowing vivid colour. The mollis varieties predominated, and of these J. C. Van Thol, Imperial, deep orange shaded with rose; Anthony Koster, a rich yellow, and Isabella Van Houtte, were very prominent. Of the very many varieties of Ghent Azaleas it was probably those with double or semi-double flowers that best withstood the heat and attracted most attention. Of this type, Aida, soft pink, and Rosetta, blush, were very delightful. At one end of these larger sorts, there was a charming little collection of the smaller Kurume Azaleas in a great variety of colours and a plant of the vivid purple *A. rhombica*.

Topiary.

Clipped shrubs occupied a considerable space out-of-doors at the Embankment end of the grounds. Nearest to the entrance there was a large collection of well-trained specimens, which are euphemistically described as "Cutbush's Cut-bushes," by Messrs. W.M. CUTBUSH AND SON. These were of almost every conceivable form, and they met with the unequalled approval of all who have a liking for topiary specimens. A little farther on, Mr. J. KLINKERT had an even more ambitious display. Spacious intersecting avenues of trim Box specimens of perfect form were bordered by *Nepeta Mussinii*, thus giving a bright, though cool, effect. Within the enclosures so formed, Mr. KLINKERT had arranged a great number of spirals, birds, seats, columns surmounted by balls, and other designs, all fashioned in the living Box or Yew.

Adjoining their pleasant Rose garden, Messrs. CHEAL AND SONS set out excellent topiary specimens on either side of a broad grass path. For the most part these were exceptionally large examples, and displayed excellent workmanship.

Stove and Greenhouse Plants.

The only general exhibit of stove plants was a very good collection by Messrs. L. R. RUSSELL, LTD. The most prominent feature was *Medinilla magnifica*, which was represented by several plants distinctly larger than has been seen at shows during recent years. These were well furnished with large, handsome leaves and long, hanging racemes of beautiful pink flowers. Many well-coloured Crotons, the golden *Dracaena Victorae*, *Aralias* of graceful, slender habit, *Gloriosa superba*, *G. Rothschildiana*, many *Anthuriums*, and several species of *Phyllanthus* were other plants of interest. The arrangement of the collection was admirable, and all the plants illustrated the highest cultivation.

Caladiums were shown in quantity and of considerable excellence by Messrs. JOHN PEED AND SON. This extensive collection included a great number of the older sorts, while amongst the new varieties were May Queen, a large leaf, freely mottled with rose-pink over green; Sir Ernest Shackleton is another large foliaged variety in which the white and green leaves are spotted with carmine. Red Ensign may be termed an improved Mikado, and possesses most brilliant colour. Dorothy Hodgson is not quite so large, but has nearly transparent leaves freely flushed with pink, which are green at the margins. Crested Wave is one of the very transparent varieties that are so difficult to grow to perfection, but the specimen on view was admirable. Besides the handsome *Caladiums* there were *Streptocarpus* of an excellent strain, many *Hydrangeas*, *Petunia* Mrs. John Campbell, double blue; and a great double rose-pink variety. A plant of *Carnation Bis Greenfield*, a variety, which has been the subject of recent correspondence in our pages, showed beyond question that it may be grown to produce an abundance of large, brilliant blooms.

A magnificent collection of *Hippeastrums* was shown by Lt.-Col. Sir GEORGE HOLFORD (gr. Mr. Clark), from Westonbirt. This is not the easiest of plants to arrange to great effect unless associated with miscellaneous plants, but with only the addition of *Cocos plumosus* and *Phoenix Roebelinii* Palms a most attractive exhibit was

made. The plants were all of the highest quality and included an excellent white variety and splendid examples of all the possible shades of colour.

Many plants of *Dracaena Deremensis* Bausei was shown by Mr. Bause to illustrate its value as a pot plant for general decoration. These were all sturdy and vigorous, and the broad, central white lines on the foliage stood out in sharp contrast to the dark green margins.

An extensive group, largely of excellent plants of *Schizanthus* was shown by Baron BRUNO SCHROEDER (gr. Mr. E. J. Henderson), Dell Park, Englefield Green. This was an excellent display, and besides the great number of perfectly-grown *Schizanthus*, included many good *Streptocarpus*, *Calceolarias* and *Hydrangeas*.

An uncommon style of arrangement was made by Messrs. SUTTON AND SONS to display a great quantity of flowering plants raised from their seeds. It was in a series of bays, and when, which was performed the case after the show opened, each section was viewed separately, it was an admirable method of displaying the different plants (see Fig. 149). Several large *Kentias* added to the grace and charm, and gave relief from the abundant bloom. At intervals large baskets of white *Gloxinia Her Majesty*, made pleasant breaks in the colour scheme. The many other plants used included *Clarkia elegans* Salmon Scarlet, as tall plants bearing countless numbers of flowers; a great variety of excellent *Salpiglossis*, tall plants of *Lavatera Loveliness*, many *Star Cinerarias*, the graceful *Lobelia tenuior*, *Dimorphotheca aurantiaca*, *Schizanthus* in great numbers, and *Phlox Drummondii* Bright Crimson.

The outline of the magnificent exhibit by Messrs. J. CARTER AND CO., was a large circle, with four smaller attendant rings. A great amount of thought must have been expended to bring this design to such a successful conclusion. The quality of the immense number of plants and the colour arrangement are deserving of the highest praise. The circle idea was carried to its logical conclusion, inasmuch as within the large circle was a series of smaller circles, which each contained such plants as *Stocks* Empress Elizabeth, Scarlet Brompton, White Brompton, various *Clarkias*, *Star Cinerarias*, *Delphinium Blue Butterfly*, *Coleus Cordelia*, *Streptocarpus*, long-spurred *Aquilegias* and *Schizanthus*. Midway around the large circle there were raised vases of excellent sweet Peas in distinct varieties.

Star Cinerarias in great variety were well shown by Messrs. WEBB AND SONS, who also exhibited equally good strains of the large-flowered type of herbaceous *Calceolarias*, *Schizanthus*, and a number of very pretty plants of *Rhodanthe maculata*.

MESSRS. STORRIE AND STORRIE also exhibited large-flowered *Cinerarias*, and these unfortunately displayed signs of distress after the long journey, but the individual flowers were very large and shapely.

The finest *Stocks* in the Show were associated with sturdy floriferous little bushes of *Schizanthus roseus compactus* by Messrs. DOBBIE AND CO. The *Stocks* were all of the variety Snow-drift, and each plant bore a tall, perfect pyramid of pure white fragrant flowers. *Schizanthus grandiflora* strain was contributed by Messrs. J. GODFREY AND SON, who also staged such show *Pelargoniums* as *Godfrey Heard*, *Topsy*, *Fascination*, and the *Prince*.

Interesting collections of zonal *Pelargoniums* were shown by several growers. Messrs. JARMAN AND CO. had such double-flowered sorts as *Dora Pasteur*, *Ville de Poitiers*, *W. Savory*, and the small pink Cactus-like *W. S. Bevis*. The CHALK HILL NURSERY CO. showed many trusses of good singles next to their magnificent plants of *Mimulus*. The *Pelargoniums* included *Maxime Kolvalesky*, *Mrs. J. Pearson*, *Goldfinch*, *Excelsior* and *Sir R. Batty*. Mr. R. J. CASE displayed *Pelargoniums* *Mrs. W. A. Cull*, *Dagata*, *Lady Warwick*, *Mrs. W. J. Case* and *Somerset Lad*; while Messrs. STUART, LOW AND CO. exhibited a group of useful bedding

varieties; and the BLAKENEY NURSERIES showed Ivy-leaved *Pelargonium* Sir Percy Blakeney.

An interesting collection of Australian plants was made by Messrs. STUART LOW AND CO. At the back there were many floriferous specimens of *Mimosa*, and they also showed the Bottle-brush tree (*Metrosideros floribunda*), and *Boronia elatior* with blue *Hydrangeas* and a small collection of *Phyllocactus*. A large circular group of excellent *Hydrangeas* was arranged by Mr. H. J. JONES. The large trusses of the Apple-blossom-pink Professor du Bois, which received an Award of Merit, were very prominent, as also was the deeper pink of *Etingelant*, the crimped petals of the white *Madame M. Moulrière*, and the intense blue of *Mons. Ghys*. A large bush of the graceful trailing *Lobelia Arethusa* was shown by Messrs. WALSHAW AND SONS.

Rock Gardens.

The customary space was devoted to the ever-popular Rock Gardens; but, on the whole, these were scarcely so successful as usual. In several instances the boulders were far too sparsely used, giving an unkempt appearance, which approximate the hill-tops around some of our southern seaside resorts rather than Alpine scenery.

One of the exceptions to the above was the rock garden by Messrs. G. G. WHITELEGG, LTD., on which it was fully evident a deal of understanding thought and skill had been expended. The tumbling hillside rocky stream (see Fig. 152) was one of the most delightful features of the show, and was in perfect harmony with the surroundings. No doubt in self-defence Mr. Whitelegg had roped in this charming rock garden, so a critical examination of the plants used was impossible, but the general effect was very good, and the most prominent species were *Sedum pilosum*, *Gentians*, *Lithospermums*, with dwarf *Phloxes* of amoena type, including the delightful pink-colour *Phlox Vivid*.

A very pleasant hillside rockery was made by Messrs. PULHAM, LTD., and here again it had been necessary to keep the visitors from over-running it. But the general arrangement was good and the waterfall, stream, and pool gave a most grateful cool and restful effect. In a little bog garden attached to the rock garden there were several *Irises*, *Rodgersias* and *Primulas*.

A low rock garden of pleasing outline was made by Mr. CLARENCE ELLIOTT, and in it he planted *Gentiana verna angulosa*, *Sedum spathifolium*, *S. sarmentosa*, and other sorts, with *Aquilegia flabellata* and *Viola gracilis* in happy association. A little colony of the upright Irish Juniper, and a group of *Alpina Auriculas* amongst the many plants were also very effective.

A stream tumbling down the hillside between rocky boulders and on into a pool with a moraine beyond was a good feature in the rock garden exhibit of Messrs. R. TUCKER AND SONS. The Moraine contained such plants as the *Morissias*, *Phlox Douglasii*, *Edraianthus pumiliorum*, and *Erodium cicutarium*. The grey-toned boulders were very restful and well adapted to display the very appropriate plants set amongst them.

Rock gardens which were noteworthy more for the boulders they contained than for their disposal or for the planting amongst them were made by Capt. SYMONS-JEUNE, Mr. J. WOOD and Messrs. HODSONS, LTD. Part of Mr. Wood's exhibit was a miniature thin Larch plantation, but the colony of *Gentians* was very attractive.

At the Ranelagh end of the Rock Gardens there was a very pleasant herbaceous border arranged by the MAYTHAM GARDENS. The design and general planting was quite good and received a deal of commendation. The Association of *Eucalyptus globulus* would not be everyone's choice, but the grey-green foliage was cool and restful and served as a good foil to the bright colours of the border flowers. Of the latter the most prominent were *Irises*, *Lupins* and dwarf *Phloxes*, and these were pleasantly interspersed with *Lavender* bushes in flower. At one end there was a blue corner composed of *Hydrangeas* and *Labellias*.

A small collection of *Auriculas* was staged by Mr. JAMES DOUGLAS. With few exceptions, it

was composed of alpine varieties, of which *Argus*, *Majestic*, *Kaffir*, and *Mildred Jay* is a selection.

A pool in a dell, as arranged by Messrs. R. WALLACE AND CO., provided a most cool and restful retreat from the heat for those who were fortunate enough to enter. The sides of the pool were planted with sufficient suitable species to give colour, which, with the tall *Rhododendron* and *Ghent Azaleas*, served to brighten it and dispel any gloom that might have suggested itself. On the way to the pool there were masses of *Rhododendrons*, *Azaleas*, *Enkianthus*, *Brooms*, and other flowering shrubs, backed by cool green *Pines* and *Cypresses*.

The well-designed rock garden, with stream and pool, designed by Messrs. KENT AND BRYDON, was in the nature of a surprise garden, for the winding path around the ample beds of *Rhododendrons*, *Azaleas*, and other flowering shrubs gave no promise of this delightful feature, though in themselves they were a great attraction. The disposal of the boulders and the planting in the rock garden was deserving of great

AND CO., attracted an immense amount of deserved admiration. It was a very ingenious and most successful effort. In the sunken centre the clock face was planted with *Violas* and *Daisies*, while the hour figures were of white *Iberis sempervirens*, set in squares of green grass, over which the long clock hours told the hours. The borders above the stone wall were filled with a brilliant display of the best *Darwin Tulips*, while beyond these were beds and borders of *Rhododendrons*, *Azaleas*, *Anchusa* *Dropmore* variety, and *Geums*. Altogether it was a very interesting, uncommon, and attractive garden.

Many beds and borders of floriferous *Rhododendrons*, *Azaleas*, *Ledums* and *Pittosporums* led the way to a sunken paved oval, where Messrs. WATERER, SONS, AND CRISP had the beds filled with *Tulips* and *Nepeta Mussinii*. The borders above the stone retaining wall were planted with numbers of excellent little bushes of *Rhododendron* *Pink Pearl*, which provided a feast of rich pink colour. At the back there were some excellent topiary specimens, which added to the attractions of the garden.

Lupins, *Aquilegias*, and *Iberis* was made by Mr. E. DIXON, while Messrs. R. NEAL AND SONS built a summer-house, together with a paved forecourt and pools, with water lilies, while at the sides they planted *Rhododendrons* and *Maples*, and in front made a low rock garden, in which the boulders were rather prominent.

Of the many formal gardens that by Mr. JAS. MACDONALD, to display a great variety of grasses was one of the most successful. The ornamental grasses include such genera as *Elymus*, *Eulalia*, *Holcus*, *Stipa*, *Glyceria*, *Agrostis*, and *Spartina*, and these were set in the perfect greensward, which was of rich green colour, and entirely free from weeds.

Tulip Committee

Present: Sir Daniel Hall (in the chair), and Messrs. H. V. Warrender, J. W. Jones, George Churcher, Herbert Smith, W. A. Milner, H. Backhouse, C. W. Needham, George Monro, P. R. Barr and Charles H. Curtis (Hon. Sec.).

FIRST-CLASS CERTIFICATE.

Tulip Carrara.—The first pure white *Darwin Tulip*. A sturdy grower with broad, white petals and yellowish-green stigma and anthers. Gained an Award of Merit in 1921. Shown by Messrs. BARR AND SONS.

AWARDS OF MERIT.

Tulip Dido.—This handsome, strong-growing *Darwin Tulip*, of soft orange colouring, heavily suffused on the outside with carmine-red is of good shape and size. Shown by Messrs. BARR AND SONS, and Messrs. DOBBIE AND CO.

Tulip Fantasy.—A glorious Parrot Tulip of glistening rich pink colour, shaded with orange pink on the inside of its ragged segments, and stained with brownish green on the outside of the three outer segments. This handsome variety was raised by Messrs. de Graaff Brothers, and shown by Messrs. BARR AND SONS, but an error has occurred, inasmuch as Messrs. Sutton and Sons received an A.M. for the variety in 1921.

Tulip Pheas.—A white variety, of rounded form and good substance, with pale green stigma and anthers. Rather short in the flower, but otherwise good. Shown by Messrs. BARR AND SONS.

GROUPS.

Rarely have Tulips been displayed in such quantity for a number of years at this show, the season, as a rule, being a little earlier than the present one. The blooms throughout were very clean and good, but the heat of the tents played havoc with the flowers. Not only did it cause them to open to a stage almost beyond recognition but the blooms of many varieties drooped their heads. Messrs BARR AND SONS, King Street, Covent Garden, filled a sixty-five feet table length with vases of Tulips, relieved with ornamental Acers. The very beautiful breeder Tulip, *Louis XIV.*, was particularly fine, as were also the flowers of Mrs. Farncombe Sanders, red; *Dom Pedro*, bronze; *Margaret*, blush; *Moonlight*, yellow; *Europe*, bright red; *The Bishop*, purple; *Bouton d'Or*, yellow; *Prince of Orange*, orange-red; and *Afterglow*, a beautifully shaded flower of Apricot bronze, and pink shades.

Messrs. R. H. BATH, LTD., Wisbech, staged a representative collection of May-flowering Tulips in the form of a ground group, the flowers arranged with sprays of Solomon's Seal and *Ornithogalum nutans*. The principal varieties were *Anthony Roozen*, pink; *Eclipse*, dark red; *Inglescombe Yellow*; *Zulu*, black; *St. Simon*, claret; *Golden Bronze*, King Harold, crimson; *Sir Francis Darwin*, red; and *Panorama*, a lovely breeder variety.

Messrs. DOBBIE AND CO., Edinburgh, excelled with a beautifully arranged group of epergnes, vases, and bowls of Tulips, set off against a black background and interspersed with trails of *Asparagus* and *Palms*. The flowers were of excellent quality, and were represented by such varieties as *Isis*, scarlet; *W. T. Ware*, yellow; *White Swan*; *Clara Butt*, pink; *Erguste*, lavender; *Mrs. Moon*, yellow; *La Candeur*, nearly white; *Europe*, scarlet; *Inglescombe Yellow*; *Sir Harry Veitch*, crimson; and *Prof. Michael Forster*, red. Among Parrot Tulips,



FIG. 153.—PORTION OF MESSRS. R. WALLACE AND CO'S. IRIS GARDEN AT THE CHELSEA SHOW (SHERWOOD CUP). (SEE PAGE 276.)

praise. In view of the type of garden, the planting was done with a wise restraint, and while the association of *Gentians* and dwarf *Junipers* may not appeal to the purist it was exceedingly effective. In the garden itself the breadths of *Phlox canadensis*, *Lithospermums*, and *Saxifrages* were very successful.

Formal Gardens.

A sunken Rose garden, intersected by a canal, widening to a square pool in the centre was the motif of a charming garden set out by Messrs. J. CHEAL AND SONS. The eight rectangular Rose-beds were filled with such graceful little polyantha varieties as *Ellen Poulsen*, *Jessie*, *Mr. W. H. Cutbush*, and the bright *Triomphe d'Orleans* (see Fig. 151). There was ample green sward, and a low retaining wall bounded a border, which contained dwarf *Lavenders* and *Nepeta Mussinii*. Beyond the flagged terrace walk there was a border of such herbaceous plants as *Trollius*, *Lupins*, *Polemonium coeruleum*, various *Irises*, and *Spiraea Queen Alexandra*. A well-built pergola, with a border of *Roses*, *Rhododendrons* and *Azaleas*, separated the garden from the topiary, which is referred to elsewhere.

The clock garden, made by Messrs. JAS. CARTER

The outdoor Iris garden planted by Messrs. G. BUNYARD AND CO. attracted a deal of admiration. The arrangement served to display a great variety, chiefly of the germanica section, to great advantage, and many visitors were charmed by the central sundial, and the plants around it. Of the very many *Irises* we selected the following as being typical and desirable sorts: *Princess of Wales*, *Kharput*, *Dr. Bernice*, *Innocenza*, *Hector*, *Azure*, *Raffet*, *Lord of June*, and *Crusader*.

Although primarily designed and made to display the value of the stone from his quarries, Mr. HERBERT JONES succeeded in having one of the most fascinating gardens in the show. It was in the style of an old orchard Tudor garden (see Fig. 150), with a small stream enclosed by an old thatched wall, and containing a charming garden house. As was proper, the planting was lightly done, and it was made a very desirable haven during the broiling weather. Stonework was the chief feature in the formal garden by Messrs. BOTANICUS, LTD., while the EN TOUT CAS CO., MESSRS. GAZE AND SONS, and Mr. A. D. THOMPSON made formal gardens to contain their special forms of hard-courts for tennis.

A sunken garden planted with *Violas*, *Saxifrages*,

Sensation and Markgraaf attracted attention, and Carrara was a beautiful white flower, a cross, we believe, between White Swan and a Darwin variety. Adjacent, the same firm displayed the new white Stock, Snowdrift, a magnificent variety, represented by finely grown specimens, arranged a little too stiffly amongst a groundwork of neat plants of Schizanthus roseus compactus.

Messrs. RYDER AND SON (1920), LTD., St. Albans, also contributed Tulips in fine selection and quality, Bartigon, red; Rosabelle, rose pink; Louis XIV., bronze purple; Centenaire, pink; King George V., scarlet; and Baronne de la Tonnyaye, pink; were some of the varieties used.

Vases of Tulips were exhibited by Mr. ALFRED DAWKINS, Kings Road, Chelsea, and very fine blooms of Madame Krelage, rose pink; Ellen Willmott, yellow; Pride of Haarlem, purplish red; and Mrs. Farncombe Sanders, red, were on view. The same firm also showed some charming Dutch Irises, including Rembrandt, deep blue; Anton Mauve, pale blue; and Hartz, pale blue with white falls. Iris filifolia, in dark and pale blue form, was also represented. High quality Tulips were also staged by THE ANGLESEY BULB GROWERS' ASSOCIATION, Llanfair, P.G., Anglesey, the flowers being arranged in pretty decorative baskets. Emerald Gem, rose flushed salmon; Lord Cochran, bronze; Andromaque, rose purple; Bouton d'Or, yellow; Clara Butt, pink; Zwanenberg, a new white Darwin with black stamens; Louise de la Valliere, rose; W. T. Ware, deep yellow; and Louis XIV., dark purplish bronze, were a few of the varieties represented by high-class blooms. Messrs. RICH AND CO., Bath, also showed Tulips of which Pride of Haarlem, La Merveille, Wona Wona, Rev. Ewbank, Negro, and Inglescombe Yellow were a few of the best.

Fruit and Vegetable Committee.

Present: Messrs. A. H. Pearson (in the chair), W. H. Divers, W. Bates, Owen Thomas, G. Reynolds, A. Bullock, J. G. Weston, E. Neal, J. Cheal, Geo. Berry, H. S. Rivers, W. Crump, J. Basham, S. B. Dicks, J. Harrison, W. F. Giles, E. A. Merryweather, A. C. Smith, P. C. M. Veitch, E. A. Bunyard, H. Prince, J. C. Allgrove, E. Beckett, T. Pateman, J. Gibson, G. F. Tinley and F. Jordan.

FRUIT.

Messrs. GEO. BUNYARD AND CO., LTD., Maidstone, staged fifty-six varieties of Apples, all of remarkably fine quality considering the lateness of the season, and staged in a most pleasing manner, with Palms and Ferns as foils. The outstanding varieties were Encore, Wagener, Sturmer Pippin, Beauty of Stoke, Adams's Pearmain, Striped Beefing, Hornead Pearmain, Brownlee's Russet, Royal Russet, and Alfriston.

Messrs. LAXTON BROS. showed baskets of Strawberries representing their latest and best varieties. The round-fruited Sir Douglas Haig variety was exceptionally fine, pot plants carrying heavy crops of ripe berries. This is one of the best flavoured of the early varieties, and takes on a very dark colour. Lord Beatty is a wedge-shaped, paler variety, recommended for its heavy cropping and good flavour. Others shown were The Duke and a first early—Maréchal Foch—with the "Viscountess" flavour.

Messrs. T. S. RIVERS AND SON, Sawbridge-worth, showed pot fruit trees grown in orchard houses. The plants were perfect specimens, and well fruited, but not so forward as some we have seen from this firm on previous occasions, the season having been unfavourable. For this system of cultivation Peaches, Nectarines and Figs are eminently suitable, and the varieties shown were those which answer best for the earliest cropping, such as Duke of York Peach, Cardinal Nectarine, and Brown Turkey Fig.

Messrs. S. SPOONER AND SONS, Hounslow, staged, in the open, finely trained pot trees of Gooseberries and Currants.

VEGETABLES.

The only exhibit of vegetables was a collection from the Hon. VICARY GIBBS' gardens at Aldenham, and Mr. BECKETT well maintained his high reputation both for skill in cultivation and effec-

tive method of displaying the various dishes, for it was as attractive as a floral group. The exhibit was self-contained, on a table with a pale green ground, which harmonised well with the vegetables and with the fancy stands of varying heights. The variety and quality of the subjects was remarkable so early in the season, and in a year when it is difficult for the exhibitor to attain such perfection, practically every available kind of vegetable was included. The dish of Oxalis tuberosum, which was of a rich red colour, attracted much notice.

AWARDS MADE BY THE COUNCIL.

SPECIAL SILVER CUPS.

Sherwood Cup, for the most meritorious exhibit in the show: to Messrs. R. WALLACE AND CO.

"Daily Graphic" Cup, for rock garden: to Messrs. PULHAM AND SONS.

Cain Cup, for the best exhibit by an amateur: to the Hon. VICARY GIBBS (gr. Mr. Ed. Beckett).

ORCHIDS.

Gold Medal.—To Sir JEREMIAH COLMAN, Bart. (gr. J. Collier), and Messrs. CHARLESWORTH AND CO.

Small Silver Cup.—To Messrs. STUART LOW AND CO.

Silver-Gilt Flora Medal.—To Messrs. JAMES CYPHER AND SON; to Messrs. JAMES AND A. McBEAN; and to Messrs. SANDERS.

Silver-Gilt Banksian Medal.—To Messrs. MANSELL AND HATCHER, LTD.

Silver Banksian Medal.—To Mr. H. DIXON; and to Messrs. FLORY AND BLACK.

ROCK GARDENS.

Gold Medal and Congratulations.—To Messrs. R. TUCKER AND SONS.

Large Silver Cup.—To Messrs. G. G. WHITE-LEGG AND CO.; and to Mr. B. H. B. SYMONS-JEUNE.

Silver-Gilt Flora Medal.—To Messrs. HODSONS, LTD.; and to Messrs. KENT AND BRYDON.

Silver-Gilt Banksian Medal.—To Mr. CLARENCE ELLIOTT.

TULIPS.

Gold Medal.—To Messrs. DOBBIE AND CO., LTD.

Large Silver Cup.—To Messrs. BARR AND SONS.

Small Silver Cup.—To the ANGLESEY BULB GROWERS' ASSOCIATION.

Silver-Gilt Banksian Medal.—To Messrs. R. H. BATH, LTD.

Silver Flora Medal.—To Messrs. RYDER AND SON, LTD. (Tulips).

Silver Banksian Medal.—To Messrs. RYDER AND SON, LTD.

FORMAL GARDENS.

Gold Medal.—To Messrs. G. BUNYARD AND CO., LTD.

Small Silver Cup.—To Mr. H. JONES; and to Messrs. R. WALLACE AND CO.

Silver-Gilt Flora Medal.—To Messrs. J. CHEAL AND SONS; to Messrs. W. H. GAZE AND SONS, LTD.; and to Messrs. JOHN WATERER, SONS AND CRISP, LTD.

Silver-Gilt Banksian Medal.—To Mr. E. DIXON; to EN-TOUT-CAS; to Messrs. GILLIAM AND CO.; to Messrs. R. NEAL AND SON; and to Messrs. JAMES CARTER AND CO.

CARNATIONS.

Gold Medal.—To Messrs. ALLWOOD BROS.

Allwood Bowl.—To Rt. Hon. LORD LAMBORNE, C.V.O.

Large Silver Cup.—To Mr. C. ENGELMANN.

Silver-Gilt Flora Medal.—To Messrs. WM. CUTBUSH AND SON; to Messrs. STUART LOW AND CO.; to Mr. JAMES DOUGLAS; to Mr. H. LAKE-MAN; and to Mr. C. H. HERBERT.

Silver-Gilt Banksian Medal.—To Messrs. K. LUXFORD AND CO.

SWEET PEAS.

Gold Medal.—To Messrs. DOBBIE AND CO.

Large Silver Cup.—To Messrs. ALEX. DICKSON AND SONS, LTD.

Silver-Gilt Banksian Medal.—To Messrs. R. BOLTON AND SON; and to Messrs. IRELAND AND HITCHCOCK.

Silver Flora Medal.—To Mr. J. STEVENSON.

TREES AND SHRUBS.

Gold Medal.—To Messrs. R. AND G. CUTBERT; to Messrs. R. WALLACE AND CO.; and to Messrs. JOHN WATERER, SONS AND CRISP.

Small Silver Cup.—To Messrs. R. GILL AND SONS.

Silver-Gilt Flora Medal.—To DONARD NURSERY CO.; to Messrs. WM. CUTBUSH AND SON; to Hon. H. D. McLAREN; to Mr. R. C. NOTCUTT; to Mr. G. REUTHE; to YOKOHAMA NURSERY CO.; and to Messrs. J. CHEAL AND SONS, LTD.

Silver-Gilt Banksian Medal.—To Mr. J. C. ALLGROVE; to Messrs. FLETCHER BROS.; to Messrs. HILLIER AND SONS, LTD.; to Mr. T. LEWIS; and to Messrs. STUART LOW AND CO. (Hardy plants).

Silver Flora Medal.—To Messrs. JOHN WATERER, SONS AND CRISP, LTD.

ROSES.

Large Silver Cup.—To Messrs. WM. PAUL AND SON, LTD.

Small Silver Cup.—To Mr. ELISHA J. HICKS.

Silver-Gilt Flora Medal.—To Messrs. B. R. CANT AND SONS.

Silver-Gilt Banksian Medal.—To Messrs. WM. CUTBUSH AND SON; and to Messrs. G. PAUL AND SONS.

Silver Flora Medal.—To Messrs. F. CANT AND CO.; and to Mr. G. PRINCE.

Silver Banksian Medal.—To Rev. J. H. PEMBERTON; and to Mr. CHARLES TURNER.

HARDY PLANTS.

Gold Medal.—To Messrs. M. PRITCHARD AND SONS (Alpines).

Large Silver Cup.—To Messrs. G. JACKMAN AND SONS (Clematis and Herbaceous plants); to Messrs. BEES, LTD. (Herbaceous plants).

Small Silver Cup.—To Messrs. STORRIE AND STORRIE.

Silver-Gilt Flora Medal.—To Mr. J. C. ALLGROVE (shrubs and flowers); to Messrs. BAKERS, LTD. (Herbaceous plants, Alpines and Shrubs); to Messrs. BOWELL AND SKARRAIT (Herbaceous plants, Alpines and Shrubs); to Mr. CLARENCE ELLIOTT (Alpines); to Messrs. MAXWELL AND BEALE (Alpines); to Mr. G. REUTHE (Alpines); and to Messrs. R. TUCKER AND SONS (Herbaceous plants and Alpines); to Mr. AMOS PERRY (Ferns and Herbaceous plants); to Messrs. H. J. JONES, LTD. (Hydrangeas); and to Messrs. JOHN WATERER, SONS AND CRISP (Irises, Herbaceous and Alpine plants).

Silver-Gilt Banksian Medal.—To Messrs. G. AND A. CLARE, LTD.; and to Messrs. J. PIPER AND SONS (Flowering plants); to Messrs. CARTER PAGE AND CO. (Alpines); to Messrs. J. CHEAL AND SONS, LTD. (Alpines); to Mr. R. PRITCHARD (Alpines); and to Messrs. JOHN WATERER, SONS AND CRISP (Alpines and Herbaceous plants).

Silver Flora Medal.—To Messrs. B. LADHAMS, LTD.; to Messrs. W. H. ROGERS AND SONS; to Mr. W. WELLS, Junr.; to Messrs. SKELTON AND KIRBY; to Mr. L. SCAPLEHORN; to Messrs. RICH AND CO.; to Mr. H. HEMSELEY (Alpines); and to the Misses HOBKINS (Alpines).

Silver Banksian Medal.—To Mr. G. R. DOWNER; to Mr. G. W. MILLER; to Messrs. G. G. WHITELEGG AND CO. (Lilacs); to Messrs. JOHN PIER AND SONS (Clematis).

VEGETABLES.

Gold Medal and Congratulations.—To the Hon. VICARY GIBBS (gr. Mr. E. Beckett).

FRUIT.

Gold Medal.—To Messrs. G. BUNYARD AND CO. (Apples).

Silver-Gilt Hogg Medal.—To Messrs. RIVERS AND SON, LTD. (fruit trees in pots).

Bronze Hogg Medal.—To Messrs. LAXTON BROS. (Strawberries).

MISCELLANEOUS.

Gold Medal.—To Messrs. BLACKMORE AND LANGDON (Begonias); to Sir GEORGE HOLFORD, K.C.V.O. (gr. Mr. Clark) (Amaryllis); to Mr. L. R. RUSSELL (Stove plants); to Mr. JAMES MACDONALD (Grasses); to Messrs. JAMES CARTER AND CO. (Flowering plants); and to Messrs. SUTTON AND SONS (Flowering plants).

Silver-Gilt Lindley Medal.—To Mr. E. BECKETT, for cultivation; to Mr. JOHN MACWATT (Primulas); and to Mr. H. CUNNINGHAM, for cultivation.

Small Silver Cup.—To Messrs. DOBBIE AND CO. (Schizanthus and Stocks).

Silver-Gilt Flora Medal.—To Messrs. JOHN PEED AND SONS (Stove and Greenhouse Plants); to Messrs. FROMOW AND SONS (Clipped trees); and to Mr. L. R. RUSSELL (Mixed group); to BARON B. SCHRÖDER (gr. Mr. E. J. Henderson) (Flowering plants).

Flora Medal.—To Mr. R. ELLISON (Cacti, Ferns and Palms); to Mr. J. KLINKERT (Clipped trees); to MATTHAM GARDENS (Herbaceous border); to Messrs. WM. CUTBUSH AND SON (Clipped trees); and to Mr. A. F. WOOTTEN, K.C. (Show Pelargoniums).

Silver Banksian Medal.—To Messrs. WEBB AND SON (Flowering plants); to Messrs. STORRIE AND STORRIE (Cinerarias); to CHALK HILL NURSERIES (Mimulus, Pansies, Pelargoniums).

Bronze Flora Medal.—To Messrs. JARMAN AND CO. (Geraniums, Violas, etc.); and to Messrs. GODFREY AND SON (Pelargoniums, Schizanthus, etc.).

Obituary.

J. Garton.—It is with deep regret we learn of the death of Mr. J. Garton, of Messrs. Garton's, Seedsmen, Warrington. He died at his residence, Hafryn, Upper Colwyn Bay, on Tuesday, the 16th inst., following an illness of several weeks. He was born at Newton-le-Willows, in 1863, and very early in life was interested in the reproduction of farm plants, gaining knowledge which he put to great service in the raising of cereals and other farm crops. His success in plant breeding is known to the whole English-speaking agricultural world through results obtained by crossing numerous species and varieties of Oats, including wild Oats, by means of which he introduced vigour of constitution and great yielding capacity to the new breeds, materially improving the food-producing capacity of the best arable soils. He also raised new Wheats, Barley and roots, including Potatoes. In 1892, he introduced a new breed of white Oat, named Abundance, the result of a cross between White Agusut and White Swedish, and this variety is one of the most extensively grown in the country. Mr. Garton was awarded the Gold Medal of the Highland Society of Scotland, and he won Gold Medals at the Chicago Exhibition, the Paris Exposition, and the Brussels Exhibition. The Senate of Edinburgh University proposed to confer the honorary degree of LL.D. on Mr. Garton, in recognition of his life's work, and this degree, had he lived, would have been conferred on him in Edinburgh in July next. On more than one occasion the Department of Agriculture in the United States invited Mr. Garton to lecture in that country, but pressure of his own research work prevented his acceptance of the invitation. The funeral took place at the Wargrave Cemetery, Newton-le-Willows, on Friday, May 19.

TRADE NOTES.

WITH a view to demonstrating still further the value of their Atco motor in connection with the mowing of lawns, cricket pitches, and football grounds, Messrs. Charles H. Pugh, Ltd., Whitworth Works, Birmingham, have made arrangements whereby clients may have an Atco motor attached to a push mower, thus converting it at once into a motor mower, which may be used by one man or a lad. Clients who find that the motor saves much time and labour may, if they so wish, subsequently have it built into an Atco body at a very reasonable figure. The possibility of having a push mower converted into a motor mower will doubtless attract many who have the care of extensive lawns, and especially at this season when grass grows with such rapidity.

THE Standard Terms and Conditions of Carriage, submitted by the railway companies, pursuant to Section 42 of the Railways Act, 1921, have been investigated by the Transport Sub-Committee of the Chamber of Horticulture. The railways' proposals were in many instances found to be distinctly disadvantageous to horticultural traders, and, consequently, objections have been lodged with the Tribunal, in addition to which the Chamber has associated itself with the objections in this respect lodged by the National Federation of Fruit and Potato Trades' Association. The existing terms and conditions may be found on the back of consignment notes, and any special modifications which readers may desire to press should be notified to the Secretary, together with full details.

Following the public meeting for the discussion of "General Principles," which was held on Tuesday last (May 23), notice is given that detailed objections to the proposed classification of goods (other than perishables) by passenger train must be lodged on or before June 7.

NEW INVENTIONS.

MR. H. E. AYCKBOURN, of the Atlantic Engineering Works, Northfleet, Kent, has designed a new type, self-propelled, double-purpose spraying machine, for the use of hop and fruit growers, capable of carrying about 100 gallons of liquid and 2 cwt. powder. The mechanism is so arranged that all or individual operations can be undertaken at will. It is possible to spray both powder and liquid simultaneously, and at the same time the machine can be made to travel; or, both spraying operations may be maintained whilst the machine is at rest.

It is intended to manufacture the machine in several types, self-propelled in all cases, but fitted in such a way that powder or liquid can be carried and sprayed in large quantities.

INQUIRY.

CAN any reader favour me with particulars of names and addresses of makers of the specially prepared terra-cotta or clay material used for surfacing the best constructed hard tennis courts. W. J. C.

ANSWERS TO CORRESPONDENTS.

CATTLEYA CITRINA: F. F. This Mexican Orchid is one which many have some difficulty in growing successfully. It produces its yellow flowers from May to August; they are large for the size of the plant, and very fragrant. It may be grown on blocks or in shallow pans, but in any case it must not be overburdened with material about the roots. A clean, fibrous compost as used for other Cattleyas is suitable for this species. It thrives with other Mexican Orchids; that is, the plants enjoy a fair amount of heat whilst making their growth, with a long, dry rest, and exposed to all the light possible the whole year round. Shading should only be used

to prevent scorching during the hottest and brightest part of the day, and then only in very hot weather. Close observation will show the best possible time to undertake any necessary re-potting or re-blocking. The plants should be made absolutely firm in either case, upon blocks by binding them firmly with fine copper wire, and in pans by placing the material firmly around them. The plants grow in a downward direction, and the flowers last a considerable time in perfection upon the plants.

GRAPES DISEASED: J. O. M. The berries are affected with spot disease, caused by the fungus *Gloeosporium ampelophagum*. Spray the vines and bunches with liver of sulphur, at the strength of $\frac{1}{2}$ oz. in two gallons of water, or dust flowers of sulphur on the leaves and bunches, and again at intervals of ten days. It has been found of service to thoroughly wet the rods with a solution of iron sulphate when the vines are dormant. Do not use an excessive amount of rich animal manures on the borders.

NAMES OF PLANTS: F. L. 1, *Cedrus Deodara*; 2, *Cedrus Libani*; 3, *Juniperus communis* var. *fastigiata*; 4, *Picea orientalis*; 5, *Stewartia pentagyna*; 6, *Thuja plicata*; 7, *Cupressus Lawsoniana* var. *ochroleuca*; 8, *Abies Pinsapo*; 9, *Pinus muricata*; 10, *Picea excelsa*.—W. H. C. An unnamed seedling variety.—C. H. *Veronica Hulseana*.—L. E. A. The specimen was very much shrivelled, but, judging by the colour, it would seem to be *Rhododendron Cunninghami* Sulphur.—D. W. C. *Rubus spectabilis*.—H. K. A. *Helleborus foetidus*.

RED SPIDER: J. D. C. The red spider enclosed is credited with being the parent of the objectionable harvest mite, which later in the year causes severe annoyance to human beings. The mite is at present in its adult state and is a common feature of gardens during the month of April. It belongs to the group called velvet mites, from the velvety surface of their bodies. Their food appears to be any dead animal matter, such as dead flies or other insects, but they do not attack living aphids. After pairing, their eggs are laid in the ground. The larvae are six legged, minute, red mites, which creep over vegetation, being apparently especially fond of climbing to the tops of cereals, grasses, weeds, etc. From this position human beings and warm-blooded animals detach them. The mites penetrate the skin, especially in any position where the clothes touch. Their burrowings cause excessive itching, but the victim has comfort in the thought that the mite always dies in this position. It probably only passes through to the adult state when chance puts it into contact with cold-blooded animals. During the winter the mites hibernate and reappear as soon as the weather becomes favourable in the spring.

TOMATO SEEDLINGS DYING: Correspondent. The trouble is due to the disease commonly known as "damping off," which is caused by a fungus, a species of *Phytophthora*, and infection may have arisen from the soil, seed, boxes, pots, or water supply. A solution of copper sulphate and ammonium carbonate should be used as a spray, in the proportion of two oz. of copper sulphate to eleven oz. of ammonium carbonate. Both the chemicals should be reduced to a fine state by crushing. Use the specific at the rate of one oz. to two gallons of water, putting one oz. of the dry mixture in a little hot water and adding the two gallons of water. Do not use vessels of iron, tin or zinc, as it would corrode them. The fungicide will not save any of the plants that are already attacked. Take care to thoroughly sterilise the soil, boxes or pots used for Tomato seedlings, and well water the soil with the solution after sowing and covering the seeds. The frame you mention would be suitable for growing either Melons or Cucumbers, provided the cultural details are satisfactory.

Communications Received.—F. K. W.—S. F. D. H.—G. W. C.—A. S.—Ficus—A. B. H.

THE Gardeners' Chronicle

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 57.1.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, May 31, 10 a.m. Bar, 30.4; temp, 70°. Weather—Sunny.

Plant Sensitiveness.

Since Charles Darwin wrote the series of delightful books dealing with various aspects of plant sensitiveness, as illustrated by climbing and insectivorous plants, and by the movements of plants, little has been done to bring advancing knowledge of this branch of plant physiology to the notice of the general public. It is true that Sir Francis Darwin, whose researches have contributed so much to our knowledge of plant sensitiveness, has written in his own inimitable style on the movement of plants, but his presentation of the subject was deliberately in the interests of the student rather than in those of the general public. If we may judge from the interest taken by those who attended the lectures on plant sensitiveness given recently by Professor Keeble at the Royal Institution, the time is opportune for the publication of a new work on that subject which would summarise in readable style the many new and remarkable facts concerning the ways in which plants adjust themselves to, and maintain their adjustments with their environment. Few people, even among those interested in natural history, realise the extraordinary sensitiveness of plants to those external changes which are called stimuli, or know that this sensitiveness is reflected in incessant movements of adjustment carried out by plants. Everyone is aware of the remarkable and rapid movements of the leaves of the Sensitive Plant, *Mimosa pudica* and allied species, and of the no less sensitive *Neptunia oleracea*; but few realise that these plants only give extreme expression to the powers of movement which

exist in all plants. One reason for the common and erroneous view that plants are relatively passive—in comparison with animals—is doubtless that the machinery of plant-movement is more clumsy, more primitive and less capable of rapid action than is the machinery of muscle-nerve of the animal kingdom. This is true even of the rapidly-executed movements of *Mimosa* and of tendrils. Although the motor mechanism of plants, which is a hydraulic mechanism, lacks the power of effecting extremely rapid movements, and although the transmission of excitation from one point to another in a plant never shows the swiftness which characterises transmission by the nerves of animals, this is not to be ascribed to a lack of quick and delicate "perception" on the part of plants, but rather to a "deliberate" adaptation on the part of plants. Fixed in position by their roots, they cannot run away, but can only turn away from inimical surroundings. Since their adjustments are directed in the main to securing the most favourable position for root, stem and leaf, it would never do for the plants to take cognisance of every insignificant and transitory change in their environment. Otherwise each breath of wind, every passing shadow of a cloud, every rain-drop falling, say, on a tendril, would distract the plant from its proper purpose of "growing into" its environment, and would lead to movements which would have at every moment to be reversed and corrected by others in an opposite sense. That this view is probably correct may be judged from the fact that in delicacy of perception, as opposed to rapidity of response, the plant may exhibit a sensitiveness as acute as, or even acuter than that of an animal. Thus a leaf will respond by curvature of its petiole to a difference of illumination on its two halves as slight, or almost as slight, as that which can be appreciated by the human eye. The latter organ is capable of perceiving a difference of one-hundredth in the intensities of two beams of light. With advancing age this sensitiveness becomes less and differences of only one-thirtieth are perceived; a leaf may perceive differences of one seventy-fifth. The sensitiveness to contact of a tendril is more delicate than is the human skin. The most sensitive of tendrils respond by greater curvature to the contact stimulus produced by the movement of a thread 0.0005 milligrams in weight, whereas the slightest pressure which the human skin can "feel" is about ten times as great. Modern physiology holds to the view that there are in the animal two distinct means whereby regulated movement and orderly growth are carried on. One is physical, by way of the nervous system, the other chemical, by way of the vascular system. There is ground for believing that in plants two corresponding systems also exist. One is chemical, and probably in all respects similar to that of animals. Specific substances manufactured by the tissues are distributed throughout the plant body, but produce specific effects only when they reach certain tissues. The other apparatus for plant reaction to stimuli is physical, and although nothing comparable with nerves exist in plants, there is a physical transmission of the results of stimulation which results in a distant tissue reacting to a local stimulus. Thus the base of the seedling or a grass may be seen to curve after the tip only of the seedling has been illuminated on one side. Cutting the "stem" of the seedling half-way through does not prevent transmission, but if a mica plate be inserted in the cut, no "impulse" passes. Evidently the plant uses a system of water transmission, but of the precise nature of the mode of transmission of the effects of stimulation to the motor region

little is known. There are grounds for believing that plants, like animals, possess special sense organs—localised apparatuses for receiving and recording stimuli. Thus in tendrils of the Cucurbitaceae tactile pits occur, and it is believed that these thin places of the outer cell wall serve to allow slight pressure to affect the living protoplasm beneath. In the response of plants to gravity cells (statocytes) containing movable starch grains are frequently found in those regions in which perception can be proved to occur, and many physiologists hold that "perception" of the stimulus of gravity consists in a disturbance of the protoplasm of these statocytes due to the falling of the starch grains which takes place when the organ containing the statocytes is displaced from its previous position in space. It is perhaps not too fanciful to believe also that the papillose outgrowths of the epidermal cells of the leaves of plants serve as organs of light perception—functioning by focusing the light on the floor of the cell. If the leaf is moved, the spot of light moves, and this disturbance being reflected in a disturbance of the protoplasm leads to excitation of this highly sensitive living material and hence, and speedily, by unknown ways to a movement of adjustment of the leaf stalk, so that the blade is once again brought back to its former position in which the spot of light is "centred." Whether these views are accepted or no, it is abundantly clear that "sensitiveness" is fundamentally the same phenomenon in plants and animals, consisting of a series of operations which include perceptive excitation of the cells of the perceptive zone, transmission of the results of that excitation to, it may be, a distant tissue which, undergoing in its turn excitation, undergoes movement or responds in some other way to that message from the outer world which is called a stimulus.

Our Coloured Plate.—With the present issue we publish a coloured plate of *Codiaeum B. Comte*, one of the most handsome of the broad-leaved plants so popular a few years ago for table decoration and known in gardens as *Crotons*. *Codiaeum B. Comte* is described in an article on *Codiaeums*, by Mr. J. Heal, on page 291.

The Next R.H.S. Meeting.—The attention of our readers is drawn particularly to the date upon which the next meeting of the Royal Horticultural Society will be held at Vincent Square, Westminster. It is usual for the Committees to meet on a Tuesday, but next week they will meet at the usual hour, but on Wednesday, June 7, as a consequence of the Whitsuntide holiday.

Severe Damage by Hailstorms.—During the afternoon of May 25 many parts of the country were visited by storms of varying severity, often accompanied by hail. Mr. Mark Mills informs us that during his forty years' experience at Coombe House Gardens, Croydon, he has never seen such a storm as that which occurred about 3.15 p.m. on the above date. He writes that although little wind accompanied the hailstorm over 200 panes of twenty-one ounce glass were broken while young Figs on walls, Gooseberries, Currants, and Pea pods were stripped, and the spikes of Horse Chestnut, Laburnum, and Lilac were cut off with, in most cases, the first leaf attached. May-flowering Tulips and Aquilegias were cropped down closely to the ground. Apples, Pears and Plums suffered considerably, and the young cones from the Cedars of Lebanon were broken off and spread on the ground in hundreds. The hailstones were the largest ever seen in the district, perfectly round, and many of them measured 1½ inch in diameter. Mr. R. G. Pringle writes that the scene in the gardens at Hall Place, Tonbridge, after the passage of the storm,

legged description. Vegetable crops were completely ruined, fruit trees and bushes which were carrying splendid crops were stripped of their fruit and most of their foliage, while over 400 panes of glass were broken in the houses and frames. Some of the hailstones were as large as full-sized Walnuts. In some instances the hailstones appear to have been very local, thus Piccadilly was white with hail for nearly a quarter of an hour, and the pavement next the Green Park was strewn with pieces of light green foliage cut from the trees by the hailstones, which were about the size of ordinary marbles, but at Chelsea there was very little hail, although a considerable amount of rain fell in a short time. At Bedale, in Yorkshire, a severe hailstorm occurred during the earlier part of the week, and damage was done in the nurseries of Messrs. Harkness and Sons and Messrs. Gibson and Son of that town.

British Horticulture and Quarantine Order No. 37.—Mr. W. G. Lobjoit, Controller of Horticulture, who represented British horticultural interests at the Plant Conference held at Washington on May 15, has sent a letter to the Ministry of Agriculture from which we learn that an effort was made to prevent British, Dutch, Belgian, and other delegates from expressing their views with regard to Quarantine No. 37 and a possible extension of this order. As, however, the conference was a public one, it was not possible to exclude foreigners, consequently their points of view were placed before the meeting. Eventually, an arrangement was made whereby the authorities representing the U.S.A. Board of Agriculture should meet the Federal Horticultural Board and the foreign delegates to consider the matter further. In view of the fact that the conference did not prohibit further discussion, there is ground for hope that an extension of the present Quarantine arrangements will not be imposed, but for the present it may be too much to expect any serious modification of the Order already in operation. However, the door is still open, and something useful may result from the pourparler which followed the conference. We learn from another source that the speech made by Mr. W. G. Lobjoit when presenting the claims of British horticulture for consideration, created an excellent impression and even appeared to convince Dr. Marlet that Britain was at least taking as many risks in importing horticultural produce from the United States as was the latter in admitting exports from Great Britain. These risks on either side could, Mr. Lobjoit asserted, be reduced to a minimum by the granting of a certificate of health on lines to be mutually agreed on by the Pathological Services of the two countries.

Earliest Out-door Strawberries.—On Tuesday, the 23rd ult., the first consignment of out-door Strawberries from the Southampton district reached Covent Garden, and was sold at 7s. per lb.

Re-opening of Cirencester Agricultural College.—Mr. M. J. R. Dunstan, who for twenty years was head of the Agricultural College at Wye, has been appointed to re-organise and develop the Royal Agricultural College at Cirencester, which will be re-opened during the autumn. The council has adopted a programme especially adapted for the training of landowners, farmers and others aiming at a career on the land, and the scheme of education will be more commercial and economic in its nature and application, rather than specialising in science, as it is recognised that other existing colleges provide ample facilities for that branch of education.

Cambridge Botanic Garden.—The Botanic Garden Syndicate of Cambridge states that the garden has reached a state of acute financial difficulty, and that an advance of £1,000 on the previous income is needed to carry on the garden, even at its present level of efficiency. The trouble is caused by the greatly increased costs in every direction. Mr. Reginald Cory, of Duffryn, has made a generous gift of £1,000, besides other generous benefactions, and Mr. Lionel de Rothschild and Sir R. Waley Cohen have also afforded financial help, but in spite of this assistance the income is inadequate.

Mr. H. G. Alexander.—Among Orchid growers who have charge of private collections, Mr. H. Alexander, of Westonbirt Gardens, occupies a foremost position; indeed, as a cultivator and raiser combined, he has no superior. He commenced his horticultural career in a small nursery on the outskirts of his native city of Bath and subsequently was employed by the late Rev. H. Handley. Leaving Bath in 1894, he entered the service of the late Mr. Broom at Sunny Hill, Llandudno, where Mr. Shill, now of Egham, then had charge of the Orchid collection. It was not long, however, before Mr. Alexander became foreman in the late Capt. G. W. Law Schofield's gardens at Rawtenstall, a position he occupied for three years. After leaving Rawtenstall he was appointed Orchid foreman at Blenheim Palace, where he remained for a short period, and in April, 1899, went to Westonbirt to take charge of Sir George Holford's collection of Orchids. His success has been phenomenal, but he would be the first to acknowledge that, with regard to the construction of the houses, the atmosphere at Westonbirt, and, above all, the intense interest Sir George Holford takes in the collection and the encouragement received from him, he has a combination of favourable circumstances not given to every grower. In



MR. H. G. ALEXANDER.

the year 1900 Mr. Alexander commenced to raise seedling Orchids, and evidence of the success that has attended these efforts may be gathered from the statement that twenty-one Cattleyas, twenty-six Laelias, Laelio-Cattleyas, or Brasso-Cattleyas, eighteen Cypripediums, six Odontoglossums, four Cymbidiums and fourteen other Orchids from the Westonbirt collection have obtained the First-Class Certificate of the Royal Horticultural Society, and, out of this total of ninety-two Orchids, fifty were raised at Westonbirt. No fewer than 149 Awards of Merit have been obtained, including thirty-two for Cattleyas, forty-three for Laelias, Laelio-Cattleyas, or Brasso-Cattleyas, twenty-eight for Cypripediums, seven for Sophronitis hybrids, sixteen for Odontoglossums, seven for Cymbidiums, and sixteen for miscellaneous kinds, and ninety-seven of these were given to plants raised at Westonbirt. From the cultural point of view Mr. Alexander's success has been no less remarkable, as he has received fifty-six Cultural Commendations from the R.H.S., and a silver-gilt Lindley Medal, which is an award granted for high cultivation. Mr. Alexander's first attempt to stage an Orchid group of any importance was made in 1902, when a Gold Medal was awarded. He staged large groups of Orchids at the Ghent Quinquennial Exhibi-

tion, 1908, the York Jubilee Show, and at the Royal Agricultural Society's exhibitions at Gloucester and at Bristol, but his greatest effort was at the International Exhibition of 1912, where the Westonbirt Orchids occupied a space of over 1,100 square feet and were awarded the King's Cup. At the same exhibition the William Bull Cup and the Hye de Crom Cup were also won by Sir George Holford's Orchids. Other special awards for groups include a silver cup at the Temple Show in 1904, the Veitch Cup at the Temple show, 1907, a silver cup at the R.H.S. Autumn Show in 1912, and a silver-gilt cup at Holland House Show in 1914. Altogether, up to date, Mr. Alexander's ability as a grower, raiser, and exhibitor have won for Sir George Holford's collection of Orchids thirty gold medals, one silver-gilt Lindley medal, twelve Lindley medals, thirty silver medals, and the seven cups already referred to. The Westonbirt Orchids occupy twenty-seven houses, but when Mr. Alexander went to Westonbirt in 1899 the collection was contained in four houses. During the war the greatest difficulty was experienced in maintaining the collection, as the whole of Mr. Alexander's staff, with the exception of one unfit man, served with the colours, but with the aid of this one man, two boys, and two girls the collection was kept in being, and that it suffered no irreparable damage has been made evident by the magnificent displays, especially of Cymbidiums, made during the current year. Mr. Alexander's methods of cultivation are not always orthodox, but they are effective, and the superb condition of his plants is a cause for wonder to those who have had the privilege of a visit to Westonbirt.

American Iris Society's Medal.—At the Royal Horticultural Society's Iris meeting on June 7 and 8 there will be offered for competition the silver medal of the American Iris Society. This will be awarded to the best collection of twelve varieties already in commerce.

Chestnut Sunday.—The flowering of the magnificent Chestnut trees in the long avenues at Bushey Park results in a great pilgrimage to Hampton Court yearly by Londoners when the trees are at their best, and as most of London's workers make their visit on a Sunday, there has been for many years past a Chestnut Sunday, although, of course, the date varies each year. This spring the Chestnut trees are nearly a month late; two years ago they were at their finest during the early days of May, and there was another early celebration last year. The many thousands of people who journeyed to Hampton Court last Sunday were rewarded by a magnificent display of blossom and brilliant weather. From early morning the highways leading to Hampton Court were thronged with traffic, but many visitors chose the river route, travelling by steamer. Beside the beautiful Chestnuts in Bushey Park, the gardens of Hampton Court Palace were gay with Hawthorns, Laburnums, Rhododendrons, and other beautiful plants, while hardy border plants have made remarkable progress during the past week or so, and the earliest of these were also in bloom.

Decorations at Holyrood Palace.—In connection with the visit of the Lord High Commissioner of Scotland, His Grace the Duke of Sutherland, to Holyrood, the precincts of the palace were decorated by Messrs. T. Methven and Sons. On either side of the main entrance to the courtyard the grey walls and the pillars of the piazza were decorated with flowering plants, such as Wistarias, Lilacs, Hydrangeas, scarlet Geums and Rhododendrons, with a setting of Bamboos and Japanese Acers. The quadrangle was brightened with groups of Laburnum, Privet and evergreens, interspersed with Rhododendrons. The scheme of decoration also included some of the more important rooms and the fine staircase.

Conveyance of Pot Plants by Passenger Train.—In view of the very severe disabilities under which the pot-plant industry labours, owing to the high railway rates charged for the conveyance of pot plants by passenger

NOTES FROM IRELAND.

MAY neared its end in the most amiable of moods, crowned with a wealth of blossom, in which the Apple was most conspicuous.

Rarely, indeed, has the Apple risen to such supreme heights of floral profusion; commencing with the warm-toned Irish Peach, a favoured variety around Dublin, the climax seemed to come in Bramley's Seedling, studded with clusters of huge, cooler-hued flowers, and all smiling with exuberant vitality.

Examinations for the Certificate in Horticulture (Ireland) will be repeated on the lines of those held last year, under the auspices of the Department of Agriculture, during July. Applications of intending candidates must be sent to the Secretary, Department of Agriculture, Upper Merrion Street, Dublin, by June 17. These examinations, initiated last year, were well attended, with satisfactory results.

At the May meeting of the Royal Horticultural Society's Council, held at the offices, 5, Molesworth Street, Dublin, Mr. F. Streeter,

rock, the branch of an old firm with a new name under new conditions, with Mr. Andrew Dickson as proprietor and manager.

This is the time of Tulips, and the bedding in the People's Gardens is this year confined to these bulbs, including, of course, the delightful Darwins. Dublin dwellers have such a feast of colour as has not been possible since pre-war days, and it was a happy thought of Mr. Anderson's to concentrate on a time when the public are lured by the call of long, genial spring days to make their visits.

Now, these gardens at the entrance to the noble Phoenix Park, with its panoramic peeps of mountain scenery in the background, are lovely, and the rich colouring of such Tulips as Bartigon, Caledonia, Clara Butt, and Pride of Haarlem, on a groundwork of Aubrietia, double white Arabis, fragrant Wallflowers, hybrid Primroses, and Forget-Me-Not make a picture of indescribable richness and beauty.

Even at the park entrance one is met with a long vista of Berberis stenophylla, although away on the rising ground over the lake in the gardens a great mass of the same "Golden Rain" bush comes as the apotheosis of this variety.

train, a strongly worded protest has been sent to the Railway Clearing House by the Chamber of Horticulture, together with a list of actual instances showing the rates charged to be from fifty per cent. to one hundred per cent. of the value of the goods forwarded. In view of the pending re-classification of this class of traffic the Chamber has asked the railway companies to receive a deputation of growers for the purpose of discussing the rates in the hope that these may be amended in a manner satisfactory to both parties without the necessity of an appeal to the Railway Rates Tribunal.

Theft of Horticultural Medals.—A burglary of a rather unusual nature occurred recently at The Node, Sir Charles Nall-Cain's residence, about two miles from Welwyn. The thieves apparently entered the house after midnight through an unshuttered billiard-room window, and passed to the adjoining dining hall where Sir Charles Nall-Cain had displayed his collection of trophies, including numerous medals won by his gardener, Mr. T. Pateman, at flower shows. It is remarkable that although the room contained many art treasures only the horticultural medals, including four gold and twenty silver-gilt medals, and a gold medal representing a golf prize were taken. In *Gard. Chron.*, December 17, 1921, p. 312, in an account of the Node Gardens, Welwyn, it was stated that Mr. Pateman had won nearly 800 prizes at flower shows, and very many of these were in the form of medals. Those who realise the great amount of skill and work which the winning of such prizes at flower shows entails will understand the great disappointment of Sir Charles and Mr. Pateman at their loss.

Appointments for the Ensuing Week.—Tuesday, June 6: Royal Caledonian Horticultural Society's meeting; Bournemouth Gardeners' Association meeting. Wednesday, June 7: Royal Agricultural Society's Council meeting; Royal Horticultural Society's Committee meeting (two days); National Viola and Pansy Society's meeting and exhibition; Essex Agricultural Society's Horticultural show at Hylands Park, Chelmsford (two days). Thursday, June 8: Bristol and District Gardeners' Association's meeting. Saturday, June 10: Ringwood Society's meeting.

"Gardeners' Chronicle" Seventy-Five Years Ago.—The Dean of Manchester (William Herbert).—The Dean of Manchester is the greatest loss which horticulture has sustained since the death of Mr. Andrew Knight, not merely on account of his skill as an experienced cultivator, but because of his scientific attainments and profound knowledge of the laws of hybridising, which had been so fully elucidated by himself in the experience of a long life, which he had applied with admirable judgment, and to which we must continue to look for years to come as the surest aid to the improvement of the races of plants. Fortunately for the world, his latest views on the subject have been preserved in two valuable papers, "Upon Hybridisation Among Vegetables," which have been published in the *Journal of the Horticultural Society*, and which constitute a rich mine of valuable facts and not less valuable reasoning. William Herbert was beyond all other persons instrumental in establishing and rendering popular the botanical theory of hybridisation among plants; as he was also among the earliest, and one of the most eminently successful of those who applied it to horticultural practice. Upon the phenomena of hybrid inter-mixture he mainly founded those conclusions at which he arrived concerning natural classification, and the doctrine of genus and species. They will be found embodied in an essay on Hybridisation among Vegetables, in the *Journal of the Horticultural Society*. On the last day of his life (Friday, May 28, 1847), and just five hours before its close, he addressed to the writer of these lines a description of an undescribed flower, from the Morea, sufficiently accurate even for publication, and in a clear handwriting. *A. H., Gard. Chron.*, June 5, 1847.



FIG. 154.—ROCK AND WATER GARDEN EXHIBITED BY MESSRS. W. H. GAZE AND SONS AT THE CHELSEA SHOW (see p. 295).

gardener to B. H. Barton, Esq., D.L., Straffan House, Co. Kildare, was awarded a First-Class Certificate for the fine new Rhubarb, Straffan Crimson, and Awards of Merit for three dishes of Royal Sovereign Strawberry, and for Mushrooms. Mr. Streeter also set up a score of vases of flowers, in which Orchids predominated.

The very successful spring show of the Royal Dublin Society, on May 16, 17, 18, was remarkable for the extensive and splendidly organised display, monopolising the whole of a large hall and its annexe, set up by the Irish Department of Agriculture, which included both gardening and forestry, and in both of the latter the pathological part was prominent, and by the aid of experts' discourses interesting and instructive.

At this show, in the spacious Ballsbridge premises, Tulips were well represented by two groups in the main hall staged by the Holland in Ireland Bulb Farm Co., Rush, Co. Dublin, the only other floral feature being an attractive display of hardy and greenhouse flowers exhibited by the Dublin Nursery Co., Black-

There are good things to come, for a fine colony of Rhododendron Pink Pearl in one of the skilfully planned shrubberies is crowded with huge clustering buds. At Whitefields, Mr. Anderson's residence, to reach which some three miles of the park have to be negotiated, a great foaming mound of *Cytisus kewensis* is very wonderful in its own way.

At the annual general meeting of the Irish Forestry Society, May 17, in the Royal College of Science, Dublin, Sir Thomas Grattan Esmonde, presiding, it was intimated that the Minister of Agriculture, Rialtas Seoladach Na Heireann, would receive a deputation of the Society to consider some urgent matters the committee is anxious to place before him for consideration, the most urgent, probably, being protection for existing woods now being pilfered in all parts of the country. Further, the committee consider it absolutely necessary to make adequate provision at once for the training of working foresters, and have suggested that the Forestry School, Avondale, Co. Wicklow, be re-opened without delay. *K., Dublin.*

EFFECTS OF THE DROUGHT OF 1921.

A MARKED feature last year, during the drought, was the blueness of the green leafage. This was not limited to certain sorts of plants, but seemed fairly widely spread Brassicas, Apple-trees, Potatoes. In calling attention of others to this point, I ventured to liken it to the colour which is to be seen in a corn field where a couch bonfire has been burnt, or amongst Potatoes planted on the site of a burnt rubbish heap. These phenomena one rather associates with a high potash manuring, though possibly other elements of the soil are also in absorbable abundance, and I wondered whether they might not be caused in the drought-affected plants by a high concentration of potash in the cell sap.

The reduction of sap flow from deficient water, where this deficiency has not been too excessive, and its consequent concentration appear to have had a marked effect on turning

Tulipa saxatilis seems to have enjoyed the baking of last summer; I have a small patch which has not been disturbed for twelve years, in the sunniest part of the rockery, and usually there are some three or four to a dozen blossoms, yet this year there have been two dozen flower heads with mostly two, three, and some even with four, blooms; the advice sometimes given to take up the bulbs every year and dry them well thus seems to have support. *Gladioli* which might have rejoiced in the torrid sun did very badly, perhaps through being unwatered, and there was a very slight production of cormlets. The drought interfered with seed production. Regarding Pears and Apples, it was curious to note how frequently there were no fully formed plump pips in otherwise well-formed fruits, more often there was only a single pip, the others being withered and shrunken. Herbaceous plants, too, did not seed well; a special strain of Radish is noteworthy for not only were the pods few and small, but they were very slow in ripening. Some other things

a year old. I sowed them at once, and they have come up splendidly, but I have to watch them during the winter, which fortunately is nothing like yours. If the seed had been sent on at once I would most likely have saved a season, and could have planted in late September, 1921.

Perhaps you may be good enough to publish this invitation. The British Trade Commissioner here has been pleased to send a number of trade periodicals regularly. *The Gardeners' Chronicle* is filed and bound.

I am personally keenly interested in horticulture, and have accompanied Dr. Cockayne on some of his botanical trips.—*Herbert Bailie, Librarian, Public Library, Wellington, New Zealand.*

MUTISIA DECURRENS.

THE subject of this note was introduced in 1861 by Messrs. R. Veitch and Son, of Exeter, from the Chilean Andes, through their collector, Richard Pearce. The genus *Mutisia* includes some sixty species, all natives of South America, but very few of them have ever been in cultivation. They are shrubby, or sub-shrubby, climbing Composites, of which there are two sections, one with pinnate leaves terminated with tendrils, the other—to which *M. decurrens* belongs—with entire leaves, which, in the case of *M. decurrens*, are terminated with forked tendrils; it is also remarkable for the leaf blade running down the stem in the form of a wing.

The flowers, which are produced at the ends of the shoots, are a beautiful orange-yellow, and four or five inches wide. *M. decurrens* has never been common in cultivation, as it has proved a very capricious subject. This failure is probably due to local climatic conditions; that it is quite hardy is proved by the fact that for many years it has flourished in the rock garden in the Botanic Garden, Edinburgh (see Fig. 155), where it is planted among and scrambles over low-growing shrubs. But the best plant I have seen was planted by the writer, when in charge of the late Sir T. D. Acland's beautiful garden at Killerton Park, near Exeter. There the plant attained a height of some ten feet, and on one occasion there were no fewer than 300 flowers open on it at once. It was planted against a wall facing West, and the soil consisted of good loam with the addition of a little peat and coarse sand, while all over the bed stones were half buried. The underground stolons ran along the side of the wall and round the stones, sending up numerous shoots over the edges of the stones. These shoots afforded a ready means of propagation, as the smaller shoots could be taken off with roots attached. This particular plant also ripened plenty of good seeds every year.

It seems almost certain that a cool and partially shaded root run is essential to success with this climber. Next to this, I have no doubt, the determining factor in the successful cultivation of this plant is cool and moist atmospheric conditions.

Mutisia decurrens is figured in the *Bot. Mag.* t. 5, 273. There is also a very beautiful coloured plate of it in the *Florist and Pomologist*, 1872, where the glaucous-green leaves and the large glaucous-coloured and purple-tipped scales of the involucre are very faithfully portrayed. There are only two other species of *Mutisia* that have been cultivated to any extent, viz., *M. ilicifolia* (*Bot. Mag.* t. 6, 009), with entire, Holly-like leaves terminated with the usual tendril. This is a variable plant, the flowers varying in colour from white through several shades of pink; and generally it has not proved over-tree flowering. The other, *M. Clematis* (*Bot. Mag.* t. 8, 391), belongs to the pinnate-leaved section, and is a strong growing climber, in a cool house, or outdoors in the warmer parts of the country. It produces its red flowers quite freely. They are smaller than those of *M. decurrens*, and altogether the plant lacks the unique and distinctive appearance that so characterises *M. decurrens*. *J. Coultis, Kew.*



FIG. 155.—MUTISIA DECURRENS FLOWERING ON A ROCKERY.

the "dard" into a fully developed fruit bud. Thus I note that notwithstanding heavy Apple crops on trees last season, there is generally a very good amount of bloom now. Two trees only are entirely without blossom, and both are in the sunniest spot in the garden. The bloom on the Pears is phenomenal, but somewhat scanty, though sufficient, on some wall trees which bore heavily last year. One tree, a cordon in grass, has not consented to flower for ten years, and its identity is uncertain; bad scab having been cured, it was "loretted" and made to produce apparently good fruit buds, which however did not get beyond the "dard" stage; this year matters have improved and there is a fair amount of blossom.

A fan trained Plum (Jefferson) on a wall seems to show the influence of direct sunshine in producing blossom buds (owing to buildings and the aspect, slightly west of north, about one-third of the tree never gets a ray of sunshine); this season there were not more than half a dozen blossoms on the shaded part, though the rest of the tree did well—the appearance was quite striking when the flowers were out.

collapsed altogether without seeding, and thus it would appear that adequate moisture must be present at some critical period after pollination. *H. E. Durham.*

OVERSEAS CORRESPONDENCE.

APPEAL FOR CATALOGUES.

IN the interests of British trade I shall be glad to place in our Reference Room retail catalogues from British seedsmen. I think that New Zealanders are inclined to follow the example of the British, and become enthusiastic amateur gardeners. If early copies of catalogues are sent here they may result in early orders. As you know, our seasons are exactly the opposite to yours, consequently our gardeners get busy about October. Recently I received seeds of Carnations from England in February—these must have been harvested in July or August, 1921—and the instructions were, "plant in March," which meant that I should hold until next September, and the seed would then be more than

NOTICES OF BOOKS.

Practical Gardening.

A YOUNG man or woman who is learning the art and practice of gardening at various private, public, or commercial establishments—according to the aim in view—does not usually find it convenient to carry from place to place a library of horticultural books. Nevertheless, students who are ambitious will need books to which reference may be made when the various problems concerning the life of plants and their cultural requirements confront them. To meet such needs, Mr. W. P. Wright has produced a practical gardening work* of six volumes well filled with the wisdom and experience of those who have excelled in various departments of horticultural activity. In by-gone years MacIntosh's *Book of the Garden* and Thompson's *Gardeners' Assistant*, to mention only two books, were prized for their concise teaching on most gardening subjects, and many good gardeners of to-day regard their copies as old and well-tried friends. What these works did for former generations of gardeners, we believe *Practical Gardening* will accomplish for present and future generations. It is, in fact, a gardener's library in itself; a splendid and useful gift for an aspiring horticulturist; while as an investment it cannot fail to give a good return in information to the intelligent amateur or experienced professional gardener. The practical aim of the work appeals to us, as also does the clear, pleasant, interesting, and convincing way in which the principles underlying practice are set forth. For instance, Dr. Russell's chapters dealing with soils are fascinating and in reading them the student, no matter how young or old, cannot fail to find instruction. So, too, with plant classification, a subject at which the young gardener frequently looks askance as being dry and useless, but Mr. F. J. Chittenden opens it up in a way that does not frighten the gardener, but rather encourages him to proceed until he understands the fundamentals of systematic botany. Popular names of plants, an interesting study to many, occupy a long chapter near the end of the first volume, and the botanical equivalents are set out in correct form, but in the chapter where the botanical names precede the popular ones every specific name commences with a capital letter, which is neither according to the *Kew Hand List* nor the *Index Kewensis*. This is a weakness in a volume which opens with a comparison between gardening of fifty years ago and that of to-day, written by that doyen of horticulturists, Sir Harry J. Veitch, in whose nursery at Chelsea, by the way, Mr. W. P. Wright commenced his horticultural career.

Volume II. is devoted entirely to vegetables and their cultivation, and consists of sixteen chapters, one of which on "Growing Vegetables for Exhibition" is from the pen of that eminently successful competitor and grower, Mr. E. Beckett, while another chapter dealing with the preserving of vegetables is by Mrs. E. Beckett, who is no less successful in her sphere than is her husband in his. "Practical Fruit-Growing" is the sub-title of Volume III., in which the problems of the commercial cultivator, the private grower, the housewife, and the exhibitor are considered. From soil preparation, onward through propagation, planting, pruning, protecting, spraying, thinning, packing, storing, and otherwise preserving the resulting crop, the whole range of fruit-growing is discussed. The cultivation of choice fruits under glass also receives full consideration, and even the treatment of the Banana and of the Orange is detailed. Mr. J. Weathers is responsible for the section dealing with the important matter of commercial fruit-growing. On the principle that "he who loves a garden" must "love a greenhouse too," one volume, and that the fourth, is devoted to greenhouses and pot plants, and a very serviceable and freely illustrated volume it is. The late Mr.

R. A. Rolfe contributed the chapter on Orchids, which extends to over fifty pages and includes forty-one illustrations and a full-page plate in colour of Messrs. Charlesworth and Co.'s *Laelio-Cattleya Sylvia*. Chapters on Cacti and foliage plants follow, and then comes a calendar of indoor work while a long chapter provides select lists of indoor plants, beginning with *Abelia* and finishing with *Zygopetalum*. This concludes a volume which opens with the uses and attractions of greenhouses, and gives freely illustrated information regarding the construction of greenhouses for various purposes.

A sign of the times is found in the two concluding volumes, which, together, form a compendium of all matters relating to outdoor gardening in so far as they come under the

ORCHID NOTES AND GLEANINGS.

LAELIO-CATTELEYA MELITA.

A TWO-FLOWERED inflorescence of this pretty, new hybrid, raised between *Cattleya Mossiae* Reineckiana and *Laelio-Cattleya Cupid*, yellow variety (*C. Mossiae* × *L. Latona*) is sent by Pantia Ralli, Esq., Ashted Park (Orchid grower Mr. Farnes). In the shape and general character of its flowers, *C. Mossiae* Reineckiana is closely followed, the sepals and petals being white, the lip yellow at the base and white in front, the centre bearing some branched, purple lines, after the manner of the *C. Mossiae* parent. The only trace of *L. cinnabarina* and *L. purpurata*, through *L. Latona*, in the parentage, is the



FIG. 156.—*ODONTOGLOSSUM FAUSTINA*, CLAYGATE LODGE VAR., R.H.S. FIRST CLASS CERTIFICATE, MAY 23. (see p. 272).

general heading of flower gardens. The construction and planting of rock gardens, summer bedding, the management of lawns, selections of suitable trees and shrubs for parks and gardens, hardy Ferns, water gardening, bulbs, annuals, Roses, Carnations, Antirrhinums, Sweet Peas, Irises, and Daffodils are a few of the subjects to which chapters are devoted exclusively. Mr. J. Hudson deals interestingly with Japanese gardens, and the consideration of landscape gardening is capably set forth by Mr. J. Cheal. Volume VI. is a dictionary of plants suitable for the flower garden, commencing with *Abies* and concluding on its three hundred and sixtieth page with *Zinnia*. A capital index concludes what is probably the most ambitious work Mr. W. Wright has produced, and which forms a fitting keystone to the wide arch of his literary activity in connection with horticulture.

yellow tint of the reverse side of the sepals of the flowers of *L.-C. Melita*, and a very slight sulphur shade in the white of both sepals and petals, near the margins.

ORCHIDS IN HOT WEATHER.

THE plants in all departments have already responded to the increased light and sun heat of the past few weeks, and now the outside conditions are more favourable to maintaining healthy growing conditions, every inducement should be given the plants to enable them to build up healthy pseudo-bulbs by the end of the season. The temperature in all the warmer divisions should be brought up to the maximum, with an increased amount of atmospheric moisture in every department. Air should be given on all favourable occasions, both during the day and at night, as even tropical plants cannot thrive in a badly ventilated house. J. T. B.

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THE ORCHID HOUSES.

By J. T. BARBER, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Cypripedium.—*C. niveum*, *C. bellatulum*, *C. concolor*, *C. Godefroyae*, and any of their hybrids, which are in flower or passing out of flower, and are in need of new rooting material, through the compost becoming loose or sour, should be attended to as soon as possible after their flowering period is over. Speaking generally, these are difficult Orchids to keep in vigorous health. I believe most failures are attributable to keeping them much too dry, and potting them in shallow pans, as when in good health they are rather deep-rooting subjects, and when well established and well rooted require an abundant supply of water at the roots whilst making their growth. Yet at times one meets with them thriving under quite contrary conditions. A compost I recommend consists of equal parts of good loam fibre and good fibrous peat, mixed with coarse sand, broken crocks, and Sphagnum-moss. Ordinary pots are suitable receptacles, and are preferable to pans. The pots should be well drained with soft, broken, porous bricks, which retain moisture and give it off as the compost becomes dry. The water will have a free passage through this compost, and it is an important point that it should never be allowed to remain dry for any length of time whilst the plants are making their growth. Whilst these Orchids are at rest water the roots just sufficiently to prevent the leaves shrivelling. The warmer end of the warm-intermediate house is suitable for them, and plenty of moisture should be maintained in the atmosphere and around the plants during hot weather. Overhead syringing is detrimental, but a slight spraying is beneficial during very hot weather, in preventing attacks of thrip and other insect pests.

Seedling Cypripediums.—The development of seedling Cypripediums of all sections should be encouraged, and new rooting material may be afforded at almost any season. Care should be taken that the plants are not overpotted. A clean, fibrous compost, cut up finely, is suitable for these small plants.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir C. NALL-CAIN, Bart., The Node, Codicote, Welwyn, Hertfordshire.

Chrysanthemums.—Plants intended for producing large flowers should now be ready for their final potting, but much will depend upon the amount of growth they have made. Those that have been given cool treatment in frame are undoubtedly much later than usual, owing chiefly to the cool weather experienced during April, and unless they have filled their receptacles with roots it will be advisable to defer the final potting of these plants for a week or ten days. They should not, however, be allowed to become pot-bound before this work is carried out, otherwise they will soon lose their bottom foliage. Before potting see that each plant is well supplied with water, for it is very unwise to repot any plant when in a dry condition. The Chrysanthemum delights in a somewhat retentive rooting medium, therefore, loam should form the greater bulk of the potting material. To the loam add leaf-mould, manure from a spent mushroom bed, a little soot, old mortar rubble and sand, adding a 6-inch pot full of bone meal to each barrowload of the compost. The soil should be made fairly firm in the pot, therefore the potting material should be in a suitable condition of moisture and not too wet to allow a small rammer to be used. After potting the plants they should be staked, stood in an open situation on boards, and made secure from strong winds by putting up a wire trellis erected for the purpose. Spray the plants

several times daily, and water them carefully until they have become established in the new soil.

Gardenia.—Gardenias may be grown very successfully in pots, but where a low-roofed house can be set apart for planting them out in a prepared border they will be found to produce far more flowers and of a finer quality than those that are cultivated in pots. This plant delights in plenty of heat and moisture during its growing season, but care is needed in watering until the roots are plentiful, when they may be fed liberally with stimulating manure.

Cineraria.—Cinerarias of the *sinensis* and *stellata* types may be sown now, and another sowing made in about six weeks' time to provide plants for successional blooming. It is not necessary to use fire-heat to raise the plants, the seed will germinate very quickly in a cool greenhouse, and produce sturdier plants than if treated otherwise. The seed may be sown in 6-inch pots or pans containing a good, open mixture of loam, leaf-mould, and sand. Cover the receptacles with a sheet of paper until the seeds have germinated, when they may be removed to a cold frame and the plants kept shaded from bright sunshine. Slugs are very partial to Cinerarias, therefore it is advisable to dust the surface of the frame with soot to keep these pests in check.

Primula.—A further sowing of *Primula sinensis* and of the *stellata* type, also another batch of *Primula obconica*, may be made now to ensure plenty of plants for a long succession of bloom. Seedlings raised from seeds sown some weeks ago will be ready for pricking out, either in boxes or in small pots. After this operation, they should be kept in a trifle closer atmosphere for a few days and then gradually hardened off in a house or frame having a cooler temperature, growing them as near to the roof glass as possible and keeping them shaded from bright sunshine.

HARDY FRUIT GARDEN.

By H. MARKHAM, Gardener to the EARL OF STRAFFORD, Wrotham Park, Barnet.

Insect Pests.—Aphis on Peach and other trees should be thoroughly eradicated before the young shoots become damaged, as free, early growth is most important in connection with fruit culture. As these shoots have a long period to develop in, they should be well matured by the end of the season. There was a severe attack of American Blight last year, and measures to destroy any blight seen this season should be taken early. Dress thoroughly the infested parts with nicotine insecticide, or paraffin emulsion, brushing the specific well into the crevices with a well-worn painter's brush.

Peaches and Nectarines.—Most of our Peach and Nectarine trees have set very satisfactory crops of fruits and the latter are swelling rapidly, so that the thinning of any that are ill-placed or in clusters will at once be carried out, leaving the final thinning to be done after the stoning stage. I do not allow these trees to carry heavy crops, but regulate the number of the individual fruits according to the size and strength of the trees. A very heavy crop on older trees tends to the production of inferior fruits, both in size and flavour, and also cripples the energies of the trees so much that the young growths are not able to produce strong flowers the following season.

Plums.—The Plum crop is very promising; an abundance of fruits has set on most trees and they are swelling nicely. Coc's Golden Drop is one of our most reliable dessert Plums, and usually produces fruits when other sorts are practically failures. The trees should be kept free from insects and the young growths neatly secured to the walls or trellises early, especially the leaders which have not reached their allotted space. Some amount of disbudding and stopping should be done, but in carrying out this work see that a reasonable supply of young wood is retained at intervals all over the trees, as these shoots usually produce the best fruits.

THE FLOWER GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

The Herbaceous Borders.—The borders will need close attention, for much growth will have been made, and staking will be necessary for many subjects. Too much stress cannot be laid on the importance of getting all this work done in good time to afford the necessary support to plants as soon as it is required. Too frequently staking is neglected until such time as heavy rains or boisterous winds have damaged the plants badly, laying the growth flat, and possibly breaking many of them off. For the tall subjects, such as Aconitums, Delphiniums, Heleniums, Solidago and Hollyhocks, stout hazel sticks should be used, and they should be thrust well into the ground. The growths should be looped to the stakes where this is possible. For those plants which form stout clumps of many growths, a number of stakes of suitable lengths should be thrust in around the plant and two or three lengths of tar-twine tied round the specimens as growth is made, taking the twine from stake to stake, and at the same time training some of the growths up the front of the stakes to hide the latter as much as possible. Carefully done, this results in a well supported plant without the means of support being visible. In any case plants should not have a number of growths tied in to a single stake only, otherwise they will present ugly-shaped specimens. Short growing herbaceous plants that require supports, such as Statice, Veronicas, Pyrethrums, Potentillas, and Nepetas, should have twigs short sticks worked among them in such a way that they will support the growth, if required, without the twigs being too apparent to the eye, and a similar method should be employed for annuals requiring support. After staking, gaps in the border will become more apparent, and steps should be taken to fill these with such plants as Stocks, Pentstemons, and any suitable subjects that may be growing in pots ready for the purpose. When all is finished, give the borders a thorough hoeing, and leave them neat and tidy. As growth progresses the shoots should be tied in where such treatment is seen to be required, and, throughout the season—especially during the early part—the Dutch hoe should be used on frequent occasions to destroy weeds and keep the surface soil loose.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER CLAT, M.P., Ford Manor, Lingfield, Surrey.

Pot Vines.—If the Grapes on pot vines have done well, they will now be ripe or approaching that stage. Being largely dependent for their daily supply of food on the small amount of soil in the pots, the roots must not feel the want of water, even when the Grapes are quite ripe. In order to prevent the soil from drying too much, each pot may be well watered and covered with half-rotted leaves or some other non-fermenting material. The floor and paths should be damped regularly on fine days and gentle heat provided equal to the maintenance of a free circulation of warm air in the house throughout the colouring process. If heavily cropped, and colour is doubtful, extra air, more time, and a gradual lowering of the night temperature, with the use of soot water and clear liquid manure, warmed to 80° to 85°, will most likely help the berries to finish better. As finer weather comes, and the Grapes become fit for use, a lower temperature by night and day will be necessary, and pure water only should be used instead of liquid manure. White Grapes should receive plenty of sunlight, not by the removal of leaves or laterals, but by tying or turning them aside, whilst black Grapes will colour best under dense, healthy foliage. Pot vines intended for next year's fruiting are growing very fast, and when the roots have penetrated through the balls of compost they should be liberally fed with warm liquid manure. Use the syringe freely for damping the walls and surface of the beds when the morning temperature begins to rise, and for thoroughly wetting the foliage immediately after closing

THE BULB GARDEN.

HABRANTHUS (HIPPEASTRUM) PRATENSIS.

Mr. H Cowley states (p. 253) that *Habranthus pratensis* is much hardier than is generally supposed, and that it has proved quite hardy in southern and eastern counties. It has also proved quite hardy in Scotland, with myself in East Lothian, and also with many other growers in different parts of the country. My experience is that *Habranthus pratensis* is as hardy as a Daffodil and is quite as easily grown. Mr. Cowley observes that the new leaves follow the flowers and should remain green through the winter. This might be expected in the case of one of the *Hippeastrum* family, but I do not find it to be so with *Habranthus pratensis*. With me it behaves exactly like a Daffodil and the foliage lies down in similar manner. I owe my introduction to this brilliantly-coloured flower to the late Mr. Osgood Mackenzie, of Poolewe, Ross-shire. In the *Journal of the Royal Horticultural Society* (Vol. XLIII, part 1), for May, 1918, he contributed an article entitled "A Year in a Garden on the North-

lands. I cannot grow it, however, but it is quite evident that *Habranthus pratensis* is at home, and is going to increase in quantity. I introduced the Chilean Fire Bush (*Embothrium coccineum*) at the same time as *Habranthus pratensis*. I can make nothing of it. I am pleased, however, with my 'success so far as *Habranthus pratensis* is concerned, and it has encouraged me to try two other forms of the Field Amaryllis. George M. Taylor, Edinburgh.

THE ALPINE GARDEN.

POTENTILLA NITIDA.

PICTURE a little carpet of silver and grey trifoliate leaves, spreading closely from a woody stem and hardly rising more than an inch or so above the ground. The leaves of *Potentilla nitida* are so beautiful in form, and so exquisitely adorned with silver and grey, that words fail one to praise them sufficiently without appearing to exaggerate. When this *Potentilla* is happy, it will almost cover its carpet of silvery hue with wonderfully large flowers of rose, rose pink, or white, which continue for a

THE KITCHEN GARDEN.

By JAMES E. HATHAWAY, Gardener to JOHN BRENNAND, Esq., Baldersby Park, Thirsk, Yorkshire.

Thinning Plants.—Carrots should be thinned lightly, leaving twice as many roots as are required for the final crop. These, when large enough, may be drawn as required for use, leaving those for the final crop nine inches apart. As soon as Parsnips get into the rough leaf the seedlings should be thinned to one foot apart. Beetroot requires a space of nine inches to one foot. It is not advisable to retain the strongest plants in all cases; any inclined to coarseness should be rejected, and it is the safest plan to thin all vegetable crops on two occasions. Onions, unless they are growing very thickly, do not need much thinning; usually sufficient will be taken out for use as salad. If the weather is dry the hoe should be worked through the rows, and the plants afterwards watered, as it helps to settle them in the soil after disturbing them by thinning.

Leeks.—These plants do best grown in trenches, made similar to Celery trenches, and 3 ft. apart. Good results may also be had with Leeks for spring use by drawing a deep trench on ground that has been heavily manured, and as soon as the plants are large enough keeping them earthed up similar to Potatoes. Holes should be made with the dibber, 1 ft. apart, in the bottom of the trench, for a single row, placing the plants in the holes and leaving the tops just out of the ground. Fill the hole with water, and keep the plants supplied with water liberally. When in full growth feed the roots with liquid manure to ensure a quick growth, which is essential to good results. Leeks are one of the best and most reliable of winter crops.

Lettuce.—To ensure regular supplies of Lettuce fresh sowings should be made every fortnight. The seed is best sown thinly in the drills in the summer to obviate transplanting, for the plants will be less liable to run to seed in hot weather if they are not transplanted. Thin them out to 1 ft. apart. The ridges of Celery trenches should be used for growing Lettuce.

Celery.—The main crop of Celery should now be planted in trenches, as previously recommended, planting in double rows, and allowing 18 in. between each plant. Give copious waterings as soon as the plants get a good start.

Maize.—Plants raised in pots should be hardened off and planted in a sunny position. Work the ground to a fine tilth and plant the Maize in rows made 3 ft. apart allowing a space of 18 in. between each plant. Plenty of water should be given this crop in hot, dry weather.



FIG. 157.—FLOWER BORDER EXHIBIT FROM THE MAYTHAM GARDENS, AT CHELSEA SHOW (see p. 279).

West Coast of Ross-shire," and he dealt fully with many of the rare flowers and shrubs which he grew so successfully there.

I give the extract from that paper regarding *Habranthus pratensis*. He wrote: "I often wonder how little is known by the general public about that hardy, June-flowering bulb, *Habranthus pratensis*, and how seldom it is grown. I have a small clump of it with three fine flowering stalks, the blooms just expanding (June, 1916), and I mean to go in for it on a larger scale. It is just a kind of Amaryllis, and as lavish with its glittering scarlet as the Fire Bush. I know a place in Norfolk where they grow it on quite a large scale, but the public are somewhat slow in taking up a new thing, though, in truth, this is far from new. It is warranted hardy." I procured six bulbs of *Habranthus pratensis* in the autumn of 1918, and planted them in a pocket in the rock-garden. It increased so rapidly that I had to remove it, and last autumn I planted out over eighty young bulbs. The most of these bulbs are showing flower stems now. The soil is a light loam over brown whinstone.

This subject is a companion in exile with *Tropaeolum speciosum*. When the latter was introduced it was grown in the stove; now it is almost a weed in the coldest parts of the High-

long time in summer and even into autumn in some places. They have been likened to Dog Roses, but are smaller. The colouring varies, as may be gathered from the remark above. Some flowers are pale pink, others much deeper, and some almost pure rose-pink, while pretty white varieties are also to be found. Sometimes the pink ones are offered for sale under name; and that which passes as *P. nitida* var. *atrorubens* is excellent. Personally, I care less for the white than the pink varieties, but there are many who admire and prize the white forms. The whole plant is not more than three inches high, and often less.

But some readers who have grown *P. nitida* may ask "Why whet one's desire to possess a plant which is so shy of flowering? There is no reason why it should not flower well if it receives proper treatment. In the first place it objects to rich soil. It will produce plenty of leaves there, but it will give hardly any, if any, flowers. It craves for poor soil, and, above all, it longs for lime. In nature it is rarely ever found on anything but limestone, and when away from the latter it is unhappy and unhealthy as a rule. In cultivation plenty of stones should be jammed about its roots and a poor, gritty soil, with plenty of lime, should be afforded it. S. Arnott.

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MR. KINGDON WARD'S SIXTH EXPEDITION IN ASIA.*

No. 16.—GLACIER LAKE CAMP.

WE now turned south, ascending a ridge above the pass, and presently crossing from limestone to slate rocks. A tiny, white-flowered *Lloydia* was abundant here; it nestled against the cold ground instead of lolling easily from the cliffs, like most of the species.

Crossing a meadow valley, the sides of which were plastered with flowers, though of few species, we reached the crest of a spur overlooking a wide alpine valley; and descending on a long slant through a forest of Larch, Abies and Rhododendron, reached the bottom, which was paved with emerald-green meadow. However, we found this rather deceptive, for it was mostly a bog.

Ascending the valley for a mile or two, sometimes climbing over high gravel mounds covered with trees (they were, as a matter of fact, ancient moraines, and yielded up glacier scratched stones), sometimes splashing through marshes, we reached a comparatively dry grassy pitch, where some yak herders lived in a log hut, and camped at an altitude of about 13,000 feet; the valley forked here, and it was evident we were not far from its head.

It had been raining most of the afternoon, and a bitter wind was blowing, so that, take it all round, the prospect was not very inviting. However, we found a sheltered spot (parenthetically I may remark, it was so ill selected that a few days later we were flooded out), and when the tents were up and the fires blazing, I felt better. There were some fine looking peaks rising 2,500 feet right above us, and I selected one to climb on the morrow.

The vegetation of these mountains divides itself into a number of well-defined belts as follows:—(i.) High alpine belt, 15,000 feet and upwards. No shrubs. Many "cushion" plants. Primulas, *Meconopsis*, *Cochlearia*, etc. (ii.) Alpine belt of dwarf Rhododendron (three species); *Primula bella*, (ii.) *Larix* and *Abies* forest, with bush Rhododendron (three species, *Irroratum* type); a little lower *Picea* appears. (iv.) Marsh, at the bottom of the valley; small shrubs, especially *Salix*, *Spiraea laevigata*, etc.

many Primulas, such as *P. pseudosikkimensis*, *P. secundiflora*.

These belts vary a good deal, according to whether the slope is protected or not. Thus the dwarf Rhododendron is apt to be largely replaced by Juniper scrub on very open, southern slopes and the Larch forest by grass slopes dotted with *Incarvillea*, *Meconopsis*, *Primula nivalis*, *Pedicularis*, etc. Substantially, however, we can always recognise these formations, or plant associations. Crossing a stream lined with Willows, beneath which a small violet muscarioid Primula clustered, and plants of *Rheum Alexandrae* were coming up, we ascended a steep, grassy slope, more or less thickly clothed with shrubs—*Daphne*, *Lonicera*, *Berberis* Willow and *Potentilla fruticosa*, with thickets of Rhododendron. There were few flowers under foot as yet.

At last we left the shrubs behind and entered upon Heath Rhododendrons. And here, weaving bright violet patterns over the soil was *Primula bella*. What a little gem it is at its best! But it is small, and must be seen in cultivation



FIG. 158.—RHODODENDRON SINOGRANDE.

to be thoroughly appreciated. The colour varies; violet is the more common, but purple is not rare.

Reaching the steeper rocky slopes which led up to the summit ridge, alpine now began to appear in some variety. A charming little *Nivalis* Primula, deep lilac, with large white eye, after the manner of *P. miror*, clung bravely to the most dreary-looking slopes, or cuddled against the roughest cliffs. It was in full bloom, and a joy to behold. Another *Nivalis*, with deep Tyrian purple flowers and silver-coated riband leaves was not less enchanting. Already we had added four more Primulas to our list this journey! The *Nivalis* type appears to be particularly well developed in these mountains. We had found some half-dozen species of that phylum to date.

Here, too, were many "cushion" plants, stuck on the rocks as sponges are at the sea bottom. It always surprises me that the numerous stems should grow exactly the same length, radiating out from the common root-stock, so that a half sphere is formed. A Saxifrage, with white flowers, a pink-flowered Androsace, *Arenaria polytrichoides*, and, to a lesser extent, the charming little *Diapensia himalaica*, had all adopted these cuddling tactics to keep themselves warm. And then our attention was riveted by the most wonderful alpine plant in Asia. I was gazing at a hemisphere of heavenly blue gems in a setting of

green and glistening silver. A score of un-winking porcelain eyes, like bluest turquoise, stared back at me, innocently, from a hemisphere of cloisonné, made up of little silver-lined leaves clasped in each others embrace. It was *Myosotis Hookeri*, long known from the Himalaya, yet never seen in England. "Ah! if I could only take this plant home!" I thought. "I had not travelled to Chinese Tibet for nothing."

The rock here was slate, not limestone, for a wonder, and much safer to climb. By ascending from the opposite direction to the dip we had no difficulty on the cliffs, which were conveniently ledged, and easily reached the summit, from which we had a fine view. Far away in the south was a tremendous range of snowy peaks, and to the north-east were other isolated snow mountains. To the east were the towering limestone crags we had crossed from Yung-ning, white in the sunshine. Westwards, at no great distance, but across a deep chasm, several fine snow pyramids rose into view, and in every direction we looked over a tumbled sea of blue mountains whose summits nosed the frothing clouds.

But perhaps the most interesting sight of all was at our very feet, where, in the high valley, lay a chain of jade green lakes, separated by cliffs, over which tinkled streams of silver water. The whole region had been glaciated, as I proved conclusively by finding near camp a moraine with ice-scored stones. This fact was not merely interesting in itself; it might help to throw light on the origin and relationships of the flora.

As for Rhododendrons, three species, and no more, formed the dwarf "heath" beyond the tree belt; not a single one of the *Campylogynum* series turned up. On the other hand, descending the more sheltered slopes which were covered with a mixture of Rhododendron, *Abies* and *Larix*, two more species were found. One was almost a tree, some twenty or thirty feet high, and grew socially to the exclusion of everything else practically. Its time of flowering was long past, but one or two lingering blooms were white. It was a large-leaved species, possibly of the *Irroratum* series. The second was a bushy shrub, forming dense thickets with a species previously met with, and very like it in appearance, though ascending to higher altitudes. It was easily distinguished by the leaves, however, which were crowded in rosettes at the ends of the twigs; further, by their very thick coating of rusty red indumentum—silver on the young leaves.

By the glacier lake were many Primulas such as we had seen before—a white-flowered *Cochlearia*, *Grass-of-Parnassus*, and, growing in the streams, a beautiful *Corydalis* with massive spikes of maroon flowers.

The weather at this time was very restless, thunder storms heralding the approach of the wet season. One afternoon, with scarcely any warning, a terrific hail storm swooped down, and in an hour the whole valley was white, giving it a most wintry aspect; and, indeed, on clear nights there was always a ground frost at dawn. By day the temperature would rise as high as 66° F. in fine weather.

We spent five days at this camp, climbing adjacent peaks and passes. One of the last plants we found was a fine, tall Muscarioid Primula with pale lilac flowers, growing in shady marshes; like all of its kind, it was sweetly fragrant. This was possibly *P. conica*.

The mountains held out promise of more flowers later, but for the moment we seemed to have exhausted them, and on June 21 we broke camp and crossed a high pass, descending to a little meadow under a ledge of limestone on the west flank of the range.

One of the first plants we found here was another Primula on the limestone. It had mauve flowers and beautifully silvered leaves, and grew very much scattered on the sheltered cliff. A striking *Pedicularis*, with milk-white lower lip, on which the purple upper lip lay twisted, was also seen. Whatever differences there may be between the flora of Muli and that of A-tun-tzw, both have in common

* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 23, August 20, September 3, October 8, October 29, 1921; January 7, January 21, March 11, March 25, April 8, April 22, May 6, and May 20, 1922.

this wealth of *Pedicularis*, and most of the species are identical in the two areas. Many of the A-tun-tzw Primulas occur here, too, but mostly such as are widely spread—for instance, *P. bella* and *P. pseudosikkimensis*; for the most part, the *Primula* relationship is on the north and south line, being connected with that of Tatsienlu in the north (through *P. Cockburniana*, of which more anon), and Likiang in the south, through *P. Littoniana*, *P. vincaeflora*, and others. Of species more or less widely spread in N.W. Yunnan we find *P. septemloba*, *P. lichiangensis*, *P. brevifolia*, and *P. Poissonii*.

Of the *Rhododendron* relationship I will not venture to speak, as I am not up in that intricate genus. A few of those met with were certainly similar in appearance to others found in the A-tun-tzw district eight years previously. (What a long time ago! I had almost forgotten it, and have had to start learning my Yunnan flora over again!) Others are widely spread over the province—*R. racemosum*, for instance, and a white, purple-washed *Azalea*; we had found them long before we had reached Ta-li-fu. But quite half of them I do not remember ever to have seen

PLANTS NEW OR NOTEWORTHY.

RHODODENDRON SINOGRANDE.

ONE of the most remarkable of the new *Rhododendrons* introduced from Western China is *Rhododendron sinogrande*, which is flowering in this country for the first time this year. We have a plant, presented to Mr. T. Robins Bolitho by Mr. J. C. Williams, of Caerhays Castle, and, judging from its growth, it was raised from seeds sown seven or eight years ago. This young plant is flowering well, and no doubt its success is due to the hot and dry summer experienced last year. The flowers are of wax-like texture, and are of Primrose-yellow when first open, with a splash of crimson on the upper part. The blooms rest on the dark green, glossy foliage, and the plant has a stately appearance. The specimen, of which I enclose a photograph (see Fig. 158), is 3 feet 9 inches high, and its largest leaf is 22 inches long and 9½ inches wide. It had five flower buds, and produced a total of 98 fully developed flowers. Close by this *Rhododendron* we have two plants of *R. Falconeri*, at least 30 years old and 15 feet in height,

perature of about 70° to 75°. If kept in a close frame the seedlings are liable to damp off. When sufficiently strong they should be potted in small thumb pots, placing three or four seedlings by the side of each pot. When sufficiently established they should be transferred to small pots singly and grown on in the same temperature. As they become stronger and well rooted they should be shifted into still larger pots to be grown amongst the ordinary collection of plants. Newly potted plants require careful attention, and should not be watered too freely until the roots have reached the sides of the pots. They form handsome subjects for exhibition, and are indispensable for table and other decorations. Members of the narrow-leaved section are well adapted for the table on account of their elegant and graceful habit, and when grown in small pots may be utilised for decorating small vases. A few of the best varieties are Golden Ring, the golden yellow leaves of which are twisted; Lucy, leaves with foliage of olive-green ground, blotched with crimson; Aigburth Gem, leaves interrupted and coloured crimson; Chelsonii, leaves bright red in colour; Golden Gem, bright golden yellow



FIG. 159.—RHODODENDRON ORBICULARE. R.H.S. AWARD OF MERIT, MAY 23. (see p. 274)

before. However, as I have already remarked, this is not a *Rhododendron* country, and probably the total of species found does not exceed twenty. Another plant abundant on the limestone round our new camp was a *Meconopsis* of the *Aculeatae* section—a stiff, perky thing, covered all over with hard prickles. The flowers, of a fine shimmering violet, were just beginning to open. It is no doubt a close relation of *M. Pratii*, if not identical with it; but, in spite of their numerous, large, and often brilliant flowers, the *Aculeatae* are too stuck up to be pretty, and are rarely worth a place in the garden. (I make an exception in favour of *M. speciosa* though!) Besides, in spite of the large number of flowers they unfurl during the season, comparatively few of these are in bloom at the same time; they are short-lived—wind and rain soon batter them to pieces or dismember them, at least in their native haunts. Personally I consider them absurdly overrated plants. But the *Primulinae* series—that is another story.

The clouds were now accumulating, and a veil was finally drawn across the snowy peaks. On June 23 we broke camp once more, and, crossing three high passes in quick succession, found ourselves back in our original valley, but much lower down; and that afternoon we began the descent to the Shiu-lu gorge. F. Kingdon Ward.

which are also flowering here for the first time. A. J. Creek, Trengwainton Gardens, Heamoor, Cornwall.

CODIAEUMS.

CODIAEUMS, which are perhaps better known to most gardeners as *Crotons*, are amongst the most valuable of decorative indoor plants. The foliage has a marvellous range of colour, and the plants have great diversity in habit of growth. When well cultivated *Codiaeums* are the finest of all ornamental foliage plants, and may be turned to good account in various ways. They were introduced in the 'sixties and 'seventies of the last century from Australia and the South Sea Islands, with *Dracaenas* and other fine foliage plants. Many that were first introduced are still cultivated. The species and hybrids of the present day are very numerous, and the great majority of them are worth growing. No new varieties are procured by cross fertilisation. The seeds should be sown as soon as they are ripe, in well drained pots filled with light, sandy soil. They should be lightly covered and kept moist, but not too wet, nor should they be allowed to get dry. They may be germinated on the plant stage of a warm house having a tem-

perature of about 70° to 75°. If kept in a close frame the seedlings are liable to damp off. When sufficiently strong they should be potted in small thumb pots, placing three or four seedlings by the side of each pot. When sufficiently established they should be transferred to small pots singly and grown on in the same temperature. As they become stronger and well rooted they should be shifted into still larger pots to be grown amongst the ordinary collection of plants. Newly potted plants require careful attention, and should not be watered too freely until the roots have reached the sides of the pots. They form handsome subjects for exhibition, and are indispensable for table and other decorations. Members of the narrow-leaved section are well adapted for the table on account of their elegant and graceful habit, and when grown in small pots may be utilised for decorating small vases. A few of the best varieties are Golden Ring, the golden yellow leaves of which are twisted; Lucy, leaves with foliage of olive-green ground, blotched with crimson; Aigburth Gem, leaves interrupted and coloured crimson; Chelsonii, leaves bright red in colour; Golden Gem, bright golden yellow

and of very graceful appearance; and Aigburthensis, leaves ivory white. Others with long, twisted leaves are, when well grown, magnificent plants for furnishing large vases, and are a great attraction when used for grouping purposes at exhibitions, or for conservatory decoration.

Amongst the finest varieties of this type are

Warrenii, with long and twisted leaves that are spotted with yellow and red; candatus tortilus, leaves twisted and golden yellow; Princess of Wales, leaves creamy white; Prince of Wales, leaves twisted and bright orange; Sinitzinianus, variegated green and yellow; and elegantissima, bright yellow.

Others have broad, massive foliage, such as

B. Comte, which forms the subject of the Supplementary Coloured Plate. The leaves are bright orange, and it is one of the best *Crotons* for exhibition or decorative purposes on account of its hardy constitution. Emperor Alexander III, bright red; Reidii, creamy pink and dark red; Baroness James de Rothschild, dark crimson; Invicta, lemon colour, very distinct; and Andreanus, a variety with large, bright orange red leaves, are other beautiful varieties in this section.

The section with tri-lobed foliage is very distinct, and the plants are of good habit. Disraeli (see Fig. 160), one of the first intro-

duced and best of this section, has leaves coloured orange red. Others are Earl of Derby, centre of the foliage bright yellow; Thomsonii, centre yellow, bordered with green; Evansianus, brilliant red; Montefontaineensis, yellow and crimson; and F. Sander, centre bright yellow, bordered green.

The type of medium width and compact habit is represented by such kinds as Queen Victoria, orange yellow; Weismannii, variegated green and yellow, a very compact growing variety; undulatus, leaves olive green spotted and mottled with crimson; Hawkerii, leaves with a pale yellow centre and green border; and Nestor, spotted red and yellow.

There are many other fine species and hybrids, but those described are amongst the

the plant from flagging when it is parted from the parent. The stem should be cut below the pot, and the rooted top placed in a close, moist house for a few days to become well established. Then the old stem may be placed in a warm corner of the house, or shaken out of the pot, laid in a warm, moist frame, and covered lightly with cocoanut fibre, Sphagnum-moss, or other light material to encourage it to make growths suitable for use as cuttings. Newly-potted plants should not be watered too copiously. The majority of the plants may be grown in small pots provided the roots are not allowed to get dry, for at no time should they suffer from want of water, especially when they are well rooted.

Codiaeums require a moist atmosphere, a

AN AMERICAN'S IMPRESSIONS OF THE CHELSEA SHOW.

For an American gardener a visit to the Chelsea Show is a rare and happy privilege, an inspiring lesson in the possibilities of making a flower show not only instructive, but beautiful, and also, alas! a source of despair in seeing so many exquisite plants which will not survive our cold winters and hot summers.

In recent years we have had in the Eastern United States many fine flower shows of which we are very proud, but even the large size of our biggest national shows had left me unprepared for any show on such a



FIG. 160.—CODIAEUM DISRAELI, ONE OF THE EARLIEST OF THE TRI-LOBED VARIETIES.

best. Cuttings made from well ripened wood root freely under a hand-light or frame in a moist atmosphere of 70° to 75°. The cuttings should be shaded from the sun and kept in a moist state. When rooted the plants should be transferred to larger receptacles and repotted as required. When large plants have shed their leaves and become unsightly, the top may be rooted by ringing. This is done by making one or two incisions in the stem about 1½ to 2 inches long, and placing the halves of a 3 inch or 4 inch pot, cut for the purpose, on opposite sides of the stem. The pot is filled with a mixture of fibrous peat, turfy loam and silver sand, or with fresh Sphagnum-moss. The compost should be kept moist, and the plant placed in the warmest part of a house having a temperature about 70° to 75°. If the top is large and heavy, it should be supported with a couple of sticks. As soon as the pot is filled with roots, a larger pot should be put around the stem; this is necessary to encourage more roots and prevent

temperature of 65° to 70°, and plenty of light, with slight shading from the hot midday sun. There are many varieties that may be grown without any shading whatever, but slight shading is advisable for all when the sun is very powerful.

During hot summer weather syringe the plants freely, but in the winter syringing must be governed by the condition of the weather and the heat of the pipes. On cold days keeping the house moist without syringing will be sufficient. Frequent syringings with plenty of moisture will prevent red spider and mite attacking the plants, pests that cause the young leaves at the point of the shoot to drop until the stem is completely denuded of foliage. A little fresh air is beneficial to the plants when the weather permits of ventilating and the temperature of the house is high, but do not cause a draught. The soil should consist of two-thirds rich, yellow, turfy loam, and one-third good peat or leaf-mould, with silver sand added. *John Heal, V.M.H.*

gigantic scale as the 1922 Chelsea Exhibition. We hope that the rapidly growing interest in horticulture may make such shows possible with us in the not far distant future.

The show impressed me on account of its great size, its artistic arrangement, the high quality of the exhibits, and the tremendous variety of the plant material used. I liked it all so much that it is difficult for me to try to pick out the best things to comment on, for, with the possible exception of the big Carter clock and the garden surrounded by bright pink dwarf Rhododendrons, I liked everything.

As my greatest interest is in the Iris, I naturally spent much time in Messrs. R. Wallace and Co.'s garden, which received such high honours. This garden was a gem of design and colour arrangement, and contained two of the newest Irises of English origin, Asia and Eucopero, side by side with the French Ambassadeur and Souv. de Mme. Gaudichau and the American Lent A. Williamson, Lady Foster, Crusader,

and Neptune also appeared to good advantage here, but Dominion had suffered from too hard forcing, and the flower was not characteristic. The Lilies, Azaleas and Regelio-Cyclus Iris blended well with the Iris, and made a perfect whole.

The Bunyard Iris garden was also a source of delight to me, and here Ambassadeur, Lord or June, Magnifica and Isolene stood out as giants among some of the older sorts. In the Perry and Whitelegg exhibits, Regelio-Cyclus Iris were the feature.

Perhaps even more fascinating than the Iris gardens were the rock gardens, something we hardly know in America. I liked Mr. Wood's conception best, because it was so very simple that it reminded me of some exquisite bits of wild landscape in some of our New Hampshire or Vermont hills.

Messrs. R. Tucker and Sons' garden contained a greater variety of plant material, and was also very beautiful; in fact, nearly all the rock gardens struck me as being wonderfully artistic, as well as showing many exquisite little plants, and I spent more time with them than I did in some of the formal gardens.

The Rhododendrons were finer than any I had ever seen, the big bushes in one of the big tents and in Messrs. R. Wallace and Co.'s natural garden being the most striking. To Rhododendron experts the cut flowers were probably equally interesting.

Another group of plants that I admired particularly were the Clematis hybrids exhibited by Messrs. G. Jackman and Co. and one or two others. European gardeners are used to these, but to an American all but one or two varieties are totally new. I do not know how they would grow under our conditions.

We are used to fine displays of Roses in our American shows, and perhaps for this reason the Roses did not impress me so much as some of the other flowers. They were of splendid quality on the first day, and I was glad to see some of the triumphs of two of America's greatest Rose breeders, Dr. Van Fleet and Mr. H. Walsh, both of whom have died within the past few months. The varieties noted were American Pillar, Hiawatha, Paradise, Excelsa and Minnehaha. We are very glad that these are appreciated in England, where so many fine Roses have originated. The American Rose Los Angeles, which won a gold medal at Bagatelle in 1918, was also noted in good condition, as were several other American varieties. The number of varieties exhibited was much greater than in most American shows.

Paul's Scarlet Climber was seen in wonderful form, but I did not think the flowers of the beautiful new Souv. de Claudius Pernet were quite as fine as those staged in our New York show last March.

There were so many new Roses to attract attention that I can comment on only a few. I liked Padre the best, but admired also Rev. F. Page Roberts, the singles Mrs. Oakley Fisher and Pink Delight, and the Polyanthas Queen Wilhelmina and La Reine Elizabeth.

The Tulips were gorgeous. I have never seen a display as fine as Messrs. Dobbie and Co.'s, although I have seen as fine flowers in small quantities in our shows at home. As usual, I liked La Tulip Noire the best of all, and Dom Pedro, Faust and Louis XIV were noted in fine condition in many exhibits.

Carnations surprised me, because I had always supposed the American Carnation was far superior to those grown in Europe. True, there was a liberal sprinkling of American varieties like Enchantress Supreme, Beacon, Benora and White Wonder, all of excellent quality, and also a few of Laddie, which were not nearly so big as with us, but the British varieties seemed equally good. I made no notes on varieties, but Thor impressed me the most. We have no commercially important Carnation of the colour of Marion Wilson, which I liked very much. I was also impressed with the fact that at least one breeder was emphasising the fragrance of his new varieties—a point forgotten by many American breeders in the race after size and productiveness.

The Sweet Peas were as fine as those shown by Burpee in New York, and were shown in greater quantity. The display of Orchids was larger than usually seen with us, with the exception of the recent special Orchid exhibitions put on by Mr. Burrage, president of the Massachusetts Horticultural Society.

These notes have already grown longer than I intended, because I do not know where to stop. I cannot close without mentioning how hungry I got every time I passed Laxton's wonderful Strawberries, the like of which I have never seen. We are used to seeing fine vegetable and fruit displays at home, but for this season of the year the Hon. Vicary Gibbs' collection of vegetables was remarkable, and so was Messrs. Bungard and Co.'s collection of Apple varieties, which interested me as showing me many Apples I had read about in your columns in previous years. No American varieties were shown, and they are probably as unsuited to your climate as your varieties are to ours.

I am sorry that you had to treat us to some real American summer weather during the show week, for it was not only hard on people but on the flowers, many of which were not in good condition on the last day, but my surprise was to see how remarkably they stood up under such adverse conditions. All praise is due to the skilful growers and to the able exhibitors and managers of the show who put on these wonderful shows year after year. I hope I may be able to attend many more of them. *John C. Wister.*

AQUATIC AND WATERSIDE PLANTS.

AQUATIC and moisture-loving plants are extremely fascinating. May and June is undoubtedly the best time for planting or transplanting Nymphaeas. I have seen it stated that it is necessary to have three to four feet of water for the Marliac varieties of Water Lilies, but this is misleading; granted they will do in that depth of water, but I know from experience they succeed splendidly in water only one and a half foot to two feet deep. Young plants obtained this time of the year (May or June) may be very easily established. If for tanks with cement or concrete bottoms, planting in shallow baskets will be found the best method of establishing them in the water, placing a few pieces of sandstone around them when in position to form a basin and filling in round the basket with rich turfy loam. This will keep the plants in good condition for many years after the baskets have disappeared. If the plants are required for ponds with ordinary muddy base, an easy and successful method of planting is to secure some thick turves of loam and tie one round the roots of each plant. Wire will be found better than string for keeping the loam in position until the plants establish themselves. Sufficient loam should be used to ensure keeping the Water Lilies upright when sinking them in their respective positions. The following are good, hardy varieties of Nymphaeas: *N. Marliacea albidia*, pure white; *N. Marliacea chromata*, pale primrose; *N. Marliacea carnea*, pale flesh-pink; *N. Marliacea rosea*, deep rose; *N. Laydeckerii lilacea*; *N. Laydeckerii purpurata*; *N. Laydeckerii rosea*; *N. Aurora*, deep crimson. *N. Gloriosa*, bright rose.

For waterside planting the following are all very beautiful aquatics and if submerged at various times during the year they will come to no harm. The Siberian Iris are charming both in flower and foliage for the leaves are quite graceful, giving a glorious effect at the waterside. The following varieties are very good: *Iris siberica* (type), pale blue; *Iris s. alba*; *Iris s. acuta*, blue-purple, fine; *Iris s. lilacina*; *Iris s. orientalis*, deep blue; *Iris s. Purple King*, fine; *Iris s. Snow Queen*, lovely pure white.

Iris Monnierii, rich deep yellow, and *Iris ochroleuca*, white, with yellow blotch, are other beautiful aquatic species.

Iris Kaempferii, the Japanese Flag Iris, is splendidly effective in pockets by the water's edge.

Astilbes may also be used for the margins of lakes and ponds with grand effect. *A. Philadelphia*, deep rose; *A. Pink Pearl*, *A. Snowy*

Plume, *A. Ceres*, *A. Mont Blanc* and *A. Salmon Queen* are all extremely fine sorts.

Funkias in variety are noble subjects, with their massive foliage; *Hemerocallis* (Day Lilies) may also be used for the same purpose, with beautiful effect; both their orange and yellow spikes of blooms and graceful foliage are attractive in association with water. *R. H. Holton.*

FAILURE OF SOUTHERN PLANTS TO COLONISE IN THE NORTHERN HEMISPHERE.

THE explanation given by Mr. Irwin Lynch on page 270 for the failure of Australasian Composites to establish themselves by seed in the northern hemisphere seems to meet the case of any solitary species to do so. But, as Mr. Lynch has proved, the most diverse species of self-sterile genera will cross freely with each other. How comes it, then, that in places where many such species are cultivated, crossing does not take place, with the result of a crop of hybrid seedlings? We have here many plants of *Senecio Greyii*, *S. laxiflorus*, *S. Huntii*, *S. Hectorii*, *S. Monroii*, and *S. Buchananii*, and *Olearia nitida*, *O. macrodonta*, *O. ilicifolia*, *O. nummularifolia*, *O. avicenniaefolia*, *O. Traversii* and *O. Haastii*, all of which discharge clouds of seed every season; but, as mentioned in my former note on this subject, in the course of many years I have recovered only a single seedling (*O. nummularifolia*), which is now a fair-sized bush. It is true that, as Mr. Lynch observes, quantities of seed, even if fertile, shed in woodland or garden ground never get a chance of growing, owing to rank herbage or cultivation. But that does not interfere with the southern *Veronica Traversii* and *V. parvifolia* coming up in garden borders and paths in troublesome swarms.

Again, British Composites have established themselves profusely in Australasia, no doubt from seed unintentionally imported with farm and garden plants and seeds. What influence has prevailed to prevent a similar result in Europe from the counter-importation of Australasian Composite seeds? For instance, thousands of tons of *Dicksonia* and other Ferns have been brought to this country (not to mention vast quantities of wool and wheat) and plenty of seed must have come with these consignments from a region peculiarly rich in Composite plants. *Herbert Maxwell, Monreith.*

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

A New Planting Tool.—Some years ago I advocated, in these pages, a "dibber" of oval section instead of the ordinary round one. Under the name of "Koolpootijzer" I have lately obtained (from Messrs. Tubergen, jun.) a still more efficient tool. It consists of a lance-shaped steel blade about 9½ inches long and 2 inches wide, with a shank fitted into a slightly obliquely placed cross handle, giving an overall length of about a foot. The angle at which the handle is put on is a distinct point, as the handle lies comfortably in the grasp when thrusting the "dibber" in the soil. In this respect it recalls the Malayan kris, whilst perhaps the blade might be likened to that of a Zulu assegai. On trial it is found to accelerate planting, since it is so easily pushed into the soil; a slight side movement gives room for the roots to be inserted, when it is withdrawn and pushed down near by, as with the ordinary dibber, to finish the work. One great advantage seems to be that the soil is not compressed. A smaller model would no doubt be a good tool for the pricking out of seedlings in pans. *H. E. Durham.*

Davidia involucrata.—*Davidia involucrata* is flowering very profusely at the present time in Tortworth Gardens, Faldfield, R.S.O. Glos. The particular plant referred to two have

three) was planted by the late Lord Ducie in 1903. It is 28 feet high, 18 inches in girth of stem at 4 feet high, and 20 inches in girth of stem at 3 feet high. It has 9½ feet of clean stem, and a 24 ft. spread of branches. It is planted in a somewhat sheltered spot in the kitchen garden. The flowers are pendulous, the white creamy bracts attached to the flowers being very conspicuous, and are seen to the best advantage from under the tree and looking upwards. This Western China tree has flowered before, but never so profusely as this year. *John Banting, Tortworth Gardens, Falfeld.*

Aquilegia Stuartii.—I am much indebted to Mr. G. M. Taylor (see p. 234) for kindly drawing my attention to the true parentage of *A. Stuartii* as given in the report of the Conference of the Royal Horticultural Society. When writing the note on this Columbine, the reference to it given in the Conference report had quite escaped my memory, and I mentioned the reputed parentage as given by a writer whose views on this and other matters connected with plants deserve every respect. However, it is satisfactory to know that we have a really authoritative statement regarding the parentage of *A. Stuartii*, and it may be helpful to those who are working on the hybridisation of *Aquilegias*, and may lead to the creation of a hybrid possessing all the beauty of *A. Stuartii* without its difficulties in cultivation. *S. Arnott.*

White Fly.—With the advent of warmer weather, gardeners will, without a doubt, receive visits from the pest known variously as White Fly, White Thrip and Holy Ghost Fly. There is no question about the anxiety this enemy creates, and it is up to every grower who knows a preventive or remedial measure to make it widely known. Fumigating is effective, and it is very necessary, but fumigating will not kill the young flies, which often seem embedded in the epidermis of the leaf. Something is required to meet these young arrivals at the birth, and this is to be found in a free use of *Tipulite*. The plan is to sprinkle *Tipulite* about the path, staging, bed, border, and all bare surfaces, and renew the application weekly; the fumes given off overtake the young insects and cause their death. If this method of treatment is adopted, fumigating is not needed so frequently, and it is much less expensive and much less dangerous than cyaniding. *—Majester Palae.*

Effect of "Drip" on Seedlings.—At Redfields, Hampshire, where we are raising plants for this year's Tobacco crop under frames, we notice that the seedlings immediately under the bars of the lights grow much better and are more forward and healthier than the rest of the seedlings. The plants are strongest where the moisture, which condenses on the glass, drips on to them. The seedlings are always watered with tepid water, and they are kept shaded during the early stages. It is before the shading is dispensed with that the difference in growth is noticeable. Has 'condensed water' any effect in causing greater plant growth?—*J. Ware, Redfields Gardens, Church Crookham.*

Giant Larches.—I have recently measured three Larches on this estate. They are in a plantation opposite the one that gained the gold medal at Cardiff, 1919, for the best plantation. Of course, they have not the spread of branches given by Mr. Mills, as the trees average 7 feet apart throughout the plantation. No. 1 is 120 feet high, with a girth 3 feet from the ground of 6 feet 3 inches; No. 2 is 116 feet high, with a girth of 5 feet 7½ inches; No. 3 is 109 feet high, with a girth of 5 feet 2 inches. There are plenty of other trees between 90 feet and 100 feet high. I also measured one lying trimmed on the ground. The butt was 2 feet 1 inch in diameter; the top, 4 inches in diameter; and the length of the stem was 90 feet. This particular tree was blown down by a gale last Christmas. This plantation was planted by Colonel Johns, who was a keen agriculturist and arboriculturist, about 140 years ago. *D. H. Dunn, Hafod, Devil's Bridge, Aberystwyth.*

SOCIETIES.

HORTICULTURAL CLUB.

ANNUAL MEETING AND LECTURE.

THE annual meeting of the Horticultural Club was held on the 24th ult., in the Trocadero Restaurant, Piccadilly. The President Lord Lambourne, C.V.O., was unable to be present, and the chair was occupied by Mr. Peter R. Barr. A letter was read from the Hon. Treasurer and Chairman, Sir Harry J. Veitch, regretting his inability to be present, owing to his doctor having forbidden him to attend any meetings.

The Hon. Secretary read the report of the Committee for 1921, of which the following are extracts:—

EXTRACTS FROM THE REPORT.

The number of members on December 31, 1921, was 162, compared with 209 on December 31, 1914, a period when probably the Club was at its highest state of prosperity.

By the kindness of the Chamber of Horticulture the Club has, for the past year, been installed at 18, Bedford Square, but the district is not easily accessible to the majority of the members, and few have attended there. The Committee has now made arrangements to have the exclusive use of a convenient room for the Club at the Hotel Belgravia, Buckingham Palace Road, Westminster, on Mondays and Tuesdays in the weeks when the R.H.S. meetings are held, and on other occasions when important horticultural functions are held in the Metropolis. In addition to the club-room the members would have the free use of all the public rooms in the hotel and the service and attention of a large staff. The club-room would be available for use at any hour on the Monday and Tuesday, and letters, messages, etc., would always receive the most careful attention. The Hotel Belgravia is close to Victoria Station and within a short distance of Vincent Square. Members will be able to obtain sleeping accommodation and other hotel accommodation at special terms.

The members will learn with the deepest regret that the Hon. Treasurer and Chairman of Committee, Sir Harry J. Veitch, is relinquishing, under his doctors' orders, all public engagements, including those connected with the Club. The splendid assistance which Sir Harry has rendered in both those capacities, and his interest in everything pertaining to the welfare of the Club over a large number of years, have been reflected in much of the prosperity which the Club attained, and his resignation is deeply deplored. It is a pleasure to know that as a vice-president he will continue to be associated with us, and we trust that his honoured name will long be found on the list of members. The Committee recommends the election of Mr. Peter R. Barr to the office of Hon. Treasurer in place of Sir Harry Veitch.

The death of Mr. George Paul, V.M.H., who had served as a member of the General Committee for many years, involves a great loss to the Club, and the Committee also regrets the deaths of three other members, Mr. R. A. Rolfe, Mr. F. K. Sanders, and Mr. James Coey.

Regret was general that Sir Harry J. Veitch was compelled to resign the important offices he held, and the Hon. Secretary was instructed to send a letter expressing the great regret and deepest sympathy of the members, together with the paragraph from the report referring to him.

Lord Lambourne was re-elected President, and the three Vice-Presidents were also re-elected. Mr. J. F. McLeod was appointed Chairman, and Mr. P. R. Barr, Hon. Treasurer, in succession to Sir Harry J. Veitch. Mr. G. F. Tinley was re-appointed Hon. Secretary and thanked for his past services. The following gentlemen were appointed members of the Committee:—Messrs. P. Rudolph Barr, W. A. Bilney, E. A. Bunyard, P. F. Bunyard, W. B. Cranfield, W. Cuthbertson, H. R. Darlington, W. J. Jefferies, H. B. May, J. McLeod, G. Monro, C. E. Pearson, R. Pinches, H. S. Rivers, and E. White. The trustees and auditors were also re-appointed.

Following the annual meeting, the members dined together, and amongst the guests were Mr. H. V. Taylor, Deputy Controller of Horticulture; Mr. J. C. Wister, President of the American Iris Society; and Mr. Leo Bonnewitz, a former President of the American Peony Society. After the toast of the King had been given by the Chairman, Mr. W. Wallace proposed "The Health of Visitors from Abroad," to which both Mr. Wister and Mr. Bonnewitz responded. Mr. Wister said it was a happy experience to come to London and see the Chelsea Show, a desire which he had had as

long as he could remember. Before he had seen the show, he always considered that those who wrote the account of the exhibition in *The Gardeners' Chronicle* always looked through a long glass, but now he realised that the reports were not exaggerated. Indeed, it was the most wonderful show which he had ever seen, and they had nothing in the way of floral exhibitions in the U.S.A. to compare with it. Referring to Quarantine No. 37, he said that the American Controller had a strong case, for many serious pests had been introduced to America from Europe, yet he advised those on this side to keep on fighting until a more reasonable quarantine was adopted. Mr. Bonnewitz said that he had spent four of the happiest days of his life since he had reached London, and amongst the things that had impressed him most were the beds of Tulips in Hyde Park, the beauties of Kew Gardens, which he had visited on two days, and the great show at Chelsea, but he was most delighted with the show, and he was afraid that when he returned home and told of its beauties he would be regarded as an international liar.

LECTURE ON ALGERIA

Mr. E. A. Bunyard's lecture on Algeria, which was freely illustrated by lantern slides, was greatly enjoyed. His knowledge of the country, flora and the peoples was as though he had lived in Algeria all his life, for nothing seemed to have escaped his eye. He stated that Algeria is composed of three distinct parts—one, the coast district, which has a climate and flora like that of the Riviera, where up-to-date cultivation is practised, and such crops as Potatoes and Asparagus raised in perfection. This district is succeeded by high, rolling plateaux, where the land is cultivated by the plough and Wheat largely grown, the plough being exactly similar to the one used in Egypt in the days of the Pharaohs. Beyond this is the desert of Sahara, and there the land is cultivated in the most primitive manner by the hoe, and no spade tillage is adopted at all in that part, the hoe being used somewhat like a mattock for chopping the soil, rather than hoeing. The lecturer pointed out how small is the native flora, *Cedrus atlantica* being the outstanding large tree, Palms, Eucalyptus, Pepper, and other exotics, which now form the largest and most conspicuous trees, all having been introduced. Amongst fruits met with are Apricots, Oranges, and Olives; these also have all been introduced. Palms are a great feature of the country, and one of the slides showed a fine avenue of *Latania borbonica* in the Botanic Garden at Algiers. In the valley district the cultivation of vegetables is almost wholly in the hands of Spaniards, who take meticulous care with every detail. For instance, each little plant of dwarf Bean has a Palm leaf placed by its side to protect it from too much sun. It is from this district that we obtain our earliest imported Asparagus. The forests of *Eucalyptus globulus* are a marvellous sight, and the trees emit a delightful scent. The Algerian Iris (*unguicularis*) covers miles of land, and is as common as Gorse in some parts of this country. Around Algiers it all appears to be the common lilacina form, and he saw none of the white-flowered type. *Chamaerops humilis* grows on the uplands in abundance and goats graze on it, so that the trees are very dwarf and not more than two feet tall. Accompanying it are *Cistus* and many Orchids. He was also interested in a dwarf Marigold, about six inches high, of which he was unable to determine the species. Blidah, about fifteen miles from Algiers, is the centre of the Orange industry, and there are vineyards thereabouts of large size, those of 400 to 500 acres being common. Several pictures showed the Date culture at Biskra and the systems of irrigation. Some of the most interesting pictures referred to the old Roman town of Timdag, which has been excavated by the French. Mr. Bunyard stated it was an Eldorado for the architectural gardener, as it contained stone in abundance, and such things as capitals, vases and tanks in plenty. One of the most interesting pictures was the garden of a Roman house, in which the plants were grown principally in stone basins

or stone troughs. The Date trees are very long lived and bear good crops for eighty or one hundred years. A single bunch of Dates will often weigh as much as 1 cwt., and there are some hundreds of varieties. The Date Palms are only cultivated in districts where there is a water supply and the water is the property of the community in general, one cultivator being afforded a certain time for irrigating his trees, when another's turn arrives; and the measuring of the time is done in a most primitive way by water dripping through a hole in the bottom of a receptacle, just so long as it takes for the vessel to empty being the time apportioned for each owner's trees. Practically no cultivation is adopted by the owners of the Palm trees, and a so-called orchard of Date Palms has no method of arrangement, the trees being planted in groups in a most haphazard manner.

ROYAL HORTICULTURAL CHELSEA SHOW.

(Continued from page 282.)

The informal rock garden and water garden attached to the tennis hard court of Messrs. GAZE AND CO., LTD. (see Fig. 154), were particularly pleasing and valuable, in that they both could well be adapted for a garden of quite modest dimensions—most of the rock gardens at Chelsea were distinctly ambitious in their conception. Much thought and knowledge had evidently been expended on the arrangement of the boulders, and the planting was equally successful. The sunken blue garden was a pleasant and restful place, which would also appeal to the owner of a comparatively small garden.

A considerable selection of the dwarfed Japanese trees, of which they hold an extensive assortment, was shown by the YOKOHAMA NURSERY COMPANY in the large tent. There were Larches, Pines and Cupressus obtusa, apparently of great age, and several fascinating pans of Japanese Maples bearing delicately beautiful coloured leaves. Several old, yet floriferous, examples of Azalea Kaempferi were also included in their interesting collection.

Mr. ERNEST DIXON, Putney, had a neat sunken garden in the open, in which he utilised many old garden ornaments in lead and stone.

Scientific Exhibits.

A special tent was devoted to exhibits of scientific interest from the Royal Horticultural Society's Gardens. Experiments are in progress at Wisley in green manuring and the relative value of the various crops which can be thus employed were shown. Specimens of seeds and growing plants of green-manure crops were exhibited; leguminous plants being represented by Red Clover, Medick, Vetch, and Crimson Clover, and non-leguminous plants by White Mustard, Turnip, Oats, Rape, and Rye.

A very interesting exhibit came from the pathological department at Wisley, where many important diseases are being investigated by Mr. Dawson. Specimens were shown of Roses seriously effected with "die back" disease due to a species of Gnomonia, together with specimens of the fungus in culture. The advice given is to remove all infected shoots well below the region of the disease, and to spray with a solution of liver of sulphur just before the buds open. Research work has also been conducted on the "wilt" of Michaelmas Daisies, and a very satisfactory advance has been made in controlling this disease, which is becoming more and more troublesome to growers of these popular plants. The disease is caused by a soil fungus (Fusarium species), which attacks the root stocks, and shoots thus affected rarely reach the flowering stage. Rooted suckers from diseased plants must not be employed for propagating purposes as diseased plants generally result, but as the upper half of the young shoots usually escape, this part should be used as cuttings. Specimens of diseases conveyed by seeds were also exhibited, and included Bean Pod Canker (Colletotrichum lindemuthiana); Pseudomonas seminum, which causes a bacterial disease in

Peas; and Septoria Apii, affecting Celery, diseased seeds when sown giving rise to leaf-spotted plants.

From the entomological department at Wisley came some very finely prepared specimens of insect visitors to Apple, Pear, and Plum trees, and samples of spray fluids and chemicals were also on view. The use of Saponin as a spray spreader was also well illustrated by means of "leaves" made from waxed paper. Soap is added to sprays to increase their adhesive properties, but it has the disadvantage of sometimes adversely affecting the quality of the sprays, and, with some sprays, it cannot be mixed at all. Saponin may be mixed with all sprays without altering the effectiveness of their component parts. Charts were exhibited giving information on cross-pollination of fruits and the injurious effect of grass on Apple trees.

The various types of Perpetual-flowering Carnations were shown by means of photographs, as were also types of Strawberries; specimen plants of the latter, growing in pots, were also included.

Around the scientific tent were displayed models of the principal fungous and insect pests affecting fruits and vegetables.

SUNDRIES.

The many and varied adjuncts to successful gardening occupied their accustomed place along the Lime Avenue and in part of the Main Avenue at Chelsea Show. Although there has not been, so far, the usual great need for insecticides in the outdoor garden, green fly and other pests are certain to call for rigid suppression before long, and wise gardeners were anticipating their inevitable requirements. Messrs. ABOL, LTD., had a very attractively-arranged stand, where they displayed a great variety of non-poisonous insecticides and fungicides, together with their well-known Abol-syringe, which gives such a finely divided spray. They also showed valuable fertilisers. Lime preparations were shown by the BUXTON LIME FIRMS CO., LTD.; while Messrs. EDWARD COOK AND CO. made a great show of "Gyp," their non-poisonous insecticides and fungicides and various fertilisers.

Their well-known and valuable V. 1 and V. 2 washes were presented in the tent of Messrs. WM. COOPER AND NEPHEWS, LTD., who also presented various types of sprayers and weed killers. Fowler's lawn sand and Lethorion cones for fumigating were exceedingly prominent exhibits amongst the various sundries staged by Messrs. CORRY AND CO. Under such popular names as Sox and Dyoweded, Messrs. HAWKER AND BOTWOOD, LTD., displayed effective insecticides and weed-killer.

Many generations of gardeners have proved the efficacy of Gishurst Compound, which, with Gishurstine, was prominently exhibited by Messrs. PRICE'S PATENT CANDLE COMPANY. They also stock a useful soap and quassia mixture, and "Manulav" soap, which is an admirable cleanser for the hands, no matter how stained they may be. In addition to their famous disinfectant, Messrs. JEYES, LTD., had, in Lignosol, a wood preservative which also stains the wood a pleasing brown colour; Messrs. JEYES also exhibited amongst other compounds samples of their summer wash, which was found a cure for mildew on Roses at the R.H.S. trials in 1919. Messrs. MURPHY AND SON, LTD., showed their "Alvesco" insecticides and fumigants. The scientific application of arsenate of lead, especially in control of sucking insects, was a great speciality of Messrs. W. VOSS AND CO., who were distributing concise and interesting literature on the subject. Another important feature in this tent was the extensive collection of moths, flies, and their destructive progeny, together with the, unfortunately, fewer "friendly" insects. Messrs. VOSS AND CO. now distribute Blighty, in addition to their Bordeaux—two valuable Potato blight specifics.

Spraying machines were present in great variety, and foremost amongst them was the "Vermorel," shown by Messrs. COOPER, PEGLER AND CO. The FOUR OAKS SPRAYING

MACHINE COMPANY displayed a wide range of sprayers, all of good quality, as well as well-made pumps and syringes. The well-known Haws's patent watering-can, ranging from tiny "baby" cans to receptacles of four gallons capacity, and a useful-looking syringe were staged by Mr. J. HAWS; while the AUTOMATIC UTILITIES COMPANY demonstrated the ease in working their Mist garden waterer. Mr. J. SINGLETON was busy with his Neuspray, and Messrs. WEBSTER AND SON had their cascade nozzle, which may be fixed to any ordinary watering-can.

A wide range of sprayers, syringes and other appliances, with their Multiple preparations and lawn sand, were contributed by Messrs. ROBINSON BROS., LTD. In the extensive exhibit of the STONEHOUSE WORKS COMPANY many excellent sprayers and syringes, with a large assortment of fertilisers and insecticides, were to be seen. The Ubel knapsack sprayer, of good design, was exhibited with syringes, etc., by the UNITED BRASSFOUNDERS AND ENGINEERS, LTD.

Fertilisers enjoyed a wide popularity, and most of the exhibits devoted to them were rendered very attractive by the addition of plants, fruits and vegetables grown by their aid. Messrs. ALLWOOD BROS. had a house filled with Carnation sundries, including manure and calyx rings. Thick, fibrous turves of excellent yellow loam were shown by Mr. A. B. JOHNSTONE. Messrs. MASKELL, HARRIS AND CO. set out attractive samples of their proprietary manures, and Mr. Leo. Harris was present to give advice on all matters appertaining to their use. Beautiful Hydrangeas, bearing large heads of pink and of blue flowers, on the stand of the MOLASSINE COMPANY, testified to the great value of Rito, and added to the gaiety of the avenue. Ideal Tomato fruits, Cucumbers, white Marguerites and other flowering plants rendered the stand of Messrs. PRENTICE BROS. very bright and gay, and also drew the attention of the visitors to the old and tried Ichemic guano, as well as the newer Tomonte.

Greenhouses, complete with boilers and hot-water pipes, and garden frames, were quite important features of the sundries section. In the main avenue Messrs. J. L. WEEKS AND CO. built full-sized models of their well-known types of plant houses. Messrs. D. SWAIN AND CO. also had several useful glass houses and frames, and a summer-house of comfortable appearance.

In the Lime Avenue, Messrs. MESSENGER AND CO. had quite an extensive collection of excellent glass houses and frames. Messrs. BOULTON AND PAUL erected a full-sized greenhouse and various useful frames, all of excellent design and workmanship. An attractive lean-to glass house and several equally well made garden frames were shown by Messrs. J. GRAY, LTD.; while in another place Messrs. W. DUNCAN TUCKER AND SONS had an extensive range of their well-known glass houses and frames. These were all of well seasoned timber and elegant design. Their Wire Tension greenhouses and novel glide-house—the latter for placing temporarily over crops—were displayed by Messrs. SKINNER, BOARD AND CO. Patent greenhouse repairing apparatus and garden implements were shown by Messrs. A. SMILLIE AND CO.

Anti-corrosion and other paints were exhibited by Messrs. W. CARSON AND SONS, and, near by, were the CHASE CONTINUOUS CLOCHE and the Cloche Clips. On the opposite side of the avenue Messrs. C. M. DAVIES AND CO. attracted a great deal of interest with their Windowlite, a glass substitute which is said to be an improvement on Spondite.

Greenhouse boilers of great power, and lengths of hot-water pipes were set out by Messrs. C. P. KINNELL AND CO. Besides their well-known Beeston, Rochford and Robin Hood boilers, they had a full-sized New Twin-Fire boiler, which attracted favourable notice.

Lawn mowers of various designs were shown by Messrs. RANSOMES, SIMS AND JEFFRIES, who, in addition to their well-known hand machines, had several patterns with motor attachment. The old-established makers, Messrs. A. SHANKS AND SONS also demonstrated the ease with which

their hand, horse and motor lawn mowers are worked. Other manufacturers who displayed mowers were the WALTHAM ENGINEERING COMPANY; Messrs. C. H. PUGH, LTD., who specialise with the Atco lawn mower; the NENE ENGINEERING COMPANY, and the J. P. SUPER LAWN MOWER, LTD. Various implements were set out by the ACME PATENT LADDER COMPANY, the ELLIOTT PRUNER COMPANY, the WILKINSON SWORD COMPANY, whose scateurs, etc., are made of sword steel; the HOUSE AND GARDEN SUNDRIES COMPANY, Mr. C. A. JARDINE, and Messrs. MOTES, LTD., who had a handy Horti Plow. Mr. H. PATTISSON had his horse-boots, which are valuable for use on lawns and playing grounds. Mr. J. PINCHES, in a tent next to that where *The Gardeners' Chronicle* was "at home" to callers, showed his excellent metal labels, bloom protectors, exhibition boxes and similar necessities.

A great many garden seats and similar articles of garden furniture were set out by such firms as Messrs. HARRODS LTD., the CASTLES' SHIP-BREAKING COMPANY, Messrs. A. W. GAMAGE AND CO., Messrs. PIGGOTT BROS. AND CO., the ENHAM VILLAGE CENTRE, Messrs. KELLY AND CO., and Messrs. B. MAGGS AND CO., while the GARDEN SUPPLIES, LTD., showed what appeared to be a very handy concrete roller at a low price.

Many beehives and accessories, with fruit-storing appliances, shown by Messrs. E. H. TAYLOR, LTD., were the objects of much interest, though the greatest attention of the visitors was directed to the demonstration beehive where, through the glass sides, could be seen the colony of bees busily working.

NATIONAL TULIP.

(SOUTHERN SECTION.)

MAY 24 AND 25.—The annual show of this old-established florists' society was held in a committee tent at Chelsea during the R.H.S. Great Spring Show. Unfortunately the show did not receive anything approaching the amount of attention the merits of the exhibits deserved, and very few persons of the many thousands who went to Chelsea saw the florists' Tulips. The reason is not far to seek. It may be summed up in a word—ignorance. The National Tulip Society does not advertise; there was not even a modest placard bearing the name of the society, much less the object of the exhibition, consequently the general public knew nothing about it. This is a great pity, as, although it was only a small show and exhibitors were few, there were sufficient really good blooms to give an indication of the charm and beauty of the Old English Tulip. There are signs that a revival of interest in the Tulip by garden lovers in the south would be a comparatively easy matter. Quite a number of visitors were attracted to the florists' varieties in the magnificent exhibits of Tulips by Messrs. BARR AND SONS, Messrs. R. H. BATE, LTD., and others in the large tents. But the National Tulip Society seems to be allowing the golden opportunity to slip by.

At the National Tulip Society's show most of the first prizes were won by Mr. J. W. BENTLEY, Middleton. His twelve rectified Tulips included an almost perfect flower of S. Barlow, the premier flamed bloom. Other good flamed blooms were Sir J. Paxton (bizarre) and Annie McGregor (rose), while the chief featured blooms were Stockport (bybloemen) and Mabel (rose). In the class for six blooms he had good examples of S. Barlow (fl. biz.) and Stockport (fr. byb.). His three feathered blooms included a very fine Stockport, while in the classes for three flamed varieties he had fine specimens of S. Barlow and Adonis. Mr. Bentley's six breeder Tulips were very good indeed. The best were Gleam, a beautiful rose, which was the premier breeder bloom, Rose Hill and Adonis. His three breeders, though good, were not quite equal to the six, but Adonis was again one of his best. He won the Samuel Barlow prize with S. Barlow (fr. byb.) and Mrs. Collier (fr. rose).

Mr. W. PETERS, Cambridge, was second with twelve and six dissimilar blooms, and in the latter class he ran the winner very close indeed,

his blooms of Mrs. Jackson (fr. byb.), Sir J. Paxton (fl. biz.) were admirable. He was also second with six breeder varieties.

Competition in the classes for small growers was not great. Mr. A. E. CHATER, North Finchley, was first with six and second with two dissimilar rectified blooms, and was also second in the class for three flamed Tulips.

The only trade exhibit of twenty vases of dissimilar garden Tulips was by Messrs. BARR AND SONS, who were awarded a gold medal for a handsome collection of such sorts as Eclipse, Velvet King and Kepler (Darwin's), Kroeschel, Columbus, and L'Union.

Messrs. BARR AND SONS also exhibited an exceedingly interesting collection of breeder and rectified blooms on a board. Of the former there were splendid blooms of Annie McGregor, Talisman and Lady Constance Grosvenor, while of the rectified blooms Sir Joseph Paxton, Dr. Hardy and Bessie were also noteworthy for high quality.

Obituary.

William Henderson.—The many friends of this veteran gardener will learn with keen regret of his death, which took place on the 23rd ult. at Balbirnie Gardens, Marckinch, Fifeshire. In early life he was employed under the late David Thomson at Archerfield, with whom he



THE LATE WM. HENDERSON.

moved to Drumlanrig, where he became one of his principal foremen. He was appointed to the charge of the late John Balfour's gardens at Balbirnie over fifty years ago, succeeding Mungo Temple. Mr. Henderson had no hobby save that of cultivating the stage Auricula, but was a born enthusiast in everything pertaining to gardening, and under his judgment and care the Balbirnie gardens soon established a name for high-class production, which it has borne throughout Scotland for many years. Of a modest disposition, he never entered the competitive lists, though often pressed to do so, and the writer is confident that had he done so his exhibits would have met with the success they deserved, for he was a grower of no mean order. It was also due in a large measure to his untiring energy that the Village Flower Show of Marckinch (which has been held in the Balbirnie grounds for many years) has gained such success, this being one of the most flourishing village shows in Scotland. Mr. Henderson leaves a widow and two daughters to mourn his loss. J. F. McL.

Alexander Davidson Christie.—It is with deep regret we learn of the death, in his 74th year, of Alexander Davidson Christie, following an operation, in the Selly Oak Hospital, Birmingham. Mr. Christie was born at Woodside, in Aberdeen, and served his apprenticeship at Stoneywood House in the vicinity. Later he proceeded to Dalkeith, and served under those two great masters in their craft, Thompson and Malcolm Dunn, and thus laid the foundation of his own special knowledge

which made him famous as a good, all-round practical gardener. From Dalkeith he went as foreman to the Earl of Wilton's gardener at Heaton Park, Manchester, and afterwards spent some time in Messrs. J. Veitch and Sons' Chelsea Nursery, whence he was sent in 1876 to take charge of a garden in Moscow, where he remained for some time. But he was never happy in his isolation, and in 1878 he became gardener at Warneford Park, Hampshire. His next move was to Warwick Castle, where some of his best work was done during the time these famous gardens were at the zenith of their fame. From Warwick Castle he went to Ragley Hall in the same county, also famous for its fine flower garden and hardy fruits, and he was at this period a constant contributor to our pages on these subjects. Until two years ago Mr. Christie was in the employ of E. A. Wilson, Esq., of Edgbaston, whose garden was famous for its varied collection of Alpine plants, and such was the kindly interest between Mr. Christie and his employer, that Mr. Wilson travelled from Bristol to Lodge Hill Cemetery, Selly Oak, to pay his last respects to his old friend. The Birmingham Chrysanthemum Society and the Birmingham Gardeners' Association, in which Mr. Christie had long taken an active part, also sent representatives to the funeral. Many of the younger generation will always look back with gratitude to the ever-ready help they received at Mr. Christie's hands, and strive to emulate his cheery manners and follow his wise counsels.

Mrs. Neve.—The many friends of the late Mr. Thomas Neve, who for 43 years was gardener at Sindlesham House, Wokingham, and for many years the valued Honorary Local Secretary for Reading and District of the Royal Gardeners' Orphan Fund, will regret to learn of the death, on Sunday last, of his widow, Mrs. Margaret Neve, who passed peacefully away in her 78th year, at the residence of her son, "Hursley," Woodstock Road, Wolvercote, Oxford.

ANSWERS TO CORRESPONDENTS.

BLACK CURRANT LEAF BLISTER: H. M. Currant leaf blister is not a serious disease, although it renders the bushes unsightly. It may be kept in check by spraying with dilute Bordeaux mixture at an early stage of the attack.

COLEUS: Chagford. Mr. L. Russell, the Nurseries, Richmond; Messrs. W. Cutbush and Son, Highgate; or Mr. P. Ladde, Swanley Junction, Kent, may be able to supply you with the plants you need.

CRICKETS IN GREENHOUSE: R. W. T. The quickest means of destroying crickets in greenhouses is found in the use of poisons. Phosphor paste, borax powder, also arsenic mixed with some such food as Potatoes, will kill them in numbers. Steiner's Vermin Paste has also been found a satisfactory remedy. Baits of this last remedy, about the size of a nut, should be placed about the house on pieces of paper, just before dark, removing in the morning what remains of the paste, and setting the baits again each night, so long as the pests continue to be troublesome.

NAMES OF PLANTS: Q. Narrow foliage, Scilla italica; broad foliage, S. Libo-hyacinthus. D. R. D. Viburnum Carlesii; blue flower, Chionodoxa gigantea.

PEACH TREE DISEASED: D. C. The trouble is due to silver leaf, as you suspect. Cut out the diseased bunches well below the seat of attack and burn them.

TREES AND SHRUBS: W. H. L. You will find all the information you require in *Trees and Shrubs Hardy in the British Isles*, by Mr. W. J. Bean, which can be obtained from our Publishing Department, price three guineas, two volumes.

Communications Received.—J. P.—P. M.—W. L. B.—P. J. S.—J. J. S.—E. F. G.—B. C.—J. U.—F. O.—A. F.—E. Q.—R. S. T.



CODIAEUM (CROTON) B. COMTE.

THE

Gardeners' Chronicle

No. 1849.—SATURDAY, JUNE 10, 1922.

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AVERAGE MEAN TEMPERATURE for the ensuing week
deduced from observations during the last fifty
years at Greenwich, 58.2.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street,
Covent Garden, London, Wednesday, June 7, 10 a.m.
Bar. 30.2; temp. 68°. Weather—Sunny.

The Journal of Pomology and Horticultural Science. We congratulate the Ministry of agriculture on what we believe to be the successful conclusion of its efforts to assist horticulture generally and the horticultural research stations in establishing a journal in which the results of research in horticulture may be recorded in permanent form. The need for such a journal has long been felt, and by none more than the investigators at the horticultural research stations. It is true that existing journals have from time to time published the results achieved at their stations and that they are willing to give the hospitality of their columns to such publications. But even so, and at the best, this mode of publication leads to the unfortunate result that cognate researches are only to be found by consulting a number of different journals. By the present arrangement this defect is remedied, and with the establishment of the new journal, horticulturists will be able to find within its covers all, or at least the chief, publications which are of interest to them. The thanks of horticulturists are due to Mr. E. A. Bunyard, who has consented to this enlargement of scope of the journal which he founded, and who has also in the most public-spirited way, undertaken the duties of editorship. Mr. Bunyard will be assisted by a Publications Committee consisting of Professors Barber and Biffen, Mr. Hutton, and Messrs. Dale and Taylor, of the Ministry of Agriculture. The journal will be published quarterly and will be issued post free for an annual subscription of 15s. It is proposed to publish the first number in November of this year. We hope that every-

one interested in the advancement of horticulture will become a subscriber. If they do, the financial responsibility which has been assumed by the Research Stations at Lang Ashton and Cambridge should be easily borne and a long career of usefulness will be assured to the journal.

Carriage of Pot Plants by Passenger Train.

Previous to the war, railway companies not only conveyed pot plants by passenger train at reasonable rates, but where two or more routes were open to the trade, the companies competed for the business. War conditions brought about higher charges and, after consultation with the railway officials, the growers of pot plants agreed to pack in a manner which, while relieving the railways, added considerably to the cost of production. The growers carried out these obligations in a manner that has won the approbation of railway authorities, but now that railways are free from Government control, the growers feel some of the difficulties they have experienced should be removed. Everyone familiar with the pot plant trade is aware that high cost of production, coupled with particularly heavy freightage charges, has crippled the industry, and at least one firm, formerly among the most extensive cultivators, is giving up this part of their business. The public is ready to purchase pot plants, but the costs of distribution by rail—and passenger train affords the only safe and speedy means of transport to many centres—added to those of production, render the price prohibitive. When carriage adds 10s. to the price of a plant which is 1s. at the nursery and in Covent Garden, business declines to a minimum; this is not an exceptional figure, as a recent deputation to the Railway Clearing House was able to prove many instances where the charge for carriage was from 50 per cent. to 100 per cent. of the cost of the plants conveyed. Expectations are by no means always fulfilled, but the deputation referred to, consisting of representatives of the Chamber of Horticulture, the British Florists' Federation, and the Horticultural Trades' Association presented such an excellent case for the growers and the arguments put forward on their behalf by Mr. Frank Ladds were so convincing that the railway authorities were greatly impressed. It is not too much to expect that considerable concessions will be allowed with regard to the classification of goods and the charges. If the extra 25 per cent. charged on this traffic is removed, and if specially reduced rates are allowed to consignments of from one cwt. to ten cwt., the pot plant growers will find considerable relief and business will improve again; moreover, in due course pot plants will benefit from any general reduction in owners' risk rates. We believe the members of the trade acted very wisely in going direct to the railway authorities instead of waiting to discuss their difficulties before a tribunal to which they still have recourse in the unlikely event of the meeting at the Railway Clearing House proving a failure.

Harmful Effect of Coal Gas on Plants.

Professor J. H. Priestley gave the result of experiments on the effect of coal gas on growing plants at a meeting of the Association of Economic Biologists at Leeds, on May 19. His experiments show that if one or two c.c.m. of coal gas are bubbled into a vessel containing the young plant, marked degenerations occur within forty-eight hours. The root and stem structures become swollen and bent, the young leaves curl over, and the flower petals wither. He proved that ethylene, one of the constituents of illuminating gas, produces a toxic effect on plants at a concentration of

one in a million in air. Such a small amount of gas as could not be detected by the smell may prove toxic to plants, and the Professor attributes this poisonous action of these small quantities of gas to the unsaturated hydro-carbons, which attack the endodermis of the plant. An interesting point noticed in Prof. Priestley's experiments was that coal gas affects some varieties of the same plant more than others.

Naturalisation of Plants in New Zealand.—The Cambridge University Press announces the publication of *The Naturalisation of Animals and Plants in New Zealand*, by the Hon. Geo. M. Thomson; and a second edition of *A Naturalist's Calendar*, an interesting record kept at Swaffham Bulbeck, Cambridgeshire, by Leonard Blomefield circa. 1820-1831, and edited by Sir Francis Darwin.

Kew Guild Annual Meeting and Dinner.—The attendance at the annual meeting of the Kew Guild held at the Imperial Hotel, Russell Square, on May 24, was particularly good and an excellent report of the year's work and finances was presented. Some discussion took place concerning the allocation of the balance of about £30 remaining in the War Memorial account; some members were in favour of placing the sum to the account of the Benevolent Fund, while others urged that it should form the foundation of a fund for providing scholarships for promising Kew students. Several of the older members, including Mr. Hales, Mr. E. H. Wilson, and Mr. J. Coutts, favoured the latter proposal, and expressed the hope that if a suitable scheme could be drawn up ample funds would be forthcoming from old Kewites who were best able to appreciate the value financial assistance would prove in the education of promising young men just finishing their course at Kew. Opinions were pretty generally in favour of such a scheme, but many members considered the sum too small for a beginning; finally, the scholarship scheme was adopted, but only by the casting vote of the chairman, Mr. C. H. Curtis. At the annual dinner which followed the meeting, Mr. E. H. Wilson, the new President, presided over a record attendance of about 150 persons representing various parts of the Empire. Sir David Prain, Dr. A. Hill, Mr. Dawe, and Mr. Wilson were the chief speakers in connection with the several toasts concerning Kew and Kewites. Ample time was afforded for the renewal of old acquaintances and the making of new ones; Miss Watson and Mr. Briscoe sang; the tables were splendidly decorated with Mollis and Ghent Azaleas and the whole arrangements were carried out admirably by Mr. Osborn, the Hon. Secretary of the Guild.

Postponement of Windsor Rose Show.—We are informed that Windsor and Eton Rose and Horticultural Society's Exhibition, arranged to take place on June 24th, has been postponed to Saturday, July 1. Entries close on June 24.

National Chrysanthemum Society.—Although the exhibition of the National Chrysanthemum Society has not yet returned to its pre-war importance there are signs that growers are as keenly interested in this beautiful flower as ever, and the Society's exhibition last year proved a great success, both from the point of view of exhibits and visitors. The annual show for the current year has been fixed for November 16 and 17 in the Royal Horticultural Hall, Vincent Square, Westminster. We are glad to notice that the schedule has been enlarged to admit the smaller amateurs and especially those who employ no paid assistant in the cultivation of their Chrysanthemums, to compete. The Society is fortunate in possessing numerous trophies and challenge cups, and Messrs. Clay and Son again offer a gold medal for the best exhibit in the show. In the open classes, from which traders are excluded, the Holmes Memorial Challenge Cup is offered in a class for thirty-six Japanese blooms distinct. The President, Lt.-Col. Sir Albert Rollit, offers a silver cup or bowl valued at £5 5s. for twenty-four Japanese blooms distinct, and another Holmes Memorial cup is offered for twenty

four incurved blooms distinct. The handsome Geo. Monro Challenge Cup is offered in the class open to all, for twelve vases of large singles, distinct. A challenge trophy is also offered for competition amongst the affiliated societies. A sum of £10 is offered as first prize in the Wm. Wells Memorial class for thirty-six Japanese blooms in twelve varieties, three blooms of each, with second and third prizes of £6 and £4 respectively. In the interesting class open to amateurs for a single plant of Chrysanthemum shown in a pot the prizes are offered by the proprietors of *Amateur Gardening*. The Society has offered a silver cup valued at £20 for the best exhibit of Chrysanthemums at the Royal Horticultural Society's exhibition at Holland Park Rink, Kensington, on October 5, 6 and 7.

American Sweet Pea Society.—The *Bulletin* of this Society for 1922 has reached us rather later in the year than usual. The contents are of interest to others than members, and includes the schedule for the 14th annual show to be held in the Horticultural Hall, Boston, on the 24th and 25th inst. The scale of points for judging is as follows:—Length of stem, 25; colour, 20; size, 25; substance, 15; number of flowers on a stem, 15; total, 100. The prize list contains 25 classes, in which silver cups, money, and medals are offered by the Society, and in addition there are classes in which the prizes are offered by the Massachusetts Horticultural Society, in whose hall the show will take place. Literary articles comprise "Sweet Peas under Glass," by Wm. Sim; "Classification of Early or Winter Flowering Sweet Peas"; "Growing Sweet Peas in Tubs," by A. E. Thatcher; "Classification of Sweet Peas"; "Everybody's Flower," by Edwin Jenkins; Financial Report, etc. The secretary is Wm. Gray, Bellevue Avenue, Newport, Rhode Island.

New Lilacs.—In a summary of the Lilacs cultivated in the Arnold Arboretum,* U.S.A., it is stated that the most promising as garden plants introduced during the past twenty years are *Syringa Sweginzowii*, *S. Julianae*, *S. reflexa*, and *S. Wolfii*. *S. Sweginzowii* has slightly fragrant flowers, borne in long, narrow clusters on slender, erect branches. The flowers are flesh-coloured in the bud, but become nearly white after they are open. The plant blooms freely every year at Harvard. It has a close relationship to *S. pubescens*, but is a smaller shrub and slightly earlier flowering. *S. Julianae*, which is also related to *S. pubescens*, has flowers of violet-purple colour on the outer surface and white in the interior. The racemes are shorter and much less fragrant than those of *S. pubescens*. *S. reflexa* resembles *S. villosa* in size, habit and foliage, and differs from other Lilacs in its narrow, pendant flower clusters. *S. Wolfii* is a rare plant in cultivation, a native of Mongolia or Northern Korea. It was sent to Harvard from St. Petersburg by the Russian traveller and botanist, Komarov. The flowers are violet-purple in colour, and are produced in much larger clusters than those of *S. villosa*. It is stated that when *S. Wolfii* is better known it will probably be considered one of the handsomest of this group of late-flowering Lilacs.

Dyeing Arsenical Weed Killers.—As a consequence of recent unfortunate events several of the leading manufacturers of powder weed-killers have enlisted the aid of the British Dyestuffs Corporation Ltd. in order to discover the best means of colouring arsenic. It is confidently expected to be able to dye arsenic such a colour as red without interfering with its chemical properties.

Potato Chips.—In a Bulletin published by the United States Department of Agriculture on the method of making Potato Chips, by Miss Margaret Connor Vosbury, of ten different methods adopted the following gained the best results: cut the Potatoes in thin, even slices with an accurate vegetable slicer, soak them thoroughly in water and fry them in a clean high-grade fat

at a high temperature. Care should be taken in clean cold water after a bath of cold running not to cook too many chips at once and the fat should be deep enough to cover the slices completely and allow them to lie flat. The trade in chip Potatoes is very extensive, and they are now sold by provision merchants already prepared for use.

Honours for Horticulturists.—The King's birthday list of honours contained the names of two gentlemen whose work has rendered them famous in the realm of scientific horticulture. Professor F. W. Keeble, F.R.S., Sherardian Professor of Botany, Oxford University, has been awarded a knighthood, and among many congratulations he received none were heartier than those from the staff of *The Gardeners' Chronicle*, with whom he has been associated for many years as one of the Directors, formerly Co-Editor, and now as Scientific Adviser. Our readers will remember that Professor Keeble was for several years Professor of Botany at University College, Reading, and left that position to become Director of the Royal Horticultural Society's Gardens at Wisley, where he established the laboratory and laid plans for research work of scientific and practical value. During the war he was head of the Food Production De-



PROF. SIR FREDERICK W. KEEBLE, F.R.S.

partment, and although the nation profited by his efforts in this position, only a few people have any idea of the vast amount of forethought and labour his duties entailed. Sir Frederick is the author of *Plant Animals and Plant Physiology*, and in his literary work, as in his lectures, he has the enviable ability to deal with his subjects in a highly entertaining as well as instructive manner. The knighthood awarded to Dr. Russell, of Rothamsted, is an honour won by long years of close study of soil problems, soil science, and the admirable organising and administrative ability he has brought to bear upon the conduct of the famous research and experimental station at Harpenden. An appreciation and portrait of Sir E. J. Russell appeared on page 74 of our issue of February 18, 1922.

The Value of Green Manuring.—The United States Department of Agriculture has published some useful information on green manuring.* The value of green manuring on the texture of the soil is shown in the effect that freezing has on land containing organic matter. When soil from which organic matter has been extracted is allowed to freeze and thaw it remains compact and does not crumble, yet when the organic matter previously dissolved out of this

soil is returned to it the soil crumbles after freezing. Thus, added to the good effects of green manuring, must be included facilitation in obtaining a good tilth. The value of organic material to soil bacteria is well known to gardeners, but not all are aware that there are injurious bacterias as well as good ones, and that the former can and the latter cannot exist without a plentiful supply of air. Thus green manuring is especially valuable in the case of stiff clays, and even in the case of sandy soils where there is air enough, the addition of humus helps in retaining moisture and thus benefits the useful bacteria which need moisture as well as air. To sum up, the physical condition of the soil depends largely on the amount of organic matter present in it. The chief crops used in America for green manuring are Red, Crimson and Sweet Clover (*Melilotus alba*), Yellow Annual Melilot, *Medicago fabacea*, *M. hispida denticulata*, *M. sativa* (Alfalfa), Vetches, Cow-pea, Soy Beans, and Buck Wheat.

Flowering of Rhododendron sino-grande.—The flowering of *Rhododendron sino-grande* in Dame Alice Godman's garden at Horsham (p. 249) and in Mr. T. Bolitho's garden at Tregwainton, Cornwall (p. 291), has created considerable interest among lovers of *Rhododendron* species and a desire has arisen to know when and where *R. sino-grande* first flowered in the British Isles. So far as our information goes the species first flowered in the Edinburgh Botanic garden in April, 1920.

Whit-Monday at Kew.—The improved facilities for travel—the Thames steamboats are now running frequently and with regularity, and an additional 'bus service, with a terminus at Kew, has been inaugurated—resulted in over 56,000 persons paying for admission to the Royal Botanic Gardens, Kew, on Whit-Monday. In spite of the great heat, the glass-houses were a great centre of attraction. The Cattleyas in the tropical Orchid house, which for some time past have been exceptionally fine, were still in great beauty and the "Conservatory," as the public insists on designating No. 4 house, was filled with a great variety of flowering plants. In the great Temperate House the visitors found an agreeable climate, and there the tall tree of *Davidia involucreata*, well furnished with the characteristic button-like clusters of flowers, which are accompanied by a pair of white bracts fully 6 inches long, excited admiration and wonderment. The rare *Rosa Brunoniana* is also flowering freely in this house. This is a vigorous climber from Burma, and the long, spinous shoots are terminated by large trusses of five-petalled, pure white, musk-scented flowers. Out of doors the visitors found the *Rhododendron* Dell at its best, and many of the Great and hybrid *Azaleas* near by were in great beauty. The *Pyraeas*, *Prunuses* and *Horse Chestnuts*, which have been so beautiful this year, were just over, but amongst flowering trees now in bloom the *Manna Ash* and *Robinia Pseudacacia*, and *R. Decaisneana* were in full bloom. The most showy of the dwarfier species are *Robinia hispida macrophylla* and *R. Kotschyana*. A great variety of *Brooms* were in full bloom.

Certificate in Horticulture.—At the examination in horticulture held by the Royal Caledonian Horticultural Society in April a first-class certificate was gained by Mr. A. E. Livingstone, North Borland, Dunlop. The syllabus of the examination includes practical gardening, physics, chemistry, meteorology, botany, entomology, mensuration and land surveying, and bookkeeping.

Peach Leaf-Curl.—This disease is always more in evidence when there is a sudden fall in temperature, and especially when cold winds prevail, but it is checked by an increase of temperature. The affected leaves should be removed and burnt. Spraying the trees with Burgundy mixture just before the leaf buds burst is a preventive measure that has proved eminently satisfactory; the mixture is rendered more effective if $\frac{3}{4}$ pint of milk is added to every three gallons, as this addition increases its adhesiveness.

* *Bulletin of Popular Information*, new series, Vol. VIII. Arnold Arboretum, Harvard University, Jamaica Plain, Mass., U.S.A.

* *Green Manuring*. By C. V. Piper and A. J. Pieters. Farmers' Bulletin, 1250. U.S. Department of Agriculture, Washington, D.C.

French Chrysanthemum Society.—The 23rd conference of this Society will be held in Paris on October 27 next. The Organising Committee has been appointed, and consists of M. Mommeja, the president; M. Blot, vice-president; M. Ph. Rivoire, secretary; and MM. Clement and Bernard representing the National Horticultural Society of France. The agenda has not been finally decided upon, but will include such subjects as Late Varieties, Market Plants, The Improvement of Novelties, Sports, Insects and Diseases. The current number of *Le Chrysanthème* is most encouraging for the members. The Society now numbers 784 persons, inclusive of 57 affiliated societies. There is a report of the Annual Meeting held on April 26 last, followed by the Report for the past year. The financial statement shows a credit balance in hand of Frs. 6,419. The President M. Mommeja, contributes a brief biographical notice of Capt. Bernet, the first man to raise Chrysanthemums in Europe, and an excellent coloured engraving of Grand Napoleon, one of the earliest of Bernet's seedlings, is given. Practical notes on culture, stopping and taking the bud for single bloom culture with an instalment of the catalogue of new Chrysanthemums sent out in 1921 are among the principal literary items in this issue.

Appointments for the Ensuing Week.—Monday, June 12.—United Horticultural Benefit and Provident Society's meeting; Purley Horticultural Society's meeting. Wednesday, June 14.—Grand Yorkshire Flower Show in Bootham Park, York (3 days); East Anglian Horticultural Society's meeting; Sheffield Chrysanthemum Society's meeting. Thursday, June 15.—Linnean Society's meeting at 5 p.m. Friday, June 16.—Paisley Florists' Society's meeting; Eastbourne Horticultural Society's meeting. Saturday, June 17.—British Mycological Society's Spring Foray for London students.

"Gardeners' Chronicle" Seventy-Five Years Ago.—*Propagation of the Potato from Cuttings.*—As it may not be generally known to farmers and cottagers that the Potato plant may be propagated at this season to an enormous extent by its leaves, I beg leave to state that I put in leaves of the Potato as cuttings on the 21st of May, and in fourteen days they had formed roots and pushed a stem two inches high. The weather at this season of the year is generally warm, if not hot, and therefore the plain earth, finely pulverised and kept moist, is a first-rate hot-bed, as every gardener can testify who has struck cuttings in the open air in summer; and it is really astonishing to see how many of the fine indoor plants may be struck without artificial heat in summer. *Phaenocoma proliera* (better known as *Elichrysium proliferum*) is generally considered very difficult to strike, and this I have seen take root freely behind a north wall in the heat of summer. Whoever attempts to strike cuttings in this way, will do well to attend to the pulverising of the soil in a very particular manner; and if the soil could be got as fine as flour, and the cuttings inserted in it whilst it is as wet as dough, there would be no occasion for shading or watering, unless the weather was very hot indeed, and the locality very dry or exposed. The stems of the Potatoes may be cut leaf by leaf, and every leaf will make a plant in a fortnight, and that very much stronger than plants obtained from seeds of the Potato Apple. This piece of practical information is well known to gardeners, and it would be well if they would make some experiments to show the cottagers how to strike cuttings, not only of Potatoes but of the common fruits and flowers, which are so readily and economically increased in this manner in the open air during the summer. *Alex. Forsyth, Alton Towers. "Gard. Chron.," June 12, 1847.*

Publication Received.—*Simple Weather Forecasting for Everyone.* By Messrs. D. W. Forner and W. M. Robertson. The Courier Printing and Publishing Co., Ltd., 19, Grove Hill Road, Tunbridge Wells. Price 1s. 1½d. post free.

PLANTS NEW OR NOTEWORTHY.

RHODODENDRON ORBICULARE,
DECAISNE (R. ROTUNDIFOLIUM, DAVID).

AMONGST the Rhododendrons introduced during the present century from Western China this is one of the most distinct and easily recognised. Its leaves are almost orbicular, but rather longer than wide, glaucous beneath, and measure from 2 to 4 inches in length; they are deeply notched at the base, and, except for a short mucro at the end, are not pointed. The general outline resembles that of a small Nuphar leaf. The flowers appear in April or May in a terminal truss of eight to ten blossoms; each flower is 2 to 2½ inches wide, and borne on a slender stalk 2 to 3 inches long. The corolla is seven-lobed, bell-shaped, and rosy red. The stamens number

Geoffrey Millais, and not Jeffery Millais (see p. 274). To this correction we add another—i.e., the variety was exhibited by Mr. Lionel de Rothschild, and therefore should have been credited to him instead of to Mr. P. D. Williams.

STELLERA CHAMAEJASME.

STELLERA is a small genus belonging to the Natural Order Thymelaeaceae, of which *Daphne* is a better known member. There are about six species, all natives of the northern and temperate parts of Asia, low growing, shrubby, half shrubby or perennial in habit. *S. chamaejasme*, which is here illustrated (Fig. 161) from the photograph of a plant shown at the recent Chelsea show by Major Stern, has a wide distribution, being recorded from Dahuria as well as Western China and Tibet. The plant was raised from seeds sent



FIG. 161.—*STELLERA CHAMAEJASME*. R.H.S. AWARD OF MERIT, MAY 23.

fourteen, and their stalks, like the style and ovary, are quite smooth. Although the species is hardy near London, one has to go to Cornish gardens, or places with a similar climate, to see it at its best. There it forms a rounded bush of dense hemispherical shape 5 to 7 feet through. Originally discovered by the Abbé David about forty years ago, it was introduced by E. H. Wilson in 1904, when collecting for Messrs. J. Veitch and Sons. According to him, it occurs in woodland, and under cultivation thrives best in partial shade. He found it up to 12 feet high.

The flowers on the branch exhibited by the Hon. H. D. McLaren at the recent Chelsea Show (see Fig. 159, June 3), and given an Award of Merit, were rather small, and scarcely showed the plant at its best. The species is one of great interest and distinction, but belongs, perhaps, rather to the connoisseur than to the ordinary cultivators of Rhododendron, for it is certainly not one of the easiest to grow. *W. J. B.*

RHODODENDRON GEOFFREY MILLAIS

Mr. Lionel de Rothschild points out that the correct name of this fine Rhododendron is

home by Mr. R. Farrer, who found it in the Stone Mountains. Farrer, in his book, writes: "Stellera stood up from the cropped grass in myriads of round-headed, tiny bushes bearing pink flowers." It grows from six inches to one foot high, many annual stems springing from a woody rootstock. These are clothed with narrow, lanceolate leaves and bear umbels of rosy-pink buds which open out into pale pink flowers. It promises to be quite hardy, but so far has been afforded the shelter of a cold frame.

This species has been discovered by several collectors, but had not found its way into cultivation till Farrer sent home the seeds. Hosie found it in Kansu in 1910; Wilson also found it at an elevation of 10,12,000 feet; while Przewalski found it in Kansu in 1873. Forrest found it, or a closely allied species, which he describes as having bright orange-yellow flowers. It was growing on dry, stony, hilly pasture-land in the Lang Kong Valley, N.W. Yunnan.

Stellera Albertii, a yellow flowered species from Central Asia, was introduced some years ago, but is probably a scarce plant in gardens, even if it is at present in cultivation. *W. J.*

FORESTRY.

STRIPPING AND HARVESTING OAK BARK.

COLD, easterly winds are responsible for the present barking season being quite a month later than usual, for, whereas this work usually starts about the middle of April, it was only in full operation in most parts of the country during the latter part of May.

During ordinary seasons, and throughout England generally, bark-stripping commences during the third week in April, and continues for about a month, or until such time as the trees are in full leafage, whereas in some parts of Scotland, especially the north, the operation is frequently nearly a month later. No mistake can, however, arise as to the right time to start barking in any locality, as the period when the bud is first bursting into leaf will be found the proper time for felling, in order to ensure easy stripping and the best quality of bark.

The period of bark-stripping, but especially harvesting, is one of the most anxious seasons of the year with the forester, as the quality of the bark is so largely dependent on the weather during the time that intervenes between stripping and stacking, as well as carrying out the work at the proper time to secure easy and expeditious peeling. In most cases, also, the time when the bud is just expanding into leaf is that which gives the greatest weight of bark of the best quality and with the smallest amount of labour. By deferring the work even for a few days, there is often a loss of weight amounting to as much as 10 per cent., and a great deterioration in quality as well. Even in the most favourable situations it is seldom that the season for stripping extends beyond twenty-eight days. It is also rarely that all the trees in the same wood can be barked at once, the great difficulty being in getting the bark to "run" freely, so that what are known as "black" trees have to be left for sometimes a week or ten days after the others have been felled and stripped. As spotted, blackened, or otherwise, damaged bark is of comparatively little value, every endeavour should be made to retain the original cream colour of the fleshy side by as little exposure to alternate rain and sunshine as possible.

Some twenty years or so ago an extensive trade was done with both English and Irish tanneries, and buyers of Oak bark scoured the country in order to obtain what they wanted. To-day, however, matters are totally different in this respect, and, in order to dispose of even a small parcel of splendidly harvested bark, the owner has to advertise for and solicit buyers, and as often as not the season's produce is "flayed" or "hatched" and stored in anticipation of a more remunerative market twelve months hence, the delay in selling being often worth while.

Of late years, Oak bark has been nearly ousted by various chemical substitutes, including iron, chromic acid, etc., as well as Cutch, Gambier, Myrobalanas, and Quebracho wood. A century ago, Oak bark was sold in London at £14 15s. per ton, the average at present being £4 10s. per ton. Several contracts that have been entered into for this season's bark are at the rate of £4 5s. for the bark in rough and delivered to the tanneries. Where conditions of sale include chopping, "flaying" or "hatching," as this operation is called in several parts of the country, the price is about another 50s. per ton, or round about £7 10s. These prices are extremely low, and leave but a small margin of profit to the owner, after 40s. per ton is paid for stripping, without taking into account the risky business of harvesting, cost of cartage, supervision, and other incidental expenses in connection with the industry.

Well-seasoned bark should have the fleshy side of a creamy colour, whereas such as has been exposed to sun and rain is of a dull brown or chocolate colour, wanting in tanning matter and consequently inferior in value. When the bark will snap crisply across, rather than bend

or yield to pressure, it is ready for stacking or delivering direct to the tanneries.

When the weather is favourable for harvesting, the bark should be ready for stacking in about a fortnight from the time it was removed from the trees, but, should close, damp weather intervene, it may be found necessary to turn the bark occasionally, thus adding to the time required for harvesting, as also the risk of deterioration in value. It should be remembered that the less turning the bark receives after being placed on the drying stage the better will the quality be. As it is useful to arrive at an approximate estimate of the quantity of bark to be removed, the following data will be found fairly reliable:—(1) If branches down to an inch in diameter are peeled, a tree with an average spread of head should yield about 6 cwt. of bark for every ton of measurable timber. (2) Field and hedgerow trees generally yield a ton of bark to every three tons of timber. (3) When growing in close woodland, the yield is usually a ton of bark to every four and a half tons of timber. (4) Oak poles will average five tons of timber to a ton of bark.

Short stems with spreading heads give the largest yield in proportion to the quantity of timber, and tall, clean stems, as when the poles are grown thickly on the ground, the smallest amount of bark serviceable for tanning. *A. D. Webster.*

TREES AND SHRUBS.

RHODODENDRON CAMPANULATUM.

FOR weeks past a very large specimen of *Rhododendron campanulatum* has been an object of much interest here. The tree was planted over sixty years ago. It has no main trunk, but in its place seven rigid branches each rise to a height of over 15 feet. The tree takes the form of a large rounded head, with a spread of branches 17 feet across. The bark on the main stems has a peculiar way of peeling. Doubtless there are specimens in this country of even greater dimensions, but, as this is one of the largest examples of this species, it is worthy of record.

Mr. W. J. Bean, in his work on *Trees and Shrubs Hardy in the British Isles*, refers to *Rhododendron campanulatum* as the hardiest and most satisfactory of the Himalayan *Rhododendrons* near London, where it flowers regularly and profusely, but he gives the height of the species as being from six to twelve feet—much less than the height of the specimen under notice.

Rhododendron campanulatum has not flowered so freely as usual this year, but some very fine trusses were borne near the tips of the highest branches. The flowers are broadly bell-shaped, in colour varying even on the same tree from lilac to almost pure white. There are crimson chocolate spots on the upper petals. The variation in the number of anthers in *Rhododendrons* is curious, but *Rhododendron campanulatum*, like a well-behaved species, has consistently ten prominent brown anthers.

This species is a native of the interior of Sikkim and Nepal, where it grows at an altitude of 14,000 feet. It was first introduced in 1825, and it is said that trees grow to a height of 16 feet in semi-shade in their native habitat, from which it may be assumed that the tree here is now fully grown. The leaves are elliptic, dark shining green above, with dense red-brown felt beneath; the under side of the leaves presents a rusty appearance. In very cold weather the leaves roll up for protection, only to unroll on the arrival of milder weather.

Rhododendron campanulatum is particularly hardy, and its popularity is due to its hardiness as well as to the very fine flower trusses of the best forms. There is great variation in the species in cultivation, owing, no doubt, to the fact that the plant is very widely distributed in the Himalaya, and seed of many forms has been sent home by various collectors. *Herbert Couley, Tunbridge Wells, Kent.*

FLORAL PICTURES AT THE ROYAL ACADEMY.

THE Royal Academy this year has a much greater interest for flower and fruit lovers than the exhibition in the summer of 1921. Taking the pictures in their numerical order, the first to study is No. 5. This a severe work of Fuchsias, Irises, Delphiniums, Pelargoniums, and Michaelmas Daisies, very striking and very bright. A very pale study comes next, Roses by an open window, with a dark Japanese curtain as a contrast, and then a tumbled mass of Anemones in No. 59. A strong painting by H. Davis Richter is a glowing group of Pomegranates, Apples, Lemons, and a Melon on a table, with a highly polished vessel at the back. There is next a very nice study of blue and white Cinerarias in a tall grey pottery vase on a Sheraton table, and lying in the front a vivid red "Geranium."

The next important flower picture shows bright Anemones in a black vase, with colour introduced into the groundwork. No. 119 is a large colour piece—market produce and dish of bright red Apples, banked up at the back by Daffodils and Wallflowers. Mr. Richter shows another of his fine works in No. 123—tea chests, and polished brass and pottery ware, with an Azalea at the summit and floating Anemones and Cinerarias as foreground. Michaelmas Daisies in a turquoise vase, with the addition of a tea service, is pleasing, and in contrast the next picture is that of a Continental garden, very bright and sharp. S. Melton-Fisher, R.A., shows a lovely warm group of Azaleas in a glass vessel, against a dark ground. Next comes a vase of loose Anemones, Scabious, Iris, and Lupins, and No. 294 is a strong painting of Zinnias of varied colours in a polished brass vase.

A novel effect in pink and blue is gained in a picture of wild Roses in a shallow dish, with blue pottery at the side and blue flowers and Roses at the back. There is a fine study of Paeonies—white—in a polished brass pot, and, farther on, a small study of Anemones in a green pottery jug. A group of fruit follows next, with a small glass dish of mixed fruit, Bananas, Grapes and Apples. No. 560 is a small study of pink Roses in a shallow pottery dish, and 427, a study of pink and yellow Tulips, with five jars, on a windowsill. Anemones in a ginger jar, a lustre jug with Dielytra, Tulips, Anemones, and Jonquils, etc., on a windowsill, with view of river behind, is an attractive study, and in No. 471 we see a lovely little study of yellow Chrysanthemums in a pewter pot. A brilliant group of Capsicums, Apples and Rose-haws makes a fine bit of colour, and in contrast we have next an impressionist study of Roses and Paeonies. A delicious corner in a garden, by J. Farquharson, R.A., shows borders of Delphiniums and herbaceous plants, and the same artist gives us another delight in a picture of massed white and orange Chrysanthemums in a garden bed.

A sunny effect is gained in a picture called "Summer," the subject being a child gazing through a window, with Poppies on a table, and a dish of Cherries and Lemons. Solomon J. Solomon, R.A., makes a new departure from his usual portraits by presenting a fine work of Orchids—Brasso-Cattleya *Olympus*. The next picture is by another R.A., of a Dorset garden, with two hedges of Yew and flower beds beneath. There are also several floral pictures in the water-colour room.

One of the pictures gives a rather weird effect of three Roses in a tumbler of water. Another group of Roses is by Ethel Hatch, portrayed with wet effect. A rough study of a peacock butterfly on a Thistle, with Poppies against an ultramarine sky, is by the same artist as the painting of Sweet Williams and Delphinium Blue Butterfly. A pleasing work of white Azaleas in a blue pitcher and another of a small rockery with Rose garden as background are two more water-colours. *Artist.*

ORCHID NOTES AND GLEANINGS.

DENDROBIUMS OF THE D. PHALAENOPSIS GROUP.

THE members of the Phalaenopsis section of *Dendrobium* are all natives of the New Guinea region, the coast of Queensland, and the Islands of the Torres Straits. *D. Phalaenopsis* (Fitzgerald, in *Gard. Chron.*, 1880, II., p. 38) is one of the most beautiful and popular members of the genus (Fig. 162), and the first plant shown by Messrs. Jas. Veitch and Sons at the Royal Horticultural Society's meeting of October 14, 1884, gained a First-Class Certificate. Later, Messrs. Sanders

ianum, resembles *D. superbiens* in habit and colour, but differs much in the openly displayed form of the lip. It was awarded a First-Class Certificate when shown by Messrs. Sanders, on November 10, 1891. Several forms have appeared, and it was thought by Mr. R. A. Rolfe to be a hybrid between *D. Phalaenopsis* and *D. superbiens*, but the evidence supporting such a theory is very slight.

D. Williamsianum (Fig. 164) originally described by Reichenbach in 1878, from dried specimens sent by Mr. Goldie from New Guinea to Mr. B. S. Williams, of Holloway, is of the *D. Phalaenopsis* section in the growth and shape of its flowers, which are over two inches across.

section for hybridising, but if the species could be made available, some fine results would accrue. Probably they have been tried without success, but there is no reason to suppose that they would not cross, especially with allied species. Under cultivation all require a uniformly warm house, and not such a vigorous drying off at the resting season as the deciduous species receive, although drier and more airy quarters when growth is completed are beneficial. J. O'B.

CATTLEYA INTERMEDIA AQUINII AND C. DUSSELDORFEEI AQUINII.

In the *Gard. Chron.*, February 10, 1900, p. 83, an illustration of the remarkable *C. inter-*



FIG. 162.—DENDROBIUM PHALAENOPSIS.



FIG. 163.—DENDROBIUM LEEANUM.

obtained a large importation from a new locality with flowers of large size, and which varied in colour from the pure white form, for which they gained a First-Class Certificate in December, 1909, through all shades of rose and pale mauve, with variously coloured lips, indeed, variation in colour is most conspicuous in this form which has become commonly known as *Dendrobium Phalaenopsis Schröderianum*. About fifteen distinct forms of it have received awards from the Royal Horticultural Society.

D. Statterianum, which appeared in Messrs. Sanders' Nurseries at St. Albans, in 1889, and was figured in *Reichenbachia*, ser. 2, Vol. I., p. 15, as *D. Phalaenopsis Statterianum*, is of smaller and more slender growth than *D. Phalaenopsis*, and is darker in colour, the flowers being uniformly rosy-mauve with claret markings on the lip. As it appeared in an importation of *D. Phalaenopsis*, it was suggested that it might be a natural hybrid between *D. Phalaenopsis* and *D. bigibbum*, but a later importation of it in quantity, and which showed scarcely any variation, proved that it was of specific rank. The species is very floriferous, and like all others of the group, a good subject for cultivation for cut flowers or decorative purposes, although it never secured the popularity of *D. Phalaenopsis*.

D. bigibbum, originally described by Lindley in 1852, was the earliest of the section to appear in gardens. It is a charming species of compact habit, and bears erect spikes of pretty, rose-coloured flowers, with darker labellum. It was first shown by Messrs. Jas. Veitch and Sons, on September 1, 1880, when a First-Class Certificate was awarded, a like award being given to the variety *superbum* in 1876. A white form appeared in Sir Jeremiah Colman's collection, and also some other very fine varieties, one of which is *D. bigibbum* var. *Lady Colman*.

D. Lceanum (O'Brien, in *Gard. Chron.*, 1891, II., pp. 640, 641) (Fig. 163), imported by Messrs. Sanders with *D. Phalaenopsis Schröder-*

of light mauve colour, the lip being mauve-purple. Plants also sent by Mr. Goldie were unfortunate until Mr. Williams succeeded in getting a few alive, for one of which he obtained a First-Class Certificate, July 13, 1896. But it has always been a rare plant, and a fair importation of it would be a satisfactory horticultural event.

D. superbiens (Rehb. f., *Gard. Chron.*, 1876, II., p. 516) is a showy species, of tall habit and bearing erect spikes of many bright, rosy-mauve flowers, the segments of which are narrower than in the other species named.

D. Goldie (Rehb. f., *Gard. Chron.*, 1878, I., p. 652) was thought to be a natural hybrid, but its close proximity to *D. superbiens* seems to indicate that it is a fine local form of that

media *Aquinii* was given; this is a showy peloriate variety, in which the petals partake of the labellum in form, and also in the bright rosy-mauve colouring at the tips. A long and interesting account of the discovery of the only known plant at Porto Alegre, S. Brazil, was also given. A part of the plant arrived in this country and was shown by Mr. Kromer at the Royal Horticultural Society on May 28, 1902, when it obtained an Award of Merit. At Chelsea this year Messrs. Stuart, Low and Co., showed *C. Dusseldorfee Aquinii*, a cross between *C. intermedia Aquinii* and *C. Mossiae alba*, and in which the broadening of the petals and their colouring in intensified degree was the great feature. It is interesting to note that even abnormal characters are effective in the hands of the hybridist.

COELOGYNE PANDURATA AND ITS HYBRIDS.

Few plants among the rare species shown at the recent Chelsea Show attracted more attention than the fine specimen of the handsome Bornean *Coeologyne pandurata*, with its long racemes of emerald-green flowers, that have black markings on the lip, each flower being over 4 inches across. It was displayed in the group of Messrs. Mansell and Hatcher. It is a strong growing, ornamental, warm-house plant, even when not in bloom, and when in flower its quaint Apple-scented blooms are without comparison in its class. In Messrs. Charlesworth's group was the similarly coloured *C. burfordiense* (*asperata* × *pandurata*), a very desirable hybrid, though still very rare. Messrs. Sanders flowered *C. albanense* (*pandurata* × *Sanderiana*) in 1913; in the same year Messrs. Cypher and Sons, of Cheltenham, first bloomed *C. intermedia* (*cristata* × *Massangeana*), a floriferous, decorative plant. Three other distinct hybrid *Coeologynes* have been raised by Sir Jeremiah Colman, Bart., Gatton Park. All are very desirable plants; but, unfortunately, still rare.



FIG. 164.—DENDROBIUM WILLIAMSIANUM.

species, so far as the material in gardens has shown.

D. Fitzgeraldii (F. Mueller, 1884) is allied to *D. superbiens*, and is little known in gardens. It also is a suggested natural hybrid.

D. leucolophotum (Rehb. f., *Gard. Chron.*, 1882, II., p. 552), from the Malay Archipelago, also comes into this group, for garden purposes. It bears slender sprays of white flowers.

It appears that no use has been made of this

The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKEE, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Epidendrum prismatocarpum. This is a most useful Orchid flowering at this season, and one which, in some cases, gives some little trouble to grow and flower satisfactorily. When properly grown it is robust, free flowering, and remarkable for the lasting qualities of its flowers; a well-bloomed specimen makes a fine exhibition plant. Frequent disturbance at the roots is resented by this plant, but when repotting is necessary it should be done immediately the plant has finished flowering. Remove decayed roots, pseudo-bulbs and rhizomes, also sour compost, and place the plants in larger or smaller pots, according to their condition. The roots should not be too much restricted, but to prevent sourness in the compost it is advisable to add plenty of hard, porous material, such as broken bricks, or crocks, and the pots should be thoroughly drained. The usual mixture of *Osmunda* or *Al* fibre and *Sphagnum*-moss in a rough condition suits this species well. Make the material firm about the roots, and keep the bases of the pseudo-bulbs on a level with the rim of the pot, or pan. Deep pans, or wide pots, form suitable receptacles in which to grow large specimens of this interesting Orchid. Being an evergreen species, the roots need to be watered regularly so long as growth is active, and even when at rest sufficient moisture should be given to prevent the plant shrivelling. A position in the Cattleya house or similar structure, where plenty of light and air are available, with shade from bright sunshine, is suitable for this Orchid. Insects seldom trouble plants grown under these conditions, but should scale or red spider be detected, they should at once be destroyed, or the fine, healthy appearance of the foliage will soon be disfigured. This Orchid, from my observations, apparently succeeds better in the south than in the north, obviously owing to the greater amount of light in southern gardens.

Epidendrum radicans.—This Orchid and its hybrids are beautiful plants flowering at this season, and the individual spikes continue in perfection for a long time. Thus they are most useful plants, either for exhibition, or furnishing a display of flowers for the conservatory, or as cut blooms. As these reed-like *Epidendrums* produce aerial roots freely, their propagation is easily affected by removing a portion of the growth with roots attached. Given a cool, intermediate temperature, a position where they will receive plenty of light and air at all times, and frequent syringing or spraying during bright weather throughout the summer, the cultivation of these plants is relatively easy. Large specimens may be had by planting a number of stems together in well-drained pots or pans, and training the stems around neat stakes. All through the summer, when they are well rooted and in full growth, afford these plants plenty of moisture at the roots and in the atmosphere.

HARDY FRUIT GARDEN.

By H. MARKHAM, Gardener to the EARL OF STRAFFORD, Wrotham Park, Barnet.

Strawberries.—The warm weather has hastened the development of the berries, and should the hot weather continue they will ripen quickly. If large fruits are desired give the roots a good soaking with liquid manure on two occasions before netting the beds, also pull up any weeds that may be present and place sufficient straw around the plants to keep the fruits clean. A simple and very effective method of protecting ripe strawberries from birds is to insert stout stakes at intervals along the sides of the beds 4 feet out of the ground, and others in the beds 8 feet or 10 feet apart to carry strong wire

stretched as tightly as possible on which to rest old fish netting; along the outside of the beds place netting of 1-inch mesh, 2½ feet to 3 feet high. The fish netting should hang about 1 foot below the top of the wire netting, and may be tied to it with thin string. I have used wire netting around the outside of Strawberry beds and other fruit quarters for many years with good results; not only is the wire a capital protection, but it saves much damage to the fish netting. Keep a watchful eye on the berries, and should mice or rats prove troublesome, put down baited traps and attend to these daily till the pests are destroyed.

Sweet Cherries.—Trees of Rivers' Early, Napoleon Bigarreau, and other varieties growing on west walls and trained fan-shape have set an abundance of fruits and the foliage is healthy and free from aphids. These trees will be given a good soaking of water at an early date to assist the swelling of the fruits, our soil being somewhat light in texture and resting on gravel. In colder parts, and where the soil is of a good depth and naturally moist, watering at the present time will not be so essential.

Vines.—Attend to the disbudding and the removal of useless shoots early, taking care not to damage the leaders and other shoots that are needed. As the side laterals develop, pinch out the points about two or three joints above the bunches. To obtain the best results with outdoor Vines they need timely attention and care throughout the season. See that the roots are kept sufficiently moist, and especially when the Vines are growing in a restricted, well-prepared border.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir C. NAUL-CAIN, Bart., The Node, Codicote, Welwyn, Hertfordshire.

Annuals.—The conservatory and greenhouse may be kept bright during the summer by growing various kinds of annuals in pots, such as *Lobelia tenuior*, *Petunias*, *Salpiglossis*, *Phlox Drummondii*, and *Statice*. They should be potted in a moderately rich, open compost, for in such soil they will have a longer season of flowering.

Lachenalia.—*Lachenalia* plants have practically finished their growth, and water should be withheld from the roots gradually to allow them to rest until August. Stand the pots on a shelf in a cool greenhouse fully exposed to the sun; by this treatment they will be found to bloom more freely than when stored in a shady position.

Begonia Gloire de Lorraine.—These plants should be allowed to grow freely at this season of the year. The earliest struck cuttings are ready for shifting into receptacles 4½ inches in diameter; use a rich, open compost with plenty of silver sand added. Where these *Begonias* are grown in baskets suspended from the roof rafters, the present is a suitable time to transfer them to the baskets. Keep the young plants growing in a temperature of 65°, which may be exceeded with sun heat. The plants need a moist atmosphere during the whole of their growing season. Fumigate the house occasionally to keep mite and other pests in check.

Winter Flowering Carnations.—The latest rooted plants are ready for their final potting, and attention should be given to this work at the earliest opportunity. It is a great mistake to allow these plants to become pot-bound before placing them in their final receptacles. The soil in small pots dries out quickly at this season, and where this is allowed to continue for any length of time it will cause a loss of roots, resulting in hardened growth. After potting them, the plants may be placed on a bed of ashes in a cold frame, but first place a small stake to each plant to keep the growth upright. Use water sparingly until the roots are active in the new soil. Admit an abundance of fresh air, and when the plants are well established remove the lights entirely, but protect the plants from heavy rains.

THE FLOWER GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

Summer Bedding.—Plants that have been suitably prepared should be put out in the open, and well hardened off ready for placing in the beds and borders during the next week or two. Too often the proper preparation of the beds and borders for summer bedding is neglected, because of pressure of other work at this season, or, may be, the spring bedding plants have occupied the beds too late to permit of this being done. There is no question, however, but that it pays to prepare the soil carefully, and to this end it should be worked as deeply as possible, and at the time of doing this a good quantity of well decayed manure should be incorporated with it. This will provide the necessary food for the plants, and, even of nearly as great importance than this, will assist in the conservation of soil moisture, a matter that requires careful consideration with the prospect of several dry months ahead for the plants, when artificial watering, though necessary, can never be equal in value to the natural supplies of moisture afforded by good rains. One point that also calls for mention where beds and borders are formed in grass borders, lawns, etc., is the desirability of building up the surface of such beds so that they are somewhat above the level of the surrounding ground. Where this is carefully and efficiently done, the effect when the plants are put in is decidedly to enhance the beauty of the scheme. Such spring bedding plants as are required for propagating stock for next season should be lifted as carefully as possible, without too much root disturbance, and replanted in fresh and suitable quarters with as little loss of time as possible, for a few days delay in this matter, or careless handling and treatment, may have a very harmful effect on the results.

Arrangement.—The design of the bed is a subject that is always worthy of the most careful consideration and study. Consider the best positions for particular subjects so that plants that are benefited by partial, or complete, shade, are allotted suitable quarters, whilst those that prefer the full sunshine gain their desired positions. Colours, too, should be considered so as to obtain the best colour effects, and the heights of the various plants should be taken into consideration with a view to obtaining a harmonious effect from this point of view.

Standards in Summer Bedding.—Much beauty is added to flower beds by the judicious employment of standard plants of such subjects as *Fuchsias*, *Heliotropes* and *Pelargoniums*, as these, carefully placed, with suitable plants as a base, will greatly assist in relieving what may otherwise prove a flat effect, especially if the scheme follows the rather old-fashioned carpet-bedding system.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

Figs.—Unlike many other fruit trees the Fig becomes more fertile with age, as the shoots become hard and short jointed. The Fig is also a gross feeder, and requires rich and liberal feeding to bring out its best qualities in pots and in confined borders. The secret of success in growing good pot Figs is to pinch the roots instead of the shoots, and to feed them well throughout the plants' season of growth. As the first crop in the early house will now be ripe, the syringe should be used sparingly, especially on dark, dull days, when a free circulation of fresh air cannot be maintained. Syringing cannot, however, be entirely discontinued, as the earliest fruits ripen up in batches, and any fruits forming the second crop are well advanced and must be kept swelling by the aid of atmospheric moisture. Fire-heat being unnecessary now, a sharp eye should be kept on external conditions, and afternoon syringing be done cautiously, but the walls and paths may be

damped regularly, with the occasional use of weak liquid manure to circumvent the attacks of red spider. An opportunity to syringe the trees is immediately after the ripe fruits have been gathered. These remarks apply especially to trees growing in light, well-ventilated houses where the atmosphere is likely to become very dry and favour the spread of red spider. Houses that are dark and with a less buoyant atmosphere in which the trees make strong growth may require to be kept much drier. The supply of water at the roots should be regular and plentiful, with a fairly high temperature that should be regulated by day and night ventilation. As soon as the first crop is cleared, shoots which have been turned or tied aside to allow the light to reach the fruits should be rearranged, and possibly some of the shoots stopped to concentrate the energies of the trees on the second crop of fruits, which may require thinning. It is not a good plan, unless the shoots are very strong, to pinch them much in advance of the second crop, as the first crop next season greatly depends on the points of the shoots becoming thoroughly ripened.

Successional Figs.—Trees in the successional houses that were started after the turn of the year will now be shortening the space which existed between the two crops. The trees will respond to any amount of heat, provided plenty of air is admitted and there is ample atmospheric moisture. It is not, however, wise to force too hard through the night, especially when the Figs are in flower, but once this stage is over a minimum of 70° will do no harm. If trained on the long shoot system, each growth should have plenty of room for the full development of its foliage. This house should be syringed regularly twice on fine days, but only once when the weather is dull, for much as the Figs enjoy moisture, the leaves should always become dry before nightfall.

Late Figs.—Trees from which one crop is secured do not need hard forcing. The maximum temperature of 80° to 85° can always be secured by closing the house early, with sun-heat. If more than one tree is grown in this house, varieties which succeed each other should be planted. Brown Turkey will form the chief sort, with other prolific varieties, such as Negro, Largo, White Marseilles, and Osborn's Prolific, a delicious Fig, which requires an abundance of dry, warm, summer air to ripen its fruits.

THE KITCHEN GARDEN.

By JAMES E. HATHAWAY, Gardener to JOHN BRENNAND, Esq., Baldersby Park, Thirsk, Yorkshire.

Broccoli.—Make a planting of Broccoli as soon as possible on ground which is firm. An old Strawberry bed from which the Strawberry plants have been chopped off with a spade and the ground cleaned is very suitable for this crop. Make the holes with a crowbar in rows 2 ft. 6 in. apart and 2 ft. asunder in the rows.

Carrots.—To ensure a constant supply of young Carrots further sowings of the Scarlet Horn type should be made on ground which has been cropped with early Potatos. Level the ground and make the drills 1 ft. apart. It is best at this season of the year to water the drills before putting in the seed.

Turnips.—Small sowings of Turnip should be made frequently, as the very hot weather soon causes the plants to run to seed. Sprinkle the rows with light dustings of soot and apply a dressing of manure from a spent mushroom bed to help to keep the roots moist, and thus favour a quick growth.

Potatos.—The hoe should be kept going amongst the late batches of Potatos and the plants earthed up, if possible after a shower. If necessary, give a dressing of artificial manure in the rows before earthing up the plants. Bentley's Potato manure is a reliable fertiliser.

General Remarks.—The work of chief importance in the kitchen garden is stirring the soil with the push hoe and giving constant attention to watering Peas and Runner Beans should be staked before they grow tall and fall over.

THE ALPINE GARDEN.

GENTIANELLA (GENTIANA ACAULIS).

THE splendour of this matchless Alpine just now brings to mind frequent complaints about its refusal to flower freely in some gardens. Perhaps this is the result of misunderstanding its requirements, which are of the simplest. No doubt there may be conditions in certain places unfavourable to its vigour, but these have not come under my notice. In this district it demands attention only in one respect, namely, that when the plants have grown into a dense mat and flower less abundantly, they must be broken up and replanted in small shreds. This division we have found necessary every four years on an average. If this is done imme-

THE BULB GARDEN.

BABIANA STRICTA RUBRO-CYANEA.

AMONG the Babianas that I know, *B. stricta rubro-cyanea* is undoubtedly the best. It came to me from one of the most famous homes of good plants—Colesbourne. Fortunately we seem to have hit upon the right way to treat it, with the gratifying result that we have better potfuls each year. I mentioned the plant in *The Gardeners' Chronicle* last year and now I am able to send a photograph (Fig. 165) to show the shape of the flower, and gives an idea of the inflorescence. A five-inch or six-inch pot, with about six or seven bulbs, presents a glorious sight on a bright, sunny April day, when the plants—grown in a cool



FIG. 165.—BABIANA STRICTA RUBRO-CYANEA.

diately after flowering, say early in June, each shred will have grown into a nice rosette before the winter, ready to blossom in the following spring. The drought of 1921 was a severe test upon a recently planted edging of this Gentian along a gravel path, and I anticipated failure; but the edging is now—May 18—well set with crowded flowers. We generally put in some ground limestone or old mortar when replanting, but that is not necessary, for the clumps seem quite as happy without it.

Very different is my experience with *Gentiana verna*. Times without number during the past fifty years have we got fresh plants from Ireland and elsewhere. Every care has been bestowed upon them; they flower well the first season, less well the second, after which they dwindle steadily, and finally disappear. I frankly admit defeat. *Herbert Maxwell, Monroth.*

greenhouse all through the winter—are flowering. It is surprising to find how well the carmine centre tones with the blue which surrounds it, without a suspicion of harshness. I cannot remember having ever seen this Babiana advertised in a dealer's list. Surely someone should obtain stock and press its sale! Many gardeners, I am sure, would be only too glad to give the plant a trial if attention were drawn to its easy culture. Light soil, early autumn potting, plenty of air, and the coolest treatment possible, provided frost is excluded, are the cultural conditions for its successful cultivation. *Joseph Jacob.*

[Under the name of *Ixia rubro-cyanea*, this showy Irid was figured in *Bot. Mag.*, t. 410, and in the accompanying text we learn that the plant "flowered with Mr. Colvill, Nurseryman, King's Road, May 24, 1797." Ebs.]

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WHITE WORMS.

IT is perfectly natural that white worms should be regarded with suspicion when they are found in pots and soil at the roots of unhealthy and decaying plants. Not only is Celery frequently found to be infested with them, but Enchytraeid worms have, for three quarters of a century at least, been associated with disease. So early as 1849, Hardy gave the name "putrid" worm to the common white worm which occurs in manure heaps and elsewhere, because he found it connected with plants in a state of putrescence. This species of worm, which is now known as *Enchytraeus albidus*, Heule, has been more frequently described than any other, and under a greater variety of names. It is, moreover, larger than most of its congeners, more easily observed, and by reason of its flourishing vigorously in rich soil and old muck, more frequently found under suspicious circumstances than any other. Johnston, in 1863, described it as *E. vermicularis*, and stated that it was found in soil under the bark of rotted trees, in decaying leaves, and at the roots of decayed vegetables. He does not assert that the worm causes decay, but there is a feeling that it is suspect.

Vejdovsky seems to be the first writer to draw definite attention to them as possible agents in the destruction of living plants. In 1877 he discovered a new white worm, which, on account of its being destitute of setae, he named *Achaeta*, thus founding a new genus. He speaks of these worms as tiny, maggot-like annelids, which flourish everywhere in moist earth, in marshy places, and even in water, in decaying wood and in the soil, and especially in flower-pots. In 1879 he makes the definite statement that his new worm, *Achaeta*, "lives in great numbers in somewhat dry soil." I have observed specimens the whole year through in the Prague Museum Gardens, living at the roots of *Viola*, *Erythronium* and *Corydalis*. What were they doing there? The answer came from Vejdovsky himself, in 1891, in a communication bearing the title, "Can Enchytraeids Cause Root-sickness?" He refers to the foregoing statement made two years earlier, and says that Eisen informs him that he also had found certain species concealed among the roots of plants. Further, in 1880, he had received information respecting the injury done to sugar Beet by these tiny worms.

In May, 1890, a correspondent had sent Vejdovsky some Enchytraeid worms found in Potatoes and other plants, and in September of

the same year, a second consignment followed. This led him to the conclusion that white worms were capable of causing root-sickness. The question now arose, which, out of the many different species, was the guilty party, or were all species alike to be suspected? No clear or conclusive answer, however, was supplied.

A further question was involved. Have these minute worms the organs that are necessary to enable them to pierce the roots of plants and suck their juices? To this inquiry the author gives a definite reply. When engaged on the examination of some white worms found at the roots of decaying plants (he says) he found a specimen of one of these worms whose stylet was so deeply imbedded in the tissues that the muscles could not retract it. Although eel-worms or nematodes were frequently found with the plants which were diseased, Vejdovsky's conclusion was that they were less capable of inflicting damage on plants than the Enchytraeids were. Such a judgment, from so expert an authority, was calculated to weigh heavily; but the writer himself shows that only by special research can these and similar questions be settled, and this he was not in a position to undertake.

results seem to me to be quite inconclusive, though his opinion was that Clover-sickness was caused thereby, and that Mr. Lockett's plants, including *Spiraeas*, Marrows, Fuchsias, and *Gloxinias*, died from the same cause. These worms, he remarks, "have not hitherto, so far as I can learn, been accused of causing serious injury to plants. In what manner they directly injure the plant remains to be observed—probably by sucking the fine root-hairs. If, as seems not improbable, further corroboration could be forthcoming, we may find that we have to add to the list of enemies of the Clover plant from which it so mysteriously suffers, these unsuspected *Oligochaets*." Then came the paper by Vejdovsky, referred to above, and another from Dr. Collin, bearing the same title. In 1893 I received from Valencia Island, Kerry, a number of white worms with a note saying: "They are making fearful havoc in my seeds and plants, eating the seeds especially. They hide in the crevices of the little wooden boxes in which I have seeds, and come out at night. They crawl along very fast, and when frightened seem to sink into the wood till almost invisible." I reviewed the position in 1897, in a paper on White Worms as Plant Pests, and



FIG. 166.—CHINESE VINES AT ALDENHAM. (See p. 305.)

In the meantime, the matter was arousing considerable interest in our own country. In 1885 Miss Ormerod, the well-known entomologist and naturalist, had received specimens of small white worms, found in soil among the roots of plants, and had submitted them to another investigator for examination. They were suspected of damaging the plants among which they were found, but Mr. Harker's opinion was that "it did not seem very probable that they could seriously injure the plants." The worms, an inch and a half in length, were evidently fully developed specimens of *Enchytraeus albidus*, Heule, since no other worm commonly found under these conditions attains such dimensions. Now I have given this worm and its allied forms much attention for many years, but have never succeeded in finding a stylet or chitinous tongue such as Vejdovsky speaks of in relation to *Achaeta*. The organ which does exist in the mouth is very soft and cellular.

In 1888 the Rev. W. Lockett, of Littledean, sent soil containing a large number of Enchytraeids, to Mr. Harker, complaining that many of his plants were attacked by them. The following year Mr. Harker wrote to *Nature*, stating that he suspected certain small worms of damaging, if not destroying, cultivated plants. He therefore instituted a series of experiments with Enchytraeid worms, but the

gave what I then thought to be indubitable proof that Enchytraeids were destructive parasites. Near Birmingham the China Asters were badly affected, and a tiny worm was found at their roots, which I named *Enchytraeus parvulus*. For many years thereafter I continued to regard these creatures with suspicion, especially the Aster worms. These suspicions were deepened when in 1898 my Celery began to suffer.

In 1899, some Fritillary bulbs, from Kew, were submitted to me, infested with the Aster worm, and during the year many inquiries reached me on the subject of disease and white worms. "A Pasture Problem," was the title of an article printed in this *Journal* (*Gard. Chron.*, June 17th, 1899, p. 391), in which I gave details respecting the supposed injurious action of one of these worms (*Fritidicia agricola*, Moore), at Maidstone. The conclusion was that "the worms are not hastily to be condemned; though they were found in the stems of grasses, they may have been there as scavengers, because the grass was already injured."

In 1900, Bretscher, dealing with Swiss Enchytraeids says that though Vejdovsky and Friend have shown that these worms are sometimes injurious to plants, it must not be supposed that this is the rule. Myriads of white worms exist, they are constantly at their

appointed task, yet it is only in exceptional years that they are found in any number under circumstances which arouse suspicion. The year 1902 was one which brought me many letters of inquiry, especially from Ireland. One reported trouble among Lilies, another in Celery, a third in Tomatoes, and a fourth in Swede Turnips.

Professor Theobald also reported about this time that garden plants at Nottingham were suffering from attacks. During following years, down to the outbreak of war, Asters, Cucumbers, Strawberries, Wheat and many other plants were said by one and another to show signs of decay, owing to white worms. It was with surprise that I learned that trees also were supposed to suffer from these creatures, which had passed from Asters and Celery to Chrysanthemums and Hops, and finally to the Cherry and the Larch!

There is a natural tendency, under such circumstances as these, to become suspicious. It is a case of "Give a dog a bad name," and everyone will prove him guilty. When once we are prejudiced we are in danger of following a false scent, and this tends to warp judgment, delay research and prejudge the guiltless. I therefore urged that the matter should be taken up, either by the Board of Agriculture, or some other competent body, and had just succeeded in securing attention when the war broke out. *Hilderic Friend.*

CHINESE CLIMBERS AT ALDENHAM.

(Concluded from p. 270.)

RUBUS.—*Rubus bambusarum* (Fig. 167), of evergreen character, was first discovered by Dr. Henry (after whom a very similar species is named), and introduced by Wilson in 1900. It grows rapidly, and the long slender shoots, if trained to a pole, have a singularly graceful effect. The foliage, divided into three or more leaflets, is dark green above, and thickly covered with a whitish down on the under surface, whilst the edible black fruits, in long panicles, are quite striking. *R. flagelliformis* probably has the most ornamental foliage of any Chinese Bramble, and though the annual growth is not so long as that of the last-named species, it should be trained in the same way to a pole or other support. The numerous slender stems are then enabled to droop gracefully around on all sides. It has clusters of white flowers, and edible black fruits of good size.

Rubus irenaeus has proved a very valuable addition to the number of evergreen shrubs which may be used satisfactorily for clothing shady banks, bare places under trees, and similar positions where comparatively few shrubs thrive. The beauty of the large, round leaves is enhanced by the metallic lustre on the upper surface, and they are pale brown below. The fruit is said to be large and red, but it is very shy of producing them, at any rate, at Aldenham.

SARGENTODXA CUNEATA.—This representative of a new genus, named in compliment to the distinguished Director of the Arnold Arboretum, resembles *Holboellia*, but differs primarily from it in its very distinct fruits. It thrives at Aldenham on a wall facing east, and will be watched with much interest, as Mr. Wilson states "For warmer districts than the Arnold Arboretum it will be a handsome climber with pendulous racemes of yellow, fragrant flowers in spring."

SCHIZANDRA GRANDIFLORA.—The older members of this genus are said to be very decorative when fruiting, and this new species may be expected to prove an addition to the number of climbers of moderate proportions. The foliage is quite ornamental, and Mr. Wilson describes the flowers as flesh-pink, and the fruits red.

SINOFRANCHETIA CHINENSIS.—This represents another new genus, allied to *Holboellia*, which has proved quite hardy and of free growth. Its deciduous foliage is very distinct, being composed of three leaflets, each about 6 inches long and very glaucous on the underside. The strong stems should be supported on a pole of good

height. The flowers are dull white, but the large, purple, Grape-like fruits deserve mention.

VITIS.—China has proved remarkably rich in ornamental species and varieties of the Vine, and a great diversity of form and colouring will be found among the undermentioned. The majority need ample space for proper development, and at Aldenham splendid specimens may be seen growing on the walls of the mansion, on arches (Fig. 166), pergolas, trellises, and other old trees, etc.

Vitis armata, also known as *Spinovitis Davidii*, has been grown in England since 1885, but was sent to Messrs. J. Veitch and Sons by Wilson in 1900. It is a very luxuriant grower, and its stems are armed with strong hooked spines. These short, closely packed spines present an appearance strongly resembling clusters of green fly, and Mr. Gibbs tells me that he found one of his friends puffing away at the plant with his pipe, being under the impression that he was helping to rid him of that common pest! The

attractive. The young leaves and stems are reddish-purple; these gradually assume a greenish tone, the leaves finally changing to a rich port-wine red, before falling. Of the beautiful *V. Vicari* little is known, as it is a chance plant discovered at Aldenham among many of Mr. Wilson's seedlings. It is especially noteworthy on account of its brilliant rose and primrose autumn colouring. It is a self-clinging species, of rapid growth, suggestive in its general appearance of the well-known Virginian creeper, but with more refined and more corrugated foliage. The name has no scientific authority, and has been attached to it provisionally at Aldenham until someone can assign another. So far, though seen by many experts, it is still unrecognised.

The hardy ornamental-leaved vines are a much neglected race of plants generally, seeing how valuable they are for summer and autumn decoration of the garden, and there are few plants that give such rich autumn tinting. *A. E. Thatcher.*



FIG. 167.—*RUBUS BAMBUSARUM* AT ALDENHAM

fine large foliage generally assumes a brilliant red colour in the autumn. *V. a. cyanocarpa*, also known as *V. a. Veitchii*, is more vigorous than the type, and its autumn dress is even richer. *V. flexuosa Wilsonii* is a very charming variety of moderate growth, with small leaves, which are bronzy green above, with a metallic sheen, and purple beneath. *V. Henryana* is a strong-growing Vine well adapted for clothing the north side of a building, to which the tendrils enable it to cling. The handsome foliage, dark green, with white and pink variegation, changes to red before falling. *V. heterophylla Delavayana* is a self-clinging climber of great beauty in the autumn, when the leaves put on the most brilliant red hues. *V. megalophylla* is an extraordinary Vine, which has fortunately proved quite hardy. The fine bi-pinnate foliage, frequently more than 2 feet in length and width, is attractive and interesting, though it puts on no rich autumn colour. This Vine is well suited for training on a pole of good height, where the great leaves are seen at their best.

Vitis Piasezkii is a very pretty climber of moderate growth, with small leaves, which turn a very brilliant red in the autumn. *V. Thompsonii* is one of the most pleasing of the small growing Vines, and the foliage is particularly

BLUE FLOWERING CLIMBERS FOR THE GREENHOUSE.

Of the many tender flowering climbers suitable for the embellishment of the greenhouse and conservatory during the summer few surpass *Sollya Drummondii* (syn. *S. parviflora*), a pretty, neat, evergreen twiner from Australia. With its exquisite blue colouring it is worthy of a place in every cool greenhouse or conservatory, but for some reason or other it is comparatively very little known. Those who have not previously grown it would be much gratified by its floral display. Few plants excel it in neatness of growth and free flowering habit. It has small, dark foliage and deep blue flowers, which are produced in abundance during July and August. It may be grown in many ways, for instance, in 5-inch to 6-inch pots, and allowed to twine itself on a stick 2 feet to 4 feet long, and it will continue to twine until it becomes a thick mass of growth full of flowers. In this form it makes a very effective decorative plant, and is very attractive dotted amongst a group of miscellaneous plants. *Sollya Drummondii*, when planted out, is admirably adapted for covering pillars, trellises, or walls, and makes an ideal plant for covering dead Tree Ferns, or

rough poles, climbing amongst them and requiring very little attention. It may be increased from seed sown in slight heat in March, or by cuttings inserted in that month. Young shoots that are a little firm at the base should be inserted in sandy soil in slight heat under a bell-glass, hand-light, or frame. The plant requires a winter temperature of 40° to 45°. It should be grown in a mixture of light, turfy loam, and fibrous peat, or leaf mould with silver sand added.

Sollya heterophylla (the Australian Blue-bell Creeper) is a free growing and free flowering evergreen species, with light green foliage and pale blue flowers that are borne in gracefully drooping clusters from July to September. It is most suitable for growing in any ordinary greenhouse or conservatory either as a pot specimen, or planted out for covering pillars or for training to the rafters, and is well adapted for growing in any small house on account of its neat and compact habit of growth. It requires similar treatment to *S. Drummondii*.

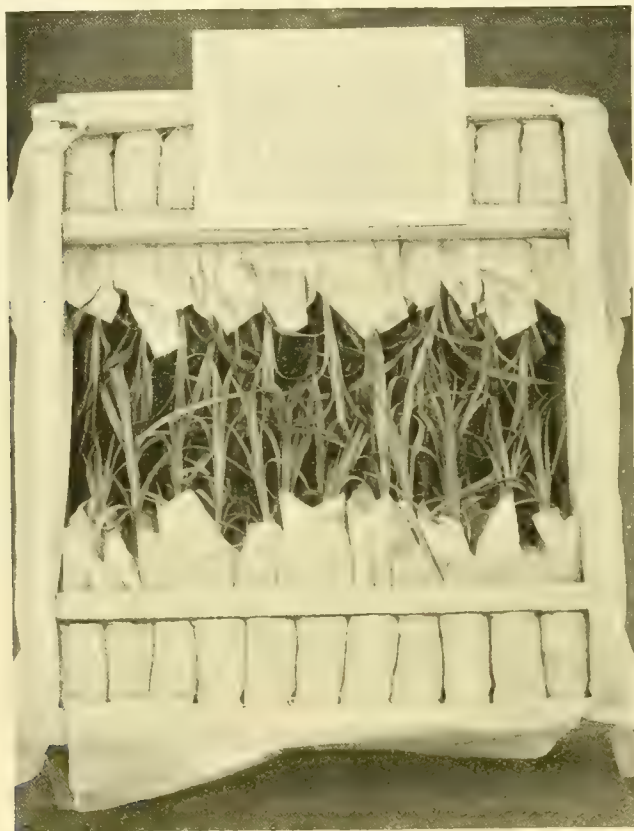


FIG. 168.—CARNATION PLANTS AS PACKED FOR EXPORT, AFTER NEARLY TWO MONTHS SOJOURN IN COLD STORAGE.

Tibouchina semidecandra (syns. *Pleroma* and *Lasiandra macrantha*) is a very beautiful autumn and winter flowering plant, especially useful for covering a back wall or pillars in an intermediate house or conservatory where the temperature is not so warm as in a stove or so low as in an ordinary cool greenhouse. It flowers freely when quite small, in pots, and its rich violet-blue flowers are exceedingly welcome during the winter. Cuttings of half-ripened side shoots root readily in sandy soil, in a frame or hand-light over a little bottom heat. When well-rooted the plants should be potted in a compost consisting of equal parts light turfy loam, fibrous peat, or leaf mould, with silver sand added. Syringe the plants freely during the summer, and give them a moderate amount of air, but do not expose them to cold draughts. A slight ripening of the wood is beneficial during the autumn. After flowering, the growth may be moderately shortened. The plant should be grown in a winter temperature 50° to 55°.

Plumbago capensis is one of the most useful,

free flowering, easily grown plants we possess. It develops large heads of pale blue flowers, and lasts in bloom for several months during the summer and autumn. It is very suitable for furnishing pillars and rafters in the greenhouse or conservatory, and is invaluable for summer bedding arranged with other plants in mixed beds or borders. This *Plumbago* is also very effective trained as a standard or half standard. Cuttings of well-ripened wood root freely in sandy soil under a hand-light or frame over slight bottom heat. The soil should consist of two-thirds turfy loam, one-third fibrous peat or leaf-mould, with silver sand added.

Ipomoea rubro-coerulea (Heavenly Blue or Morning Glory) is a lovely climber of rapid growth, and neat habit, most admirably adapted for covering trellis work, pillars, and rafters in an ordinary greenhouse or conservatory. It produces an abundance of beautiful, sky-blue flowers four to five months after the seed is sown. It requires a moderately sunny position;

PACKING CARNATIONS FOR EXPORT.

An exceedingly successful illustration of his method of packing young Carnation plants for exportation overseas was given by Mr. C. Engelmann at the recent Chelsea Show. The plants, which had been grown in "small 60's," were turned out of their pots and packed into a box on March 28 last. The box was then placed in cold storage, under similar conditions to those which obtain on board ship, until May 23, when it was brought to the Chelsea Show and opened in the presence of Lord Lambourne. It was readily seen that the plants, after having been shut up for just eight weeks, were in splendid condition. This demonstration box containing 75 plants, was one-half the standard size, and its capacity about half a cubic foot—an important matter when it is remembered that the steamship companies base their charges for goods carried in cold storage by their cubic area and not by weight. The accompanying illustration (see Fig. 168) shows the method of packing adopted, and it will be seen that the soil and roots of each plant are wrapped in grease-proof paper to check evaporation. The box in question was sealed down, when packed, by Lord Lambourne, and by an error it was sent from cold storage to Saffron Walden instead of direct to Chelsea; this necessitated a return journey, and a whole day on rail did not tend to improve the plants. The plants were prepared for export before being packed, and they stood the test remarkably well—indeed, they appeared as though packed only two or three days previously.

FRUIT REGISTER.

PEARMAIN APPLES.

The name Pearmain has always been understood by fruit growers and pomologists generally to indicate a conical or pointed variety, and most sorts of the section are of first rate quality, especially those that are in use late in the season.

Christmas Pearmain is a good cropper and grower. The fruits are of medium size coloured red, with russet markings. The flesh is crisp and of excellent flavour. This variety produces heavy crops on bushes and espaliers.

Baxter's Pearmain bears fruits of medium size, which have a crisp and agreeable flavour. They are of greenish colour tinted with red. This variety makes plenty of wood growth and is very hardy. Its season is December to March.

Scarlet Pearmain or Oxford Peach is another excellent variety for cropping, the fruits being beautifully coloured deep crimson and red. They are of middle size, oval in shape, with a small, deeply-sunken eye and a stalk, which is also deeply inserted, half an inch long. This variety is suitable for growing on light loamy soils and the fruits are in season at Christmas.

Claygate Pearmain is an old variety of much merit, and added to its excellent quality are prolific cropping and long keeping. On rich soils the fruits grow to a large size, but this Apple has always a rich, sweet flavour. The skin is coloured dull yellow with several broad stripes of red; the flesh is yellow.

Blue Pearmain is a remarkable Apple owing to the intense bloom which develops on the skin, giving it a blue appearance. It is perhaps a little too large for dessert purposes, but it lacks nothing in flavour. The plant makes a strong bush and also does well as a standard. It is in season from December to February.

Mannington Pearmain is another excellent Apple and keeps as late as April, yet it retains its rich flavour. The fruit is of medium size, with a rich golden yellow skin that has a brownish hue on the side next to the sun.

Adams's Pearmain is a fine late Apple that crops abundantly. The fruits are of medium size, coloured red and yellow with a splash of russet. The flesh is firm, crisp and highly aromatic. *Pomona*.

if grown in a shady part of the house it does not flower well, and the growth becomes weak and spindly. The seeds should be sown in spring in shallow pans or well drained pots, filled with sandy loam, peat, or leaf-mould in equal parts. Cover the seeds lightly and germinate them in gentle heat. *Solanum Wendlandii* is a most decorative plant producing long terminal cymes of from fifteen to twenty flowers each, the individual blooms being from 1½ inch to 2½ inches across. They are light purplish blue with a club-like cluster of yellow stamens. Trained to pillars or the roof rafters of a warm greenhouse or conservatory it produces a most striking display during the months of July, August, and September. It also makes a good plant for flowering in pots. This *Solanum* may be propagated from well ripened shoots, making the cuttings 2 to 3 inches long, with one or two eyes. They should be inserted perpendicularly in pots, with the bud just level with the surface of the soil, and placed in bottom heat in January or February. *John Heal, V.M.H.*

MESEMBRYANTHEMUM AND SOME NEW GENERA SEPARATED FROM IT.

(Continued from page 262.)

DD.

Some or all of the dots confluent or connected into lines, or the growths marked with lines not formed of dots, often forming a sort of pattern. (Species 23-49). See also 19 *C. piluliforme*.

E.

Top of the growths flattish, or with a shallow, trough-like transverse depression nearly as broad as the top, or slightly excavated and shallowly cup-shaped. (Species 23-31). See also 33 *C. leviculum*, and 37 *C. signatum*.

23. *C. minimum*, N. E. Br. Growths very small, about six lines high, obconic, truncate, with each side rising a little higher than the middle, causing them to appear as if transversely channelled, with a scarcely perceptible central puberulous orifice, smooth, somewhat glaucous-green, marked with several single and confluent spots, forming somewhat branched lines. Flower small, calyx 5-lobed, cylindric, membranous, at length campanulate, prettily spotted with red. Ovary exserted above the top of the plant. Petals whitish-yellow or whitish.—*M. minimum*, Haw., *Obs. Mesemb.*, p. 126 and 131, under *M. nuciforme*, and 450 (1795), and *Misc. Nat.*, p. 21.

Locality unknown. Introduced by Masson before 1776.



FIG. 169.—CONOPHYTUM NEVILLEI, N.E.Br.
NATURAL SIZE.

This has long been lost to cultivation, and I have not seen any species that will agree with Haworth's description as above given.

24. *C. perpusillum*, N. E. Br. "Differs only from *M. minimum* by its included ovary, and a little in its numerous offsets and darker colour. Smooth, green, with stout confluent branched spots. Ovary included."—*M. perpusillum*, Haw., *Rev. Pl. Succ.*, p. 82 (1821).

Locality unknown.

This species is also quite unknown to me. But there are at least three species in cultivation under the name *M. perpusillum*, neither of which in any way agree with Haworth's description of it. Possibly *C. perpusillum* is not specifically distinct from *C. minimum*, but this cannot be decided until the plants are rediscovered.

25. *C. praecinctum*, N. E. Br. Growths 4-5 lines long, 3-4 lines broad and 2-3 lines thick at the flattish top, which is elliptic-oblong in outline and not depressed at the orifice; the sides are purple, and the top greyish-green, often tinged with purple, marked with a dark purple (or probably sometimes dark green) ring formed of confluent dots parallel with and inside the margin, and a very few scattered dots of the same colour. Calyx-tube exserted, 5-lobed; ovary included. Corolla 5-6 lines in diameter, expanding in the evening, scented; tube 2½-3 lines long, about as long as the calyx;

petals recurved-spreading, pale cream-coloured. Stamens scarcely exserted, whitish. Style about ½ line long; stigmas 4, nearly 1 line long.

Locality unknown. Bolus, 15933.

This species is unknown to me, I have described it from an excellent coloured drawing made by Miss M. Page from a living plant, which I understand is now dead.

26. *C. obmetale*, N. E. Br. Growths 5-10 lines long and 4½-7 lines in diameter, obconic, nearly circular in outline at the nearly-flat top (type F), greyish-green or dull green, marked with very distinct dull purplish-brown or dark green branching lines formed of confluent dots, with a few separate dots scattered among them. Calyx 4-lobed. Corolla 5-5½ lines in diameter, opening about sunset, closed during the day, scentless; tube about as long as the calyx; petals 16-30, recurved-spreading, milk-white, very shining. Stamens 12-25, in two series, the upper anthers just exserted, yellow. Style about one line long; stigmas 4, plumose-filiform, ½ lines long, whitish or yellowish-green.—*M. obmetale*, N. E. Br. in *Journ. Linn. Soc. Bot.*, Vol. 45, p. 95 (1920).

South Africa. Locality and collector unknown.

27. *C. nevillei*, N.E.Br. (Fig. 169). Growths of newly-introduced plants 4-6 lines long and 4-6 lines in diameter, sometimes becoming under cultivation up to one inch long, and as much in their greater diameter, broadly obconic, usually flat the circular or broadly elliptic top, but different plants varying (types F and K), sometimes being slightly obcordate, or with the centre depressed in a slight cup-like manner, more or less purple on the sides, but the top varying much in different individuals, being light green, dull green, grey-green, or rather bright rosy-carmine marked with dark green or dark purple dots, which are more or less connected or confluent into simple or branching lines, or occasionally all, or nearly all, separate, and are often faintly raised, varying on different plants in arrangement and size. Calyx-tube more or less exserted, 5-lobed, ovary included or exserted. Corolla finally 4-7 lines in diameter, opening after sunset, slightly scented; tube about as long as the calyx; petals 30-40, in 2-3 series, recurved-spreading, white or creamy-white. Stamens with slightly exserted pale yellow anthers. Style very short or nearly obsolete; stigmas 4, less than 1 line long, filiform, white.—*M. nevillei*, N. E. Br. in *Journ. Linn. Soc. Bot.*, Vol. 45, p. 95. *M. obcordellum*, Sims, *Bot. Mag.*, t. 1647, not of Haw.

Van Rhynsdorp Div., near Van Rhynsdorp, Pillans.

This is a very variable species in shape, colour and size, and I find that the plant figured in the *Botanical Magazine* as *M. obcordellum* is undoubtedly this species, for I have had some growths of my plants as large as or larger than that figure, and in every way like it. I have one plant of this species which in summer becomes entirely of a rosy-carmine tint, and is then a very pretty and distinct-looking plant.

28. *C. obcordellum*, N. E. Br. Growths usually about 4-5 lines long, 4-6 lines broad and 3½-5 lines thick, but sometimes much larger, obcordately obconic, from a transverse notch across the top (type L), green or more or less glaucous-green, usually tinted with purple when exposed to full sunshine, marked on the top with raised or tubercle-like dots, mostly confluent into irregular lines, of a dark purplish or dark green colour, according to sunshine. Calyx 4-5-lobed. Corolla 5-10 lines in diameter, sometimes both sizes on the same plant at the same time, expanding between 4 and 5 p.m., closed during the day, faintly or scarcely scented; tube 2-2½ lines long; petals 25-40, recurved-spreading, lax, milk-white to very pale straw-colour, sometimes tinged with pink at the tips. Stamens slightly exserted, anthers pale yellow. Style ½ line long, whitish or greenish. *M. obcordellum*, Haw. *Misc. Nat.*, p. 21 (1803); Salm Dyck, *Mesemb.* § 1, f. 2. *M. obconellum*, Haw. *Misc. Nat.*, p. 21 (1803); Salm Dyck, *Mesemb.* § 1, f. 3.

Worcester Div., near Worcester, Cooper. Clanwilliam Div., near Clanwilliam, Pillans.

There is no character whatever to distinguish the two plants known in gardens and figured by Salm Dyck as *M. obcordellum* and *M. obconellum*, the distinction given by Salm Dyck and Ly Berger being purely fictitious. As Haworth's original descriptions are inaccessible to the majority, I here give a translation of them. "*M. obcordellum*. Twice as large as the preceding (i.e., *M. minutum*) and more obcordate, glaucous, with the spots more elevated or sub-tubercular, and more confluent and branched or map-like. Ovary included, not raised above the surface of the plant." And in another place he describes the corolla as "whitish."

"*M. obconellum*. Greenish, with confluent tubercle-like dots. Ovary included. Calyx 4-lobed. Petals white. Very like the preceding (i.e., *M. obcordellum*) and of the same size or a little larger, and apparently distinct. It differs by being less obcordate and less glaucous, and with the spots less branched, but more elevated or tubercle-like."

From these descriptions it is clear that there is no real specific distinction between them, the only distinctions mentioned being that one is more glaucous than the other and the markings differently branched and differently elevated. These characters of colour and markings, however, I find, vary on different individuals of this (and also of other) species, when a sufficient number of different individuals are examined. By different individuals, I mean separate plants originating from separate seeds.

29. *C. mundum*, N. E. Br. (Fig. 170). Growths about 5-6 lines long 4-9 lines broad and 4-7 lines thick, broadly obconic, with a shallow v-shaped depression across the full breadth of the elliptic or circular top (type K), or sometimes the top is concave with a raised rim all around it,

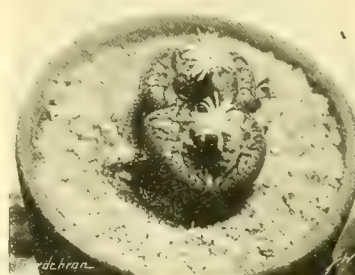


FIG. 170.—CONOPHYTUM MUNDUM, N.E.Br.
NATURAL SIZE.

or occasionally almost flat, dull greyish-green or glaucous-green, tinted with purple, marked with conspicuous blackish-green or blackish-purple, raised or tubercle-like dots that are mostly confluent into irregular lines or groups. Calyx 4-5-lobed; in well nourished plants, the tube and ovary is entirely exserted from the orifice, but sometimes is partly or wholly included in the plant. Corolla, 3-6 lines in diameter, expanding between 4 and 5 p.m., closed during the day, faintly scented; tube equalling or longer than the calyx; petals 30-40, spirally arranged, recurved, white, pale straw-coloured, or pale pink. Style 1-1½ line long; stigmas 4-5, about ½ line long, pale greenish.

South Africa. Locality and collector unknown.

This is one of the most distinct species of this genus, being easily recognised by the depressed top and rather large, raised, blackish dots, confluent into lines. *N. E. Brown*.

(To be continued.)

High Prices for Old Garden Books.—At a sale by Messrs. Hodgson of books from the Cassiobury Park library, the property of the Earl and Dowager Countess of Essex, a copy of P. J. Redoute's *Les Liliacées*, with 468 coloured plates, Paris, chez l'Auteur, 1802-16, realised £100, and a copy of E. P. Venat's *Jardin de la Malmaison*, 1803, with plates in colours, sold for £51.

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Roofing of Garden Fruit Cages.—Our fruit garden is 80 yards by 60 yards, and surrounded by a board fence 8 feet high. Just previous to my coming here, 9 years ago, it was covered with wire, on wooden posts 10 feet high. The stock of fruit trees consists of fifty pyramid Pears, 9 ft. high, Cherries, three hundred Gooseberry and Currant cordons, Black Currants, Raspberries, and eighty Gooseberry bushes. Trained against the fence are one hundred cordon Pears, also Plums and Cherries. All these fruits succeed well, as do all kinds of vegetables; but Royal Sovereign Strawberry absolutely refuses, either from forced plants or runners from outside, to make one single leaf. As this is the case with plants set out in April, it is not likely to be caused by drip from the wire. The plants grow splendidly until they are put out, and do so now just outside, round the border; inside the cage, Laxton's Latest and Givon's Late Prolific do fairly well and I hope to find other sorts to grow. On the whole, the cage is very useful. Mr. Preece, on page 216, has an excellent suggestion, i.e. to remove the sides to admit both air and birds. Our large expanse of wire requires the snow to be shaken through by tapping underneath with rakes, and as the snow falls on those who dislodge it, sometimes at 10 p.m., the remarks are varied and not always complimentary to permanent wire coverings. *J. W. Harris, Bevedean Gardens, Oxshott, Surrey.*

—Both my employer, Mrs. Insole, and myself have read with interest the correspondence on the roofing of garden fruit cages. In these gardens we have a fruit cage completely wired in and with an iron door at each end. It is planted with Red and Black Currants, Raspberries, standard and bush Gooseberries, and a bed of Strawberries. On March 31 snow fell heavily all day in this locality, and the next morning I had the mortification of finding the cage level with the ground. Several of the fruit bushes were badly damaged, two of the standard Gooseberries being snapped off at the base. The iron supports were bent in all shapes, which necessitated the dismantling of the whole structure and the sending of the supports to the blacksmith. I have not seen any ill effects on the plants from zinc salts. The one pest we are troubled with is caterpillar on the Gooseberry bushes. We find the pest is best destroyed by syringing with an insecticide. After the above experience, I think a roofing of ordinary garden netting, which could be put on or removed as the occasion demands, would be the most serviceable. *Albert Vickery, The Court Gardens, Llandaff, South Wales.*

Magnolia Soulangeana.—I have pleasure in sending you a photograph of a fine specimen of this magnificent early flowering Magnolia. The tree is growing in the garden of Sherwood House, Windlesham, Surrey, which is occupied by Mr. W. R. Oldham, who is manager of the extensive nurseries of Messrs. W. Fromow and Sons. The photograph does not really do justice to this handsome specimen. [We regret it is unsuitable for reproduction.—EDS.] At the time it was taken rough measurements were made and it was found that the tree stands 27 feet high, with a spread of 30 feet. Planted some 40 years ago, it has done well, and flowers regularly and profusely every year. In the fine clear air of this part of Surrey the flowers open perfectly, and are superb as regards colour and form. The tree was worth travelling far to see when in bloom. *A. H. Hoare.*

Begonia Dregel.—Besides the hybrids mentioned by "W." in his note on this plant on p. 209, another hybrid of Dregel is *B. carminata*, raised some years ago by Messrs. J. Veitch and Sons. The other parent was the tall-growing *B. coccinea*. *Begonia carminata* forms a bushy specimen, from two feet to three feet in height. The flowers, which are borne in pendulous clusters towards the end of the summer and in early autumn, are of a bright carmine-pink

colour. It is of great value in the greenhouse at a time when some of the summer-flowering occupants of that structure are past their best. *T.*

Primula obconica.—Readers who have specially fine varieties of *Primula obconica* should not throw them away. If carefully divided as soon as the best of the flowers are past, not into large pieces, but small ones, potted into a light rooting compost, and kept close and shaded for a time in a cold frame, subsequently shifting them on into larger pots, they will succeed admirably, and flower more abundantly than one-year-old seedlings.—*R. P. B.*

Fruiting of Ficus stipulata.—*Ficus stipulata*, better known in gardens as *F. repens*, is fruiting in these gardens in an old disused house, where it has been growing for upwards of forty years. Formerly the plant was kept closely trimmed, and it entirely covered the wall, but for several years past it has been allowed to grow at will and now has fruited. I am not sure whether this species of *Ficus* has ever fruited previously in this county, but, in any case, fruiting must be a somewhat rare occurrence. *G. G., Temple House Gardens, Marlow.*

[The fruiting of *Ficus stipulata* is fairly common in greenhouses in this country; see *Gard. Chron.*, March 12, 1904, where a fruit is illustrated in Fig. 72.—EDS.]

Carnation Bis Greenfield.—I fail to understand *Midland Grower's* treatment of *Bis Greenfield* Carnation (see p. 263). I most emphatically state that I have found it quite as good as *Carola*, and not so shy in producing blooms as he states. The plants, from my point of view, are always vigorous, healthy and resistant to rust. *Midland Grower's* treatment puzzles me, as any Carnation grown under good treatment, no matter how shy in producing blooms, will produce more than one flower in eighteen months. From my experience, *Carnation Bis Greenfield* is second to none among the perpetual-flowering type as a scarlet variety. *C. H. Cooper, Polesden Lacey Gardens, Dorking, Surrey.*

Musa Cavendishii.—Mr. Jordan's note on 263 and his reference to my late father bring most vividly to my mind the receipt of those wonderful *Impney Bananas* at the office of the *Journal of Horticulture*. They were of extraordinary size, of speckless cleanliness, of splendidly rich colour, and of superb flavour—indeed, that was the first occasion on which I tasted a Banana. I have had many since from my gardener friends up and down the country, and the flavour has been always as incomparably superior to the imported fruits as are Rivers' Oranges to the foreigners. Reverting to my father, his pleasure in those Bananas, as in point of fact it was in every example of particularly conspicuous cultural merit which came under his notice, was immense, and, if I remember aright, his immediate decision, after he had momentarily exhausted his expressions of delight, was that he must write to Mr. Jordan one of his characteristic letters, on this occasion, of whole-hearted, sincere congratulation, though some of us know that all of his epistles did not proceed on the suavest lines. Meanwhile the printers were waiting for "copy," and the foreman was well-nigh beside himself with rage at the delay. When the printer found an opportunity to come into personal touch with my father, he started to speak, but my father simply looked at the Bananas lovingly once more and told him to go and wait. MSS. and proofs were swept ruthlessly aside and the letter was written—the grand fruits occupied my father's mind to the exclusion of aught else. I do not like to speak too firmly after a lapse of roughly 30 years, but I have good reason, since all the copy passed through my hands, to believe that Mr. Funnell (page 263) is in error in attributing the Banana article in the *Fruit Grower's Guide* to Mr. Ollerhead, who, however, most probably read and approved it in proof form, as he and my father were great friends, with an intense mutual respect. *Horace J. Wright, Lidlington, Beds.*

SOCIETIES.

MANCHESTER AND NORTH OF ENGLAND ORCHID

THURSDAY, MAY 11.—Committee present: The Rev. J. Crombleholme (in the chair), Messrs. R. Ashworthy, B. J. Beckett, J. Birchenall, A. Burns, A. Coningsby, D. A. Cowan, C. Cowan, J. Cypher, A. G. Ellwood, J. Evans, W. Giles, A. Hammer, J. Howes, A. Keeling, D. McLeod, J. Thrower, E. W. Thompson, and H. Arthur (secretary).

AWARDS.

FIRST-CLASS CERTIFICATES.

Odontoglossum crispum Earl Balfour. A fine variety of the Dora type; *O. crispum* Queen of the May, a beautiful variety of the Dora type with rose-coloured flowers; *Brassolaelio-Cattleya* Lady Rachel var. *Ivorie*. A pure white flower with a rose blotch on the lip. All from Mrs. GRATRUX.

Odontoglossum Doreen var. *Queen of the Belgians*. A large flower of grand shape, heavily blotched reddish brown; *O. Colossus* (eximium × *Armstrongiae*). Flower heavily spotted and barred with reddish brown; *Brassolaelio-Cattleya* Joan var. *Golden Aureole*. A beautiful variety with deep, clear yellow flowers. All from S. GRATRUX, Esq.; *Brassolaelio-Cattleya* Jupiter var. *Jove*. A mauve-coloured flower with a blotch of magenta on the lip. From Mrs. BRUCE and Miss WRIGLEY. *Odm. eximium rotundum* (C. Leonard Perfect × *ardentissimum*). A white flower with very broad sepals and petals, blotched and spotted with reddish brown. From P. SMITH, Esq.

AWARDS OF MERIT.

Odontoglossum crispum Mary Regina; *O. Pescatorei* Gratirixiae; *Brassolaelio-Cattleya* Andre Maron (B.-C. *Leemanae* × C. *Schröderae*); *Laelio-Cattleya* Vesuvius var. *Flammea*. All from S. GRATRUX, Esq. *Brassolaelio-Cattleya* Pink Pearl (B.-C. *Empress of Russia* and C. *Schröderae*); B.-C. Hon. Mrs. Fitzroy (B.-C. *Thorntonii* × C. *Mossiae* Wagnerii); *Cattleya* Irene var. *Grandis*. From Mrs. GRATRUX. *Odm. Conqueror* var. *Illustrious*. From P. SMITH, Esq.

GROUPS.

S. GRATRUX, Esq., West Point (gr. Mr. J. Howes), staged a group in variety for which a Gold Medal was awarded. A. HAMMER, Esq., Buxton (gr. Mr. Giles) was awarded a Silver-Gilt Medal for a group of *Odontoglossums* and *Odontiodas* in variety.

MESSRS. CYPHER AND SONS, Cheltenham, were awarded a large Silver Medal for a miscellaneous group.

ANNUAL MEETING.

The annual meeting was held at 2.30 p.m. The President, Mr. A. Hammer; the Hon. Treasurer, Mr. R. Ashworthy; the Chairman, the Rev. J. Crombleholme; and the Hon. Secretary, Mr. H. Arthur, were all re-appointed. The Committee was also appointed. The prizes were presented to the successful competitors as follow:—Mr. J. J. Bolton's Gold Medal for *Cypripediums* to S. GRATRUX, Esq. (gardener's prize, Mr. J. Howe), and the Silver-Gilt Medal offered by that gentleman for *Cypripediums* to Mrs. BRUCE and Miss WRIGLEY (gardener's prize, Mr. A. Burns), who also won the Botanic Society of Manchester's Silver-Gilt Medal: that Society's Silver Medal was won by S. GRATRUX, Esq. Dr. Hartley's prizes for excellence of culture in conjunction with the above medals were awarded as follow: Mr. A. BURNS, first; Mr. J. HOWES, second; and Mr. G. GILES, third. Messrs. Charlesworth and Co.'s prize for new awards was won by S. GRATRUX, Esq. (gardener's prize, Mr. J. Howes), and he also won Messrs. J. Cypher and Co.'s prize for arrangement of groups and Mr. Evans' prize for *Odontoglossums*. Mr. Hammer's prize for the most points was awarded to S. GRATRUX, Esq. (gardener's prize, Mr. J. Howes), who also won Messrs. Hassall and

Co.'s prize for Cattlevas and hybrids; Mr. Gratrix's prize for Odontiodas went to A. HANMER, Esq. (gardener's prize, Mr. G. Giles); and Messrs. Stuart Low and Co.'s gold medal for home-raised seedlings was won by the Rev. J. CROMBLEHOLME, and that firm also presented a silver-gilt medal for home-raised seedlings to Mrs. BRUCE and Miss WRIGLEY. Capt. Horridge's prizes in conjunction with the above medals were awarded to Mr. E. MARSHALL, first; and Mr. A. BURNS, second. Messrs. J. and A. McBean's prize for Cymbidiums was won by the Rev. J. CROMBLEHOLME (gardener's prize, Mr. E. Marshall). Mr. P. Smith's prizes for groups were awarded to Mr. J. HOWES, first; Mr. A. BURNS, second; and Messrs. G. GILES and E. MARSHALL, third. The majority of the above prizes have been offered for competition during the ensuing season.

IRIS CONFERENCE IN PARIS.

THE Paris Iris Conference was held on May 27. There was a fair attendance, over sixty persons being present, including Mr. W. R. Dykes and Mr. R. W. Wallace from England; Mr. Wister, president of the American Iris Society, and Mr. Bonnewitz, delegate from America; M. Correvo, from Geneva; and many French nurserymen and amateurs.

The hall was well filled with collections of cut spikes of garden Irises. Messrs. VILMORIN-ANDRIEU and Co. staged about 300 varieties, including about 50 novelties of their own raising, mostly of their large flowering strain. Messrs. CAYEUX and LECLERC had a very fine and extensive display of choice varieties and some very good new sorts of their own. Mons. MILLET had also a large and goodly collection, containing some of the fine varieties raised by M. Denis and some by himself. Smaller collections came, also, from amateurs, and one of old varieties from the Paris Museum.

Mme. PH. L. DE VILMORIN contributed an exhibit of a unique collection of over 200 very accurately hand-painted plates of Iris, mostly of the Pogoniris section.

Mons. D. Bois presided, and after an address of welcome invited Messrs. Dykes and J. Wister, Presidents of Honour of the Conference, to sit with him.

The debate was then opened on the thirteen questions set out, fifteen papers having been sent in reply to these questions. It would occupy too much space to detail these, but among the most important were those from Mr. Krelage, on "The History of the Raising of Garden Pogoniris"; from Mr. Hoog, on "Oncocyclus and Regelia Irises and their Hybrids"; three papers on "The Hybridisation of Iris" from Messrs. Dykes, Bliss, and Yeld respectively; two on "The Classification of Pogoniris" by Mr. Sturtevant and another member. Other papers were on the use of Irises in garden decoration, two on the use of these plants in drugs and perfumery, one on the insects and diseases that attack Irises, and a very interesting one by M. Guillaumin on "Abnormalities in Iris." It was stated that Iris stems have produced opposite branches, and in one case decussate foliage. The specimens were preserved in Mons. de Vilmorin's herbarium, with many other abnormalities.

Then followed a discussion, opened by the American representatives, on "The Nomenclature, Description, and Registration of New Varieties." Mr. Wister, who has done a great work in collecting about 2,500 names of Iris in a large list, complained of many synonyms and lengthy names, and tried to have some of these last shortened according to the desires of the American joint committee on nomenclature. This suggestion was replied to by Messrs. Bois and Guillaumin, of the Paris Museum, that the countries, and among them France, who had representatives having accepted the rules of botanical and horticultural nomenclature of the Congresses of Vienna, 1905, and Brussels, 1910, had no power to change any of the accepted names. To

avoid duplicate names it was decided that a member of the Iris Conference would be detailed to receive the names proposed by raisers and to send them to the American society for standardisation. As for descriptions, novelties, rights, etc., these would be placed in the hands of the "Office internationale de la protection des nouveautés."

Mr. Bonnewitz desired that something be done to render assistance in relation to the work of improvement and other matters on Irises. It was decided to ask three French members to consider these questions and correspond with societies abroad. The Conference then closed, after the chairman had thanked all those who had assisted, and he reminded those present of the meeting to be held on June 1.

Messrs. Vilmorin-Andrieux and Co. kindly invited the members of the Conference to pay a visit to their grounds at Verrieres, on May 29, 9 a.m., to see their Iris collections and new varieties as they grow. Most of the French members of the Conference and many of the foreign visitors named above attended and inspected the large field of commercial varieties; another plot where new varieties are grown, some of them not yet in commerce; the collection of about 400 varieties classed both botanically and by colours; and then the trial beds of about one hundred new, home-raised varieties. Most of these new, large flowering Irises were much admired by the visitors on account of their habit, the size or the colour of their flowers. At lunch, much praise and sincere thanks were tendered to Messrs. Vilmorin by M. Bois and by M. Correvo. In the afternoon, visitors interested in trees and shrubs inspected the collection in M. de Vilmorin's park, while others dispersed in the grounds to see other economic or flowering plants. S. M.

SOCIETE NATIONALE D'HORTICULTURE DE FRANCE.

MAY 26—JUNE 5.—The Spring Show of the French National Horticultural Society took place in Paris, in the greenhouses of the Jardin d'Acclimatation in the Bois de Boulogne. The President of the Republic, M. Millerand, honoured the exhibition by his presence on Saturday, May 27; it had been opened on the previous day by the Minister of Agriculture, M. Chéron.

The large specimen Rhododendrons from Messrs. MOSER, Versailles, and Messrs. CROUX, Chateaufort, which always form one of the attractions of the spring show, were in full beauty, and occupied two sides of the big Palmarium forming two magnificent groups.

As last year, the Orchid Committee had collected all the exhibits of the members into one large group, the name of each exhibitor appearing only on the ticket attached to the plants shown. Several fine specimens were noted, among others Dendrobium Dalhousianum, with flowers of a yellowish tint bearing two purple marks deep in the interior; Laelio-Cattleya Fudora, with purple fringed labellum; L. C. Hyena, with purple labellum; the fine Cypripedium Rothschildianum, Laelio-Cattleya Vilmoreniana (bright pink), and many others.

The garden section of the Sea-bathing Society at Monaco sent a lovely group of the best specimen plants from their houses, including the gigantic Asplenium Nidus-avis, Platycerium grande, the beautiful P. Willinkii with fine foliage, markedly divided; a splendid specimen of Nephrolepis Davallioles furcans, a Heliconia with ornamental red foliage, a group of Anthuriums and ornamental-leaved Bromeliads, Canistrom Sallieri, Cryptanthus zonatus, a group of Pandanus consisting of fine specimens of P. Sanderiana, P. Baptistii, and others.

M. GABERT, of Paris, and MM. CHATELAIN AND GALLIER, of Neuilly, also brought fine collections of ornamental-leaved plants. M. CHANTIER, of Mortefontaine, showed his usual fine collection of Caladiums, Begonia Rex, and Codiaeums (Crotons). Among the Caladiums we noted Hortulania, with lovely pink centre and

large foliage and Mandabu, the leaves of which are tri-coloured.

Single and double tuberous Begonias, with enormous flowers, were shown by M. BILLARD, of the Vésinet, and MM. VALLERAND, of Taverny, who had also a collection of fine Gloxinias. Hydrangeas were extensively shown, notably a large collection of exceptional merit by Mme. FARGETON, of Angers, containing the finest and newest varieties, such as Yvonne Cayeux and Maréchal Foch. Another exhibit, that of M. MOUILLIERE, of Vendôme, contained a new variety, Coquelicot, a lovely pink. Hydrangeas were also shown by M. A. TRUFFAUT, of Versailles, and by Messrs. CROUX, of Chateaufort.

The massed group of zonal Pelargoniums of Messrs. POIRIER, Versailles, so marvellous in its colour and regularity of outline, having been absent for several years from these exhibitions, was seen again with the more pleasure. It contained, among other varieties, M. Poirier, a pretty mauve pink; Mlle. Poirier, pure white; and Jean Gâtine, cherry red.

Messrs. VILMORIN, ANDRIEU and Co.'s exhibit occupied the centre of the show, near the entrance. The general effect was very good, and the arrangement was made with the utmost skill. Besides a very fine exhibit of Calceolarias, a beautiful group of Wallflowers, as well as Schizanthus, Dimorphothecas in variety, Petunias, Poppies, etc., were staged, the whole arranged in separate lots with a border of yellow Tagetes. On the bank of the stream, a little group of alpine plants were placed, including Pinguicula, Saxifragas, Lewisia, and Lotus peltorhynchus. Crowning the whole were several large vases of cut flowers, such as Roses, Eremurus Eiwesii, and E. himalaicus.

In one of the small side houses Messrs. VILMORIN arranged a group of Sweet Peas, with Pyrethrums and Poppies.

MM. CAYEUX and LE CLERC, of Paris, staged a group of annual, biennial and perennial plants, Schizanthus and Clarkias predominating. M. FERARD, of Paris, had a massed group of the same kind, varied at the four corners by groups of cut Irises and Sweet Peas. The same firm also showed, at the entrance of the exhibition, a large rustic scene, furnished with rock plants and various hardy plants, and presenting a very pretty effect. M. LOCHARD, of Paris, showed hardy plants, his group appealing especially to connoisseurs.

Carnations were represented by a pretty group staged by MM. VACHEROT and LECOUPLE, of Boissy-St.-Léger. Their specimens, which bore large flowers, included such varieties as Agathe Nabonnand and Banquise. M. DEBEAUX, of Lyons, showed English and American varieties, including Triumph, red; Mrs. C. W. Ward, pink; and White Enchantress, pure white.

On the occasion of the Iris Conference, held on Saturday, May 27, at the Society's headquarters in the Rue de Grenelle, the exhibits of Irises were more numerous than usual; one important collection was staged at the Society's office on the day of the Conference.

At the exhibition, MM. CAYEUX and LE CLERC showed a large collection of cut varieties, including Ma Mie, white with pale lilac flush; and Mme. Blanche Pion, violet with yellow centre. M. MARON, of Brunoy, brought a small collection of hybrids of Iris Ricardii raised by M. DENIS, the well known grower, of Balaruc.

Near the water, MM. VILMORIN had arranged some fine spikes of cut flowers of the larger varieties raised by the firm, which are at the present time exceedingly popular, such as Ambassadeur, Magnifica, Ballerine and Medrano.

The following varieties were awarded Certificates of Merit by the Iris Committee:—

Mlle. Schwartz (F. DENIS). This was included in M. MARON's group, and has large lilac flowers.

Queen Mary, with absolutely pure white flowers; shown by MM. CAYEUX and LE CLERC. Souvenir de Mme. Gandchaud, raised by M. MILLET, of Bourg la Reine.

Other varieties were also certificated by the Society during the conference.

Mr. G. WEISS, of St. Cloud, decorated very prettily one of the small side houses with rock

plants judiciously arranged to represent little alpine views. *Nepeta Mussini*, dwarf Pinks, *Sempervivum*, *Sedum*, etc., were used, the whole flanked by dwarf Japanese trees, including *Larix leptolepis*, *Thuja obtusa*, *Pinus pentaphylla*, and *Zelkova Keaki*.

Roses were represented by several groups of importance. M. M. MOSER, of Versailles, brought a lovely collection of dwarf Roses, some climbing varieties, and standards; Miss Edith Cavell, a red dwarf, and Verdun, blood-red, were included. M. DEFRESNE, of Vitry, showed a fine collection of climbing Roses, including *Hiwatha* and *Dorothy Perkins*.

M. LEVEQUE, of Ivry, showed a collection of 300 standard Roses, grouped together and bordered by dwarf varieties, such as *Jean Forestier*, bright red. M. A. TRUFFAUT, of Versailles, showed a collection of pot plants, chiefly climbing *Wichuraiana* Roses, in a group in the centre of the Palmarium; also a fine example of *Metrosideros florida*, with its curious and interesting red flowers. M. NONIN, of Châtillon sous Bagneux, showed a small group of Roses on a base of turf, including *Souvenir de Claudius Pernet*, bright yellow; *Châtillon-Rose*; and *Paul's Scarlet Climber*.

The landscape gardening department of M. MOSER's firm showed a very beautiful modern garden scene with a fountain, pergola, grass walks, Rose-entwined pillars, and flowering *Rhododendrons*. Conifers were represented by fine specimens in the exhibits of Messrs. LECOLIER and THILLANY, of La Celle St. Cloud; and Messrs. CROUX had also a creditable group of clipped Yews.

Fruit trees were represented by the usual, and always faultless, exhibit of Messrs. NOMBLOT, of Bourg la Reine. M. PARENT, of Rueil, showed a large display-window filled with appetising forced fruits, as well as trees in pots in full fruit, including Cherries, Plums and Apples.

The exhibit of vegetables of Messrs. VILMORIN was as varied and as well displayed as usual, and bordered two sides of the firm's floral display. The GARDENERS' MUTUAL AID SOCIETY of the Seine also showed a well-assorted collection. Messrs. VILMORIN showed their collection of artificial vegetables, so cleverly reproduced that even the weights exactly corresponded to the originals.

The SYNDICAL CHAMBER OF FLORISTS showed a collective group, entitled "A Century of Floral Art," in which the stiff and formal bouquets of 1830 were contrasted with the much prettier graceful bouquets of the present day.

Landscape gardening was worthily represented by numerous garden designs, showing work both finished and still in execution by the most prominent French garden architects. Sundry industries more or less connected with horticulture were grouped together, and consisted of a number of exhibits of great interest, among which were the small horticultural ploughs of Dr. ARTAUD and MM. HENNEQUIN and FOUCARD.

New plants were comparatively numerous; in addition to the Irises already referred to, Certificates of Merit were awarded to:—

Croton (Codiaeum) M. André Thiebaut; *Caladium l'Etendard*, and *Caladium Dr. Marçais*, all shown by M. CHANTIER, of Morte-fontaine.

M. G. MORIN, of La Rochelle, brought three interesting Oleanders; *Botaniste Faydeau*, with pinkish white flowers, shaped like a *Camellia*; *Rochelais*, a single pink variety of pretty form; and *Aunissien*, double pink, very floriferous. The two varieties last named received awards previously.

The chief Grand Prix d'Honneur was awarded to Messrs. VILMORIN-ANDRIEU ET C^{ie}, for their exhibits, and the second Grand Prix to M. M. MOSER, of Versailles, for their *Rhododendrons*, *Roses*, and modern garden design.

BATH AND WEST SOUTHERN COUNTIES.

How closely agriculture is allied to horticulture was demonstrated at Plymouth at the show held from June 1 to 6. For many years one of the chief attractions of one of the finest agricul-

tural shows in the country has been the horticultural tent.

In choosing a superintendant for the section the executive was fortunate in the selection, for in the Rev. A. T. Boscawen they secured not only one of the most celebrated gardeners of the West Country, but also an organiser whose arrangements ran absolutely smoothly and with a total absence of red tape.

Just as west country gardening is more varied than elsewhere, so, too, are the flower shows held there more varied than in other parts of the country, despite the fact that the majority of exhibitors came from "up country."

No awards are made in this exhibition, which may, perhaps, explain the lack of private exhibits.

In the group from Messrs. R. VEITCH AND SON, plants and trees which thrive in the open predominated. One of the most interesting of these was *Davidia involucrata*, with leaves resembling the common Lime tree, but carrying its inflorescence contained in a white spathe 6 or 7 inches long. *Ixia viridiflora* provided its interesting green flower, while the gorgeous *Embothrium coccineum* represented one of the popular flowering shrubs of the south-west. *Callistemon* (known here, as elsewhere, under the popular but incorrect name of *Metrosideros*) was represented by the scarce alba form, while *Eremuri* and the now rare *Witsenia corymbosa*, with intensely blue flowers, indicate the very varied nature of this group.

Messrs. CHALICE AND SON, of Plympton, also exhibited an interesting group, such as would have delighted old plantmen; the plants included the graceful *Aotus gracillima*, *Callistemons*, *Ericas* and *Crinodendron Hookeri*, which thrive so well and make large shrubs in Devon and Cornwall.

From the Dartmoor Nurseries of Messrs. BRAY, Okehampton, came some unusually well-flowered *Rhododendrons* which, arranged in a bank, were of exceptional merit. It may be assumed that the exposed situation of these nurseries accounts for the fine substance and size of the flowers, which had not suffered from the recent heat. Rock gardens of modest dimensions which, however, did not detract from the keen interest displayed in them, were set up by Messrs. MAXWELL AND BEALE, also by Messrs. BOWLES AND SKARRATT, of Cheltenham.

Delphiniums from Messrs. BLACKMORE AND LANGDON, of Bath, like their *Begonias*, were exquisite. Millicent Blackmore has huge spikes of sky blue flowers, paler than *Eva*, another of the best. *Queen of Bath* is one of the largest of all single Delphiniums, while General Sir Douglas Haig is also fine. Their *Begonias* are well known for superb finish, but Mrs. Brunton is a salmon variety hard to beat, and *Rose Queen* a lovely shade of rose pink.

The only Sweet Peas in the show came from Mr. J. STEVENSON, of Wimborne; *Poppy*, orange, stands the sun well; *Wild Rose*, salmon old rose, and *Cynthia*, pale lavender, were good and the latter retained the much desired perfume sometimes lacking in otherwise beautiful varieties.

Pelargoniums of Show and Regal types were exhibited by Mr. W. J. GODFREY, Exmouth, who is among the few now left with good collections of these plants.

The DEVON ROSEY, Torquay, sent Carnations in pots, well-flowered *Roses*, *Rhododendrons*, pink, white and blue *Hydrangeas*, etc. Messrs. BAKERS, of Wolverhampton, sent their *Sunbeam Poppies*, arranged with a group of *Trollis Goldquelle*. As a useful subject to come between the last of the Tulips and the blaze of later June flowers, nothing excels the *Pvretums* and *Lupines*, and a very tastily arranged exhibit of these was put up by Mr. W. F. GULLICK, of Salisbury. Messrs. JARMAN, of Chard, sent choice varieties of *Zonal Pelargoniums*, and a few *Roses* conspicuous among the latter being the new yellow *Souv. de C. Pernet Ducher*. Their annual *Centaureas* never fail to attract attention.

Herbaceous plants from Messrs. R. WALLACE AND Co., Tunbridge Wells, were rich in Iris; among deep mauves, Mrs. G. F. Tinley and

Alcazar were the best, while *Drake* is a fine shade of lavender; *Lilium regale* is worthy of more attention, and can be flowered in two years from seed. Some fine spikes of *Eremuri* were included among other good things. Messrs. RICH AND Co., Bath, also showed herbaceous plants, represented by *Pvretums*, *Lupinus* and *Heucheras*.

Roses arranged in the beautiful style so well known to visitors to shows, came from Messrs. WM. CUTBUSH AND SON, who also included some intensely blue *Hydrangeas* that contrasted with the pink, white and red polyantha *Roses*. It only exhibitors learnt the lesson so well demonstrated here of carrying parts of their groups higher than others, with a low groundwork of flowers or foliage, instead of the eternal banks and pyramids of flowers, all shows would be more interesting.

Vegetables, associated with Spanish Irises and *Roses* were arranged by Messrs. TOOGOOD, Southampton; while Messrs. J. CARTER AND Co., Raynes Park, also displayed a choice group in their inimitable way.

A bank of cool-looking Ferns in choice varieties was staged by Messrs. ELLISON, West Bromwich.

Carnations from Messrs. ALLWOOD BROS. had stood the long journey well. They specialised in their *Dianthus Alwoodii*, which can be very prettily arranged in baskets and bowls, as on this occasion. That Carnations can be packed to withstand the heat was also demonstrated in the group from Messrs. STUART LOW AND Co., Enfield, their *White Pearl* and *Eileen Low* having travelled hundreds of miles without blemish.

Although the border of the county of Cornwall was but a couple of miles away, the Duchy was represented by only one exhibit, and this consisted of a number of *Cinerarias* from Mr. H. HODGE, St. Austell.

Messrs. REAMSBOTTOM'S *Anemones* were represented in the right spot, for these showy plants revel in the soil and climate of Devon.

The end of the large tent was filled with *Rhododendrons* from Messrs. WATERER, SONS, AND CRISP; their group contained a quantity of plants brought from far away Bagshot; *Corona*, *Bagshot Beauty* and *Lady Walsh* were among the best, and the whole group was set off by clumps of *Kalmia latifolia*.

Devon, while one of the finest counties of England for gardening, is not so well developed as some other parts, so that its possibilities make it an interesting portion of the country.

ROYAL HORTICULTURAL.

JUNE 7 AND 8.—Although following so closely upon Chelsea show, and coming so quickly after Whit Monday, the meeting held at Vincent Square on Wednesday was a great success, the hall being filled with exhibits. There was also a good attendance and a considerable display of novelties. Irises were especially well shown, but owing to the recent hot weather many of the flowers were past their best and many fine varieties were over and could not be represented. *Lupins* were also splendidly shown, and Mr. ELLIOTT's sweetly scented strain attracted well-merited attention.

Orchid Committee.

Present: Sir Jeremiah Colman, Bart. (in the chair), Prince Shimadzu, Messrs. Jas. O'Brien (hon. secretary), Pantia Ralli, Gurney Wilson, H. T. Pitt, Chas. H. Curtis, and Frederick J. Hanbury.

FIRST-CLASS CERTIFICATE.

Odontonia Merope var. *viricans* (*Miltonia Bleuana* × *Od. illustrissimum*, from Messrs. CHARLESWORTH AND Co., Haywards Heath. A charming addition to the famous section of *Odontonia* raised by this firm. The seedling plant, flowering for the first time, bore one large bloom which in form resembles most the *Miltonia* parent. The broad sepals and petals are coloured mauve, with a red shade in the centre; the circular, flatly arranged lip is rosy-mauve with a small red mark in front of the yellow crest.

GROUPS.

MESSRS. CHARLESWORTH AND CO. were awarded a Silver Flora Medal for a showy group, in which their grand strain of *Laelio-Cattleya Camhamana* was represented by five superb specimens, the largest bearing sixteen blooms; *L.-C. Benita alba* had large white flowers, and another variety of it pink veining on the lip. *Brasso-Cattleya Digbyano-Mossiae*, with seven fine flowers, well represented one of the best forms. A fine selection of *Odontoglossums*, *Miltonias* and the Yellow *Brasso-Laelio-Cattleya Joan* were also shown.

H. T. PITT, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), was awarded a Silver Banksian Medal for a good group, which included many fine forms of *Odontoglossum crispum*, such as *Pittianum*, *Ivanhoe*, and *Oakfield Sunrise*. Among hybrid *Odontoglossums*, *Odm. Promerens* var. *Princess Mary*, is a noble flower, heavily blotched with claret-red. A good selection of rare species was also included in this exhibit.

MESSRS. FLORY AND BLACK, Slough, were awarded a Bronze Banksian Medal for a small selection of exceptionally interesting hybrids. The hybrids of *Cattleya Tityus*, including *C. D. M. Lacroze* (*Octave Doin* × *Tityus*); *C. Heatherwood* (*Mossiae* × *Tityus*) and *C. G. P. Walker* (*Mendelii* × *Tityus*) all promising crosses with their first flowers, proved the wisdom of the parentage. A large blush-white *Laelio-Cattleya*, *Fascinator-Mossiae* delicata, and good white *Cattleyas*, were also shown by this firm.

MESSRS. HASSALL AND CO., Southgate, showed their new *Cattleya Everest* (*Mossiae Wagneri* × *Magali Sander*), a very fine white variety of true *Cattleya* form and with good substance.

Floral Committee.

Present: Mr. H. B. May (in the chair), Mr. G. Reuthe, Mr. J. W. Barr, Mr. John Heal, Mr. C. R. Fielder, Mr. W. Howe, Mr. W. B. Gingell, Mr. Thos. Stevenson, Mr. W. P. Thomson, Mr. Chas. E. Shea, Mr. Chas. E. Pearson, Mr. A. G. Jackman, Mr. Arthur Turner, Mr. Donald Allan, Mr. J. Jennings and Mr. Amos Perry.

AWARDS OF MERIT.

Mimulus luteus flore pleno.—This showy golden yellow, free-flowering variety has hose-in-hose flowers, and this duplication of the corolla—or rather a golden calyx at the base of the flower—adds greatly to the effectiveness of the plant as seen in the mass. The corolla has a few deep red spots. Shown by Messrs B. LADHAMS, Southampton.

Gloxinia Bacchus.—A distinct and novel variety, with large, finely-formed flowers of the deepest crimson colour, shaded with deep purple towards the margins of the overlapping corolla lobes. Shown by Messrs. BLACKMORE AND LANGDON.

Papaver orientale Thora Perry.—A pigmy form, with neat silvery-white flowers and a central boss of blackish crimson stamens. Shown by Mr. AMOS PERRY, Enfield.

Potentilla fruticosa var. *Farreri*. A beautiful little plant of dense, shrubby habit and carrying a profusion of clear golden yellow flowers. Shown by Mr. AMOS PERRY.

Iris ochracea coerulea.—In this charming variety the standards are bright copper colour and the semi-horizontal falls are yellow based, with brown reticulations, while the blade is dull blue, shading to copper. Raised by M. Denis, of Balaruc/les-Bains. Shown by W. R. DYKES, Esq.

Begonia Lady Bell.—A magnificent double *Begonia*, with broad, substantial segments, prettily frilled at the margins and making up a finely formed flower. The colour is deep cream, but the margins are soft orange, and there is pale orange shading on the outer segments. Shown by Messrs. BLACKMORE AND LANGDON.

Dianthus Mascott.—This sturdy hybrid is very much like a large-flowered Sweet William, and it has a somewhat stiff habit, but the inflorescence is looser and more elegant. The lightly scented fringed flowers are a lovely deep pink colour, with paler eye, and measure about 1½ in.

across. This new *Dianthus* is the result of crossing Sweet William Scarlet Beauty with a single *Carnation*, and if it proves amenable to cultivation it cannot fail to become a popular garden plant. Shown by Messrs. IRELAND AND HITCHCOCK, Marks Tey.

Iris Citronella.—The broad light yellow standards and crimson falls, marked with yellow make this golden-bearded *Iris* very attractive. Shown by Messrs. R. WALLACE AND CO., Tunbridge Wells.

Pyrethrum Eileen May Robinson.—This delightful single variety, has two or three rows of dorets of a charming shade of pale pink, tinted with silvery mauve. Shown by H. ROBINSON, Esq., Burbage, Hinckley, Leicestershire.

Lupinus polyphyllus, *Six Hills Strain*.—Pleasant fragrance is always appreciated in flowers, consequently this new strain of *Lupins*, sweetly scented and of good form and varied colours, was greatly admired. There is no doubt the *Six Hills* strain will enjoy great popularity. Shown by Mr. CLARENCE ELLIOTT, *Six Hills Nursery*, Stevenage.

OTHER NOVELTIES.

The Hon. VICARY GIBBS (gr., Mr. E. Beckett) showed the interesting yellowish-green *Enonymus Wilsoni*, which, we understand, makes an effective bush; from the same exhibitor came *Catalpa Fargesii*, with pink flowers mottled yellow in the throat. This latter species was discovered by Pere Farges, and introduced in 1907 by Mr. E. H. WILSON.

Mr. MILLER, Wisbech, exhibited spikes of the graceful, small-flowered, pink, fragrant *Syringa Wilsonae*; and Sir WM. LAWRENCE, Burford Lodge, Dorking, sent several vases of the lovely blue *Lathyrus pubescens*, a free-flowering perennial species.

GROUPS.

MESSRS. BARR AND SONS made excellent use of low staging to display a great variety of *Irises* at a convenient level. The arrangement was deserving of high praise. A wide range of varieties, illustrating most of the sections, was shown. The fascinating *Iris squallens* type included *La Reve*, *Mary Garden*, *Eldorado*, *Quaker Lady*, and *Arnolds*. Of the pallida type, *Albert Victor*, *Crepuscle*, and *dalmatica* *Princess Beatrice* were unusually good. *Iris Lovely*, *Fro* and *Mithras* of the variegated type, *Madame Chereau* (plicate), and *Willie Barr* and *Monsignor* (neglecta) were also very beautiful. At the end of the collection there were vases of *Iris xiphium* in good varieties, and *Ixias*, such as *I. Humbert* and *Scarlet and Gold* (Gold Medal).

A large collection of *Irises* was displayed by Messrs. WALLACE AND CO. These were mostly of the pallida and squallens types and included many very beautiful varieties. *Ambigua*, reddish-claret and maroon; *M. Boyer*, slatey-purple standard, rosy-purple falls; *Isoline*, lavender bluish, and rosy-lavender falls; *Souvenir de Madame Gaudichau*, deep velvety blue shades; *Cardinal* and *Ballore*, white with few lilac lines, are the names of only a few of the many excellent varieties to be seen (Gold Medal and congratulations).

A great variety of beautiful *Irises*, rising from excellent specimens of hardy Ferns, was arranged by Mr. AMOS PERRY. There were many beautiful seedlings, particularly of the pallida and squallens sections, and also such minor sorts as *Prosper Langier*, *Robert Wallace*, *Standard Bearer*, *King of Iris* and *variegata alba*. Altogether a striking collection of admirable *Irises* and cool, green hardy Ferns of equally high merit (Gold Medal).

A handsome bank of *Irises* was arranged by Messrs. J. G. WHITELEGG AND CO. Of the very many excellent sorts we selected the following as being typical of the collection: *Mrs. Neubronner*, yellow; *Iris King*, yellow and carnation bronze; *Tamar*, shades of lavender; *Queen Marv*, white; and *Prince of Orange* (Silver-gilt Flora Medal). On a floor space, Messrs. WATERER, SONS, and CRISP had a well arranged group of *Irises*, *Lupins* and *Delphiniums*. Amongst the *Irises* were *Fro*, golden yellow and bronze; *Isoline*, pale shades of purple; *Edward*

Michel royal purple; and *Princess dainty* lilac bluish. A mass of *Lupinus* *Sunshine Beauty* was singularly effective, while various *Delphiniums*, *Anchusas* and *Eremurus* all added to the attractions of the exhibit (Silver-gilt Banksian Medal).

Such *Irises* as *Prosper Langier*, *Dora Langden*, *Eldorado* and *Camelot*, the latter a Bliss seedling of milk-white colour, lightly feathered with pale lavender, were shown by Messrs. LOWE and GIBSON (Silver Flora Medal). A small collection of *Irises*, raised from *tingitana* crossed with Spanish varieties, was staged by Messrs. F. H. CHAPMAN, LTD. These *Rotherside* *Irises* have much the appearance of the smaller Dutch varieties, but are rather larger, and a goodly proportion bear twin-flowers (Silver Flora Medal).

An attractive collection of Dutch *Irises* was arranged by Messrs. RYDER AND SON, LTD. Of the blue shades, *E. B. Garnier* and *Imperator* were very beautiful, while amongst the white sorts which have a yellow blotch we noted *D. Haring*, *A. L. Koster*, and *White Excelsior*. *Golden Glory* and *Yellow Queen* were also very effective (Silver Banksian Medal). A collection of *Irises* arranged by Messrs. G. BUNYARD AND CO. was very strong in the squallens section, and these included beautiful spikes of *Darius*, *Madame Patti*, *Hector*, *Honourable*, and *Robert Burns*. Other desirable varieties were *Cordelia*, *Prosper Langier*, *Incogene*, and *Rhein Nixe* (Silver Flora Medal).

A small collection of excellent tuberous-rooted *Begonias* arranged by Messrs. R. BASTIN AND SON included *Lady Bell* (creamy white heavily edged with buff orange), *Mrs. W. Wilson*, *Enchantress*, and *Pride of Bexley*. Rising above these were floriferous plants of such basket sorts as *Gladys*, *Mrs. Bilkey*, and *Fleur de Chrysanthème* (Silver Banksian Medal). Collections of fresh and good *Carnations* were arranged by Mr. C. ENGELMANN and Messrs. ALLWOOD BROS. The latter included many vases of their *Dianthus Allwoodii* (Silver Banksian Medals).

A splendid collection of Sweet Peas was arranged by Messrs. R. BOLTON AND SON. The flowers were individually large, and usually the graceful stems bore five or six blooms. *Comrade*, a new sort of *Picture* type, but bluish rose colour; *Elsie Dean*, silvery lavender self; *Wonderful*, glowing scarlet and said to be quite sun-proof; *Artistry*, a greatly improved *Princess Mary* and *Orange Flame*, a vivid fiery orange, are the names of some of the new sorts so well shown, but there were a great many standard varieties of equal merit (Silver-gilt Flora Medal).

Just inside the entrance Messrs. DOBBIE AND CO. set up a magnificent collection of *Antirrhinums*. These were all in large vases of named sorts, and made a memorable display, illustrating excellent strains and skilful cultivation. A vase of the striped *Antirrhinum* which are grown so largely for exhibition in the North, attracted a deal of attention, but most of the visitors preferred such as *Maize Queen Fascination* (pink), *Nobile* (a delicately beautiful white flower with a rosy crimson blotch), *Carmine Queen*, *Yellow King*, *White Beauty*, *Coccinea*, *Mauve Queen*, and *Prima Donna* (Silver-gilt Flora Medal).

An excellent strain of large-flowered *Streptocarpus* was shown by Messrs. JOHN PEED AND SON. Not only were the flowers very large, but they were freely produced, making a splendid display. Of the many colours, the deep rose, lavender, pale rosy mauve and white lined with purple were, perhaps, the most effective. Adjoining the *Streptocarpus* were some equally well-grown plants of double pink, double blue and white *Petunias*. (Silver Banksian Medal.)

Richly-coloured yellow *Roses* were exhibited by the Rev J. H. PEMBERTON (Silver Banksian Medal), and Mr. GEORGE PRINCE (Silver Banksian Medal). Both showed graceful sprays of *Persian Yellow* and *Star of Persia*, while the former included a fine vase of *Rosa grandiflora*, and in Mr. Prince's stand were branches of *R. Mowet*, *Pax* and *Irish Elegance*. *Rhododendron Watsoni*, *R. parviflora* and *Michelia fuscata* were prominent in the exhibit of uncommon trees and

shrubs shown by Mr. G. REUTHE. He also had many Rhododendrons and Azaleas and also Irises and Habranthus pratensis fulgens. (Bronze Flora Medal.)

A long row of spikes of fragrant Lupinus polyphyllus seedlings of great merit was shown by Mr. CLARENCE ELLIOTT, who also had an interesting collection of alpinas amongst which such Pinks as arvensis alba, neglectus and a South Lodge cross were very prominent. (Silver gilt Banksian Medal.) A fairly extensive collection of Lupinus, also polyphyllus seedlings, was shown by Mr. J. R. DOWNER. These were all very robust and well flowered. The central mass of Delight, of terra cotta shades, was strikingly effective, while the vases of Pink Delight were quite charming. (Silver Flora Medal.)

A corner space was splendidly filled with excellent spikes of Delphinium by Messrs. BLAKE-MORE AND LANGDON. The dark blue sorts included Lamartine, Walter T. Ware, and the white-centred Rev. E. Lascelles, while amongst those of pale blue shades were Queen Mary, Queen of Bath, and Lizzie van Veen. (Silver-gilt Banksian Medal.)

Under the clock Mr. W. F. GULLICK displayed many vases of desirable Pyrethrums. The single-flowered varieties included Langport Scarlet, James Kelway, Hamlet, and General French, while amongst the doubles were Queen Mary, White Queen, J. N. Tiverdy, and Old Rose. (Bronze Flora Medal.)

Mr. M. PRICHARD contributed a goodly collection of Irises, Lupinus, Heucheras, Pyrethrums, and garden Pinks. Ajuga Brockbanki, bearing many compact spikes of deep blue flowers, was also very effective. (Silver Flora Medal.)

Various Alpines, with dwarf border flowers, were shown by Mr. F. C. WOOD, who had good Geums, Lupins and Erigerons. (Bronze Flora Medal.) Messrs. MAXWELL AND BEALE showed Lavendula strectas, Oenothera speciosa rosea, and a few interesting Mesembryanthemums. (Bronze Flora Medal.) Messrs. W. H. ROGERS AND SONS, LTD., had floriferous sprays of Embotrium coccineum, Lithospermums in variety, with Primulas, garden Pinks, and Verbena chamaedriodes. (Silver Banksian Medal.)

Collections of border flowers were contributed by Messrs. W. WELLS, junr., who had good Irises, Pyrethrums, Oriental Poppies and Dictamnus fraxinella (Silver Banksian Medal). Messrs. RICH AND CO. showed Gaillardias, Chrysanthemum maximum varieties, Irises, with dwarf Phloxes (Bronze Banksian Medal); and the Misses HOPKINS had a neat little rock garden. A collection of Messrs. KELWAY'S Paeonies attracted a deal of attention. The single-flowered sorts included Princess, blush-pink; Sea Shell, shell-pink; Mrs. Richmond, deep pink; and Duchess of Sutherland, white (Silver Banksian Medal).

Garden Pinks of great fascination and delicious fragrance were shown by Messrs. B. LADHAMS, LTD., along the front of a considerable collection of such border flowers as Polygonum bistorta superba, Libertia formosa nivea, Veronica Shirley Blue, various coloured Pyrethrums and Mimulus (Silver Banksian Medal). A particularly interesting and attractive collection of Aquilegia seedlings was exhibited by V. C. VICARS, Esq. (gr. Mr. W. Watkins), Newsells Park, Royston. We learnt that these 60 varieties were the result of eight years' work in hybridising and selecting, and that some 9,000 plants are grown. The flowers illustrated an excellent strain of large-flowered, long-spurred Columbines. Of the many beautiful shades of colour the most striking were the soft pink, rich yellow, rose and yellow, and the various shades of lavender and white (Bronze Flora Medal).

An interesting selection of Heucheras was included by Mr. J. W. MILLER in a collection of border flowers. Trevor Red, Trevor Pink, Walkeri, deep scarlet and the graceful pale rose Tiarelloides were all very beautiful. Pyrethrums, Paeonies and Oriental Poppies of merit were also exhibited. (Bronze Flora Medal.)

An attractive collection of such hardy shrubs as Kalmia latifolia, Rhododendrons, Azaleas, Robinia Kelsey and R. hispida macrophylla was

arranged by Messrs. J. CHEAL AND SONS, who also showed an interesting little collection of Star and Colletterie Dahlias. (Silver Banksian Medal.)

Amongst the many interesting shrubs shown by Mr. CHARLES TURNER was a fruiting spray of Ochna multiflora, bearing quantities of purple berries set on the scarlet star shaped calyces. Deutzia hybrids Lemoinei is an excellent little variety for similar purposes to those which D. gracilis is put but of superior merit. D. Lemoinei Bob Rose, Syringa Sweginzowii superba S. Emodi, Magnolia hypoleuca, bearing fragrant flowers, and several varieties of Philadelphus were also of interest. (Silver Banksian Medal.)

In the centre of a small collection of interesting shrubs Messrs. HILLER AND SONS had a good batch of Cistus purpureus. Other shrubs included Cistus immaculatus, Robinia Kelsey, and Solarium crispum.

COMPETITIVE IRIS CLASSES.

These exhibits were arranged at one end of the Orchid annexe. Owing to the difficulties of the season, there were not so many competitors as had been hoped. The first prizes for one spike each of three seedlings and one single spike were won by Mr. A. J. BLISS. Only two of his three spikes were on view, and these were Wazi and Citronella. The latter is a most beautiful flower of squalens type, the falls are heavily lined and flushed with carmine. The single spike was of Bruno, a tall inflorescence of rich purple flowers.

The best three spikes of one seedling were of Chasseur, shown by Messrs. VILMORIN-ANDRIEU AND CO. This is almost a soft yellow flower, paler on the falls and with rosy carmine at the base.

The prize offered by the American Iris Society for the best collection of 12 varieties in commerce resulted in a good competition, and was won by Messrs. WALLACE AND CO. with good spikes of such sorts as Prospero, Edward Michell, Ma Mie, Medrano, and Isoline.

In view of the Iris Conference, a great many spikes of bloom were brought from Wisley to illustrate the scheme of classification which is now being evolved.

Fruit and Vegetable Committee.

Present: Messrs. C. G. A. Nix (chairman), J. Cheal, G. Berry, Geo. F. Tinley, S. B. Dicks, E. Beckett, W. Poupart, J. C. Allgrove, H. Markham, P. D. Tuckett, W. Wilks, E. A. Bunyard and Owen Thomas.

There was no exhibit before this committee, but the awards to spring Cabbages recommended by the sub-committee, after trial at Wisley, were confirmed. The varieties, Ellam's Dwarf Early Spring, Early Feltham and First Early Market were recommended to receive Awards of Merit.

Obituary.

Dr. William Carruthers.—By the death of Dr. William Carruthers, Ph.D., F.R.S., botany loses one of its most distinguished members, and one whose knowledge of the literary of botany was probably unsurpassed. He died at Norwood on the 2nd inst., in his ninety-third year. He was a native of Moffat, Dumfriesshire, and was educated for the Presbyterian ministry, but his interest in science led him to devote his life's work to geology and botany. When Robert Brown died in 1859, Carruthers was appointed an assistant in the department of botany in the British Museum, and in 1871 he became head of his department. He was for many years consulting botanist of the Royal Agricultural Society of England, and amongst his other activities he was president of the Glaciologists Association, the Linnean Society, during its centenary, the Royal Microscopical Society, and of the Biological Section of the British Association. But he will be remembered chiefly for the work he did in connection with the acquiring of the famous botanical library which exists at the British Museum. To Carruthers

we probably owe the testing of seeds in this country to determine their germination capacity, for when he began seed testing in 1871 it was a new thing in England. His work on the observations on the vitality of farm seeds, and especially on the purity and germination of grass seeds, was of very great importance, and will always be regarded as pioneer work in this direction.

Hugh Dickson.—We very deeply regret to learn of the untimely death of Mr. Hugh Dickson, of Messrs. Hugh Dickson, Ltd., Rose growers, Royal Nurseries, Belfast, which took place at Leeds on the 30th ult., following a severe operation. Mr. Hugh Dickson was well known in the horticultural world, and particularly among rosarians, and not only was he a clever cultivator and exhibitor of Roses, but also one of the foremost of raisers, as shown by the fact that his firm received numerous awards from the National Rose Society. A few of the varieties which have emanated from the Royal Nurseries, Belfast, include Blushing Bride, Ethel Dickson, Nellie Parker, Prince Charming, Golden Spray, H. D. M. Barton, H. K. Pinkerton, Lilian Moore, Lady Craig, W. E. Wallace, Leslie Pidgeon, Earl Haig, E. Godfrey Brown, and the famous crimson-scarlet, Hugh Dickson.

ANSWERS TO CORRESPONDENTS.

CLUB-ROOT IN BRASSICAS: J. T. W. The swollen roots in your Brassicas may be caused either by Finger-and-toe disease or the grub of the Cabbage-gall weevil. You could easily determine if the latter is responsible by cutting open the gall and seeing if the grub of the insect is present. Lime and sulphur are the best remedies for Finger-and-toe disease.

EELWORM IN CARNATIONS: J. T. W. The Carnations are affected with eelworm. No cure can be adopted for this pest, and plants that are affected should be destroyed by burning. The soil in which your Carnations are grown should be sterilised in future, either by the hot-water treatment or by baking.

FASCATED TULIP: G. W. C. The variety of Tulip is La Tulipe Noire, and we have heard of other cases of fasciation in this Tulip this year, resulting in more than one flower on the stem. It is probably due to the abnormal weather of last summer.

NAME OF PLANTS: D. H. D. 1, Probably Spiraea Thunbergii (poor specimen); 2, Epidendron elongatum; 3, Spiraea arguta; 4, Magnolia stellata. *Ficus*. 1, Berberis Darwinii; 2, B. stenophylla; 3, Ficus semper-virens; 4, Geranium sp.; 5, Spiraea prunifolia var. flore pleno; 6, Cupressus pisifera var. squarrosa.—A. S. 1, Acer circinatum; 2, Pyrus Sorbus; 3, Pyrus Aria.—A. B. H. Berberis Hookeri.—W. D. Paulonia imperialis.—H. W. R. Cornus florida.

PEACH LEAVES DISEASED: J. T. A "shot-hole" fungus is present. A weak lime sulphur solution (1 part of the concentrate to 99 parts of water) would probably be the best specific to use.

PEACH MILDEW: N. H. N. The Peach leaves should be dusted with flowers of sulphur whilst they are damp. In cases of very bad attacks the water-pipes should be made very hot and then painted with sulphur. This is best done just before it is dusk, in order that the house may be closed for an hour or two whilst the sulphur fumes are being given off. See that the roots of the trees are not growing in a dry medium, for drought is one of the principal predisposing causes of mildew.

TULIPS EATEN: J. T. The Tulips have been bitten by rats or mice, which are very fond of both the bulb and the plant. Moles are also supposed to do similar damage. Traps should be set or poison be laid down to destroy the animals.

Communications Received.—J. I. S.—X. Y. Z.—T. H. W.—W. L. B.—H. F. W.—H. T.—J. S.—R. P. B.—A. E. W.—W. H.—J. C.

THE

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 58.6.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, June 14, 10 a.m. Bar. 30.1; temp. 54°. Weather—Cloudy.

It is a well-known fact that certain micro-organisms **Parasites**, which give rise to disease in plants may live either as saprophytes or as parasites, that is, may increase and multiply whilst living either on dead organic matter or on living plants. It is probable that many wound parasites are of this nature. They get a hold of a plant by gaining access to the dead tissues of a wound and then spread into the living tissues. Such fungous or bacterial pests are known as facultative parasites in contradistinction with obligate parasites, that is, those which live on living tissues only. There is an intermediate class of parasitic fungi which may live on dead and may destroy living plants; but which exhibit the peculiar property of first destroying the living tissue, apparently by the excretion of a toxic substance and then invading it. The wide spread fungus, *Botrytis cinerea*, is generally regarded as an example of this class of pest, and numerous researches have been made with the object of discovering the nature of its poisonous excretion. Some of these researches indicate that oxalic acid is the poison which the fungus uses to destroy the tissues on which it subsequently feeds. Recent observations made by Mr. W. Gleisberg* and summarised in the *Review of Applied Mycology* (Vol. 1, Part 1), issued by the Imperial Bureau of Mycology, confirm, in an interesting manner, the view that *Botrytis cinerea* passes readily from the saprophytic to the parasitic state. Certain

Primulas—*P. cashmeriana*, *P. Veitchii*, and *P. veris*, were observed to have sharply defined brown spots on their leaves. Examination of the spots showed that they were covered with the decaying blossoms of a *Robinia Pseud-acacia* growing near by. By means of the microscope the spore producing hyphae (conidiophores) of *Botrytis cinerea* were seen emerging in bundles from the under sides of the spots of the Primula leaves. Similar spots were observed on Elm and Dandelion leaves on which Elm seeds had fallen. Hence it is to be concluded that *Botrytis* finds a quick means of propagating itself in the debris of vegetation from which it may spread and as a parasite attack living tissues. Evidently no means can generally be taken to prevent this means of dissemination of parasitic fungi; but at all events one important lesson may be drawn from the facts and applied in every garden and, that is, to ensure the rapid and orderly decay of dead vegetable and animal matter by consigning it to the compost heap and so ensuring that the majority of parasitic fungi are destroyed. Needless to say, where the debris consists of remains of diseased plants the bonfire and not the compost heap is its proper destination.

Royal Horticultural Society's Next Meeting.—

We draw the attention of our readers to the interval of nearly three weeks which occurs between the Whitsuntide meeting of the Royal Horticultural Society and the next exhibition. It will be remembered that the Whit-week meeting was held on Wednesday and Thursday, June 7 and 8, instead of opening as usual on a Tuesday. The next meeting and exhibition will be held on June 27 and 28, when there will be a competition for the Clay Challenge Cup, which is offered by Messrs. Clay and Son for the best new Rose of good form and colour possessing the true old Rose scent. The cup has been awarded previously to Messrs. Wm. Paul and Sons for Queen of Fragrance, in 1914, to Messrs. F. Cant and Sons, for *Colcestria*, in 1915, and to Messrs. W. Easlea and Sons for Prince of Wales in 1921. During the afternoon of the opening day Mr. E. A. Bowles will lecture on "Plants of interest from his garden."

National Chrysanthemum Society's Outing.—

After a lapse of several years the National Chrysanthemum Society is reviving its annual outing. By kind permission of Sir William Cain the gardens at Wargrave Manor will be visited during the latter part of the week ending July 1, and the trip thereto will be by train from Paddington to Bourne End, and by steam launch from Bourne End to Wargrave. Lunch will be taken on arrival at Wargrave and tea just previous to the return journey. Members of the society are requested to notify the secretary, Mr. C. H. Curtis, 5, Tavistock Street, Covent Garden, as early as possible of their intention to take part in the outing.

New Public Recreation Grounds.—A new

public recreation ground at Lowestoft was formally opened by the Mayor, Alderman Humphery, on the 8th inst. The site of the park was formerly derelict land on the south cliffs, and the work of converting the land into a recreation ground was done mainly to relieve unemployment in the district. The area is about five acres, and includes hard and grass tennis courts. Lord Penrhyn has presented the town of Bethesda with two plots of land, one for the purpose of a recreation ground and the other as a site for a local war memorial.

French Import Tax on English Flowers.—It

is probably only known to those immediately interested, that the French Government has recently placed a tax on all flowers imported into France. This tax appears to English growers to be grossly unfair. It is found that the importation of French flowers into England exceeds by about fifty times the amount of flowers exported to France, while English flowers in no way compete with the French

produce, as the flowers sent from England consist only of certain varieties of Roses and Carnations and a few others of a choice nature such as are not produced by the French growers. The duty charged is 2 francs per kilo, which works out at approximately 5d. per pound, and is charged on the gross weight of the package containing the flowers. The result is an additional charge of approximately 6d. to 9d. per dozen blooms, and French buyers have become unwilling to purchase until English growers reduce their prices. At the International Conference held at the Hague in April last, strong protests were made by the British delegates against this duty, which was to come into force on May 1, and they were vigorously supported by all representatives with the exception of those from France. On behalf of the Chamber of Horticulture an additional protest has been made to the Minister of Agriculture, who has been asked to at once take the matter up with the French authorities, and to point out the unfairness of this imposition. It is generally agreed that the tax has been imposed as a means of protection against the large quantities of Italian flowers that are sent into France, and the French Government take up the position that they are unable to impose a tax against any particular country, therefore all must suffer. Quite recently parties of French horticulturists visited this country with a view to improving trade and gaining experience in English horticulture, and they unanimously agreed that the duty placed on English flowers was unnecessary, and in their opinion the measure should be modified in our favour. It is well known and admitted that during the war years, most of the articles that could possibly be considered as luxuries were greatly reduced, and in many cases production or importation was stopped altogether, even our own colonies being amongst the greatest sufferers, but notwithstanding this, French flowers were allowed to enter this country the whole time without interruption. It appears to English growers that this is a case for reciprocity. The Minister of Agriculture is giving the matter every attention; he has also promised to acquaint the Chamber of the result as soon as possible, but unfortunately negotiations with foreign powers take much time.

Fire Blight.—The disease of Apple and Pear

trees known as Fire Blight is due to the activities of a bacterium, *Bacillus amylovorus*. This disease is the subject of serious concern in New Zealand, where it made its appearance in 1919 and spread with remarkable rapidity. One cause of the prevalence of the disease in New Zealand is stated* to be due to the fact that it attacks the Hawthorn, which is largely used as a hedgerow plant. On this, as well as on its other host plant, the bacillus passes the winter, especially in the edges of wounds which its previous growth had caused. In spring the bacillus increases enormously, and the viscid drops in which the legions of bacilli lie are distributed by insects to new hosts. Honey bees, as well as sucking insects, may thus carry the pest, and it has been observed that once flowers are infected honey bees may spread the disease to every flower in an orchard in a few days. Shoot infection follows flower infection, and the former may result in the killing of whole branches of fruit trees. Spraying appears to offer no prospect of relief from this pest, and those engaged in its investigation hold that nothing short of a wholesale destruction of the Hawthorn in all fruit-growing districts of New Zealand will save the orchards from this pest.

The Bechtel Crab.—According to the *Bulletin*

of *Popular Information*, issued by the Arnold Arboretum, the Bechtel Crab is, when in flower, one of the most popular trees in the arboretum. It is a form of *Malus ioensis*, the common Crab Apple of the northern middle western States. The type has flowers about two inches in diameter, with white or rose coloured petals, but the Bechtel Crab is a double-flowered form, the name commemorating the man who discovered the plant growing wild in the woods in one of the western States. The pale rose

* *New Zealand Journal of Agriculture*, XXIII, 1, 1921.

* *Gartendora*, LXX, 1-2 and 3-4, 1921.

coloured flowers are said to resemble small Roses. This fine double-flowered Crab needs to be grafted on one of the Crab Apples, the common form of *Malus ioensis*, being most suitable. Nursery trees are often worked on the ordinary Apple stock, but such trees are usually very short-lived. There is also another beautiful double Crab grown in America known as the Charlotte Crab, a form of *Malus coronaria*. The flowers are described as larger and whiter than those of the Bechtel Crab, and a specimen tree is said to be a splendid garden feature.

Irises in America.—In conjunction with the American Iris Society, no fewer than 1,000 varieties have been planted by the New York Botanical Society, in their gardens at Bronx Park, New York. On the occasion of the annual meeting of the American Iris Society, on May 27, the test garden was inspected and, according to the *American Florist*, the following varieties were amongst the most prominent: Tamar, Samapo, Queen Victoria, Mithras, Lohengrin, Sir Walter Scott, Versicolor, Candelabra, Mars, Her Majesty, Mandarin, Mrs. W. R. Fryer, A. M. Brand, Lady Frances, Fryer's Glory, Mrs. Sandford, Regale, Mrs. McKinney No. 3 and La Nieve.

The Many Uses of a Single Palm.—The Nipa Palm, *Nipa fruticans*, which grows in abundance in the mud on the banks of all the rivers of Sarawak, near the coast, is, according to the *Journal of the Royal Society of Arts*, utilised by the natives for a variety of purposes. From the stem, salt is produced. It is also used as floats of timber rafts, and when found floating decayed in the stream, it is collected, dried, made into a fine powder, and used for the treatment of wounds, for which it is said to be very efficacious. The skin inside the base of the leaf stems is used extensively for making boat balers. The leaf stem itself is sometimes used for flooring. The heart is eaten as a vegetable. The mature leaf is made into atap for roofing houses, and generally as wrappers (tampin), especially for Lime and Sago. The leaf ribs are used for making brooms, stands for cooking pots, in the manufacture of atap, baskets, etc. The split ribs are also frequently used in the place of string or rattan. The flower is made into a preserve. The fruit, when young, is also made into a preserve, and when old, is used instead of betel nut. The husks of the fruit are used for brushes. Sugar and vinegar are obtained from the sap from the stem of the flower or fruit.

Control of the Cabbage Root Maggot.—Experiments conducted in British Columbia* for the control of Cabbage root maggot (*Chortophila brassicae*) on both Cabbages and Cauliflowers proved the superiority of treating the plants with mercury bichloride over other remedial measures, including the tar-paper protector. Twenty-five thousand Cabbage plants transplanted about April 25, received three applications of mercury bichloride, at the strength of one oz. to ten gallons of water, on May 11, 25, and June 4; and about 12,000 plants received a fourth application at the same strength on June 18. The results showed no maggot injury and no larval infestation was observed on any plants examined, either on those which received three applications or those which received four. The method of application was as follows:—A concentrated stock solution was prepared the day previous to treatment by dissolving the mercury salt in boiling water. This was done by suspending the salt in a sack in a fifty-gallon barrel, and pouring the boiling water over the sack. This stock solution was drawn on a waggon to the centre of the field, a large watering cart with a capacity of two hundred imperial gallons and a number of empty barrels being drawn also to the same point. This stock solution was reduced to make a solution of one oz. to ten gallons of water, there being two oz. of mercury salts in each gallon of stock solution. Two ordinary four-gallon oil tins were suspended on a yoke placed across

the labourer's shoulders and the diluted solution was applied to the roots of each plant, at the rate of two fluid ounces, by means of a cheap dipper. The total cost of the three applications was approximately one cent for four plants, while for four applications the cost would be one cent for three plants.

The Cult of the Iris.—During the past two weeks the Iris has been prominent in the world of horticulture, for conferences on these flowers have been held in Paris and London respectively, while a special Iris exhibition in connection with the London Conference was held under the auspices of the Royal Horticultural Society at Vincent Square, Westminster, on the 7th inst. As a conclusion of these activities, Messrs. R. Wallace and Co. invited prominent Iris specialists, including well-known American and French raisers, to inspect the large collection of Irises in their nurseries at Tunbridge Wells. Among those who accepted the invitation to attend were Mr. J. C. Wister and Mr. Leo Bonnewitz, from the American Iris Society, and Mons. S. Mottet, of Messrs. Vilmorin, Andrieux and Co. (whose portraits we have pleasure in reproducing below from a photograph taken during the visit to Tunbridge Wells); Messrs. E. A. Bowles, W. Cuthbertson,



IRIS SPECIALISTS FROM ABROAD VISITING MESSRS. R. WALLACE AND CO.'S NURSERY.

Left to right:—Mr. Leo Bonnewitz, U.S.A.; Mons. S. Mottet, France; Mr. J. C. Wister, President, American Iris Society.

Gerald Loder, W. A. Bilney and C. T. Musgrave, members of the Council of the Royal Horticultural Society; Mr. W. R. Dykes, Secretary of the R.H.S.; Mr. F. J. Chittenden, Director of the Wisley Gardens; such noted raisers as Sir Arthur Hort, Mr. A. J. Bliss, and Mr. G. Yeld, together with Messrs. Pilkington, Baker, Bruce, E. A. Bunyard, N. G. Bunyard, and others interested in this beautiful family of plants. Messrs. Wallace and Co.'s extensive collection of Irises embraces most of the finest varieties in cultivation, including some remarkable novelties not yet in commerce. Among these last, the variety Duke of Bedford, with violet purple falls and rich, satiny blue standards, relieved with a most brilliant orange-coloured beard, was regarded by those present as one of the best in the whole collection, which included such outstanding varieties as Citronella, Swazi, Ambassadeur, Lent A. Williamson, Jeanne, Cardinal, Balaruc, Dominion, Crusader and Madrano. Where, however, so many were of outstanding merit, it was a difficult matter to select the best, for in Irises, as in other flowers, individual taste largely governs the choice, as some particular shade of colour, type of habit, stature, or other feature may appeal

most to the individual. The firm entertained the visitors to luncheon and Mr. R. Wallace expressed the pleasure not only of himself, but of horticulturists generally in this country to have such distinguished visitors with them from both America and France. He was proud that in this country we have a few flowers which these visitors have been pleased to class as very good indeed. He asked them to drink to the health of Mons. Mottet and Messrs. Wister and Bonnewitz. Mons. Mottet, in responding, stated that he was proud to know that his firm had raised some fine varieties, but from what he had seen at Vincent Square and Tunbridge Wells, English raisers were quite ahead of them as regards Irises. In his opinion, the five best varieties were Duke of Bedford, Swazi, Cardinal, Brunc and Dominion, and of these, his first choice was Swazi, not only because of its beautiful flowers, but because of its tall stature. Mr. Wister expressed his gratitude for the hospitality that had been afforded him and his friend, Mr. Bonnewitz, not only here, but in France. He said "Mr. Wallace spoke of the ties that bind you to France and to us, but I feel more strongly since I have been here that the English, French and American people must keep together. Mr. Mottet has told you what he considers the five finest Irises, but I feel he is much too generous to England. You have so many good Irises that it is hard to name any five or any dozen. The first three should be Ambassadeur, Prospero and Swazi. I leave out Dominion because I am not able to cultivate it in my country, where the climate has extremes of heat and cold. In America, when we pick out the five finest sorts we always include Ambassadeur; Prospero would also find a place, and then two American varieties. With regard to the American sorts, my selection is Quaker Lady, Lent A. Williamson, Afterglow, B. Y. Morrison, Queen Catherine and Shekina." Mr. Bonnewitz also responded to the toast and expressed the pleasure that it gave him to inspect the Irises, not only in this country, but also in Messrs. Vilmorin, Andrieux and Co.'s nurseries. Most of our readers are aware that Messrs. Wallace's new nursery is a portion of the old establishment of Messrs. Thomas Cripps and Sons, which was famous for the collection of trees and shrubs it contained, and many beautiful specimens remain. Large Rhododendrons form one of the glories of the place; many of them, in the form of tall standards with immense heads, border the main roadway through the nursery, the great majority being finely in flower, at the time of the visit.

Legacy to a Gardener.—The late Mr. Frederick W. Carver, J.P., of Oakhurst, Bexton, Knutsford, Cheshire, who died on April 13 last, left the income from £1,500 to his gardener, Mr. J. Keen, and his housemaid, Miss M. E. Mewis.

The Effect of Acid Phosphate on the Flowering of Roses and Carnations.—Professor P. A. Lehenbauer, University of Illinois, in an address on the fertilisation of greenhouse soils before the members of the Ohio District of the National Flower Growers' Association, at Columbus, stated that experiments carried out at the Illinois Station showed the great value of acid phosphate as a manure for Roses. Commercial acid phosphate is a mixture of pure acid phosphate and gypsum in approximately equal quantities and comprises a form of phosphate which is soluble and readily available to plants. No fewer than 1,152 Rose plants were dealt with in the trial, and those treated with acid phosphate gave an increased production of slightly over three blooms per plant. This increase of 4,800 flowers was produced at a cost of \$5.60 for the fertilisers. It was claimed, also, that the average stem length of each variety was slightly increased, which is of especial value in the case of Roses grown for market. Experiments with two varieties of Carnations showed similar results, although the increase was not quite so large, the additional flowering being just over one bloom per plant. Acid phosphate can be applied in the soil before planting in quantities sufficient for the entire growing season, for it is not readily washed out of the ground.

* Fifty-first annual report of the Entomological Society of Ontario, 1920. Ontario Department of Agriculture.

Loss of Crop Due to Plant Diseases.—It is stated by Mr. W. L. Stevens* that the losses of crops due to disease amounted in the United States in 1919 to:—Cereals 482,695,000 bushels, Potatoes 86,997,000 bushels, Tomatoes 307,168,000 bushels. That losses from pests are heavy is well known and universally admitted, but we confess to a certain measure of scepticism as to the actual figures which are cited. It may well be, of course, that our scepticism is unfounded, but we doubt whether it is easy in arriving at such estimates to separate the factor "bad cultivation" from that of pest destruction. It would be of great interest to cultivation in this country if the Ministry of Agriculture would institute a careful inquiry in the actual magnitude of loss due to disease in England and Wales. If such an estimate were made judiciously it would be the best propaganda possible for the general popularising of preventive measures against plant diseases.

Prize for Exterminating Forest Pests.—The Forestry Commission announces that a prize of 5,000 dollars has been offered by Mr. Frank J. D. Barnjum, of Montreal, for the discovery of a practical method of combating the Spruce Bud Worm, Spruce Bark Beetle, and Spruce Borer, pests which are the cause of great damage to the forests of Eastern Canada and the United States. Intending competitors are required to submit their suggestions addressed to the donor of the prize, New Birks Building, Montreal, Canada, before August 1.

Appointments for the Ensuing Week.—Wednesday, June 21.—Hertford Horticultural Society's meeting; Southampton Royal Horticultural Society's Rose Show; Croydon Horticultural Society's show. Thursday, June 22.—Royal Botanic Society's meeting. Saturday, June 24.—Glasgow and West of Scotland Horticultural Society's outing to Loch Lomond Park; Streatham and District Rose and Sweet Pea Society's show.

"Gardeners' Chronicle" Seventy-five Years Ago. — *Dendrobium nobile*. Amongst the numerous species of the hardier exotic Orchids which are cultivated here for the purpose of conservatory decoration, few are perhaps more beautiful or better adapted for the purpose than the charming *Dendrobium nobile*, a tolerable specimen of which remained in flower in the conservatory during the months of April and May, without sustaining the slightest injury, although the thermometer frequently indicated 40° of night temperature during that period; and since its removal to the stove it has grown more vigorously. In the cultivation of this description of plant I find but little difficulty, after I can get them established in a pot, and I have no method better than that of attaching them to a small block of charred Oak, and then potting them firmly in small well-drained pots, in rough sandy peat and charcoal, taking especial care that the stem is not buried in the process. In most cases I think it should only just reach the soil. The plants are then placed on a brisk hot-bed of well prepared stable dung and leaves, over which are a few inches of sawdust, to keep down any rank steam that may arise. In such a situation I have found this description of plant to grow most rapidly. So soon as I think they are sufficiently established to require shifting, I break the pots as gently as possible, so as not to injure the roots that may have adhered to them, and then give the plants a large shift into my rough sandy peat, charcoal, and broken pots, taking care that the drainage is well secured; and this I effect by using inverted pots, and plenty of crocks in rather large pieces. The plants are then removed to the stove, where they are grown on the dry and cool system. *James Duncan, Basing Park, June 15, Gard. Chron., June 19, 1847.*

Publication Received.—*Plant Surgery; or, the Correct Methods of Pruning.* By C. A. Jardine, 86, Lavender Hill, S.W.11. Price 5s.

* *American Journal of Botany*, VIII., 6., 1921. Summarised in *Review of Applied Mycology*, Vol. I., Part 1., January, 1922.

INDOOR PLANTS.

RHODODENDRON PRINCESS ALICE.

ON March 19, 1862, several new greenhouse Rhododendrons were exhibited at the meeting of the Royal Horticultural Society, and proved a great attraction. In the *Gardeners' Chronicle* for March 22, 1862, we find several interesting references to these, thus: "Most of the miscellaneous novelties shown came within the province of the Floral Committee, and there were some very fine things among them. One of the most promising was *Rhododendron Princess Alice*, a cross between *R. Edgworthii* and *ciliatum* dwarf-habited, with clean-looking foliage and good-sized white, blush tinted flowers, as sweet as those of the former parent."



FIG. 171.—RHODODENDRON PRINCESS ALICE FLOWERING AT HAUGHTON HALL, DARLINGTON.

The R.H.S. granted a First Class Certificate to this new hybrid, and notified the fact in the advertisement columns. Moreover, nurserymen of those times were quick to profit by such an award, and by the description of the certificated plant given in the report of the meeting, and so, in the succeeding issue, Messrs. Veitch and Son, Royal Exotic Nurseries, Exeter and Chelsea, advertised the several new plants to which awards had been made, and the first in their list, on March 29, was *Rhododendron Princess Alice*, described as follows: "This exquisite variety is a hybrid raised by ourselves between *Rhododendrons Edgworthii* and *ciliatum*. The flowers are large, of a delicate rosy blush, shading off to white and possessing the delicious perfume of *R. Edgworthii*, with the neat foliage, dwarf-habit, and freedom of blooming of *R. ciliatum*. At the late exhibition of the Royal Horticultural Society, on the 19th inst., it received a First Class Certificate, and was the admiration of all who saw it." The price advertised was 42s. for a first-sized plant, and 21s. for a second-sized one.

Rhododendron Princess Alice is still a popular greenhouse plant, and in certain gardens there are fine old specimens, though, perhaps, not many exceed in size and beauty the one illustrated herewith (Fig. 171), which represents

a beautiful specimen 4 ft. high and 19 ft. in circumference, which flowered recently in Lady Katherine Vane's garden at Haughton Hall, near Darlington.

URCEOLINA PENDULA.

THIS *Urceolina*, which is a very pretty bulbous plant, flowers as a rule during the autumn and early winter. It is a native of the Andean region of South America, and was first introduced by Richard Pearce, of tuberous *Begonia* fame, from the province of Mima, in Peru, when travelling there on behalf of Messrs. J. Veitch and Sons. Sent home in 1863, it flowered at the Chelsea Nursery a year later. Previous to that, however, it was discovered and described by the travellers Ruiz and Pavon, but its introduction we owe to Pearce. It was first sent out by Messrs. J. Veitch and Sons as *Urceolina*

aurea, a name under which it is sometimes met with at the present time. The leaves die off towards the end of the summer, and soon after this happens the flower scape is pushed up. The spike attains a height of a foot or more, and is terminated by an umbel of very striking urn-shaped blossoms, each hanging suspended by a slender stalk. The colour is bright yellow, tipped with green and margined with white, the length of the entire flower being about two inches. The cultural requirements of this *Urceolina* are not particularly exacting. After the flowers are over the plant remains dormant for some time, during which period the soil should be kept slightly moist. Then, about February, the bulbs may be repotted, keeping them in a warm greenhouse or intermediate temperature.

The compost should consist mainly of fibrous loam, lightened by a little leaf mould or peat and sand, but little water will be required till the young leaves push up, when the supply should be increased. As soon as the pots get well filled with roots, an occasional stimulant will be beneficial. As the leaves turn yellow less water will be needed.

Apart from its own intrinsic merit this *Urceolina* is interesting as being one of the parents of that singular bi-generic hybrid—*Urceocharis Clibranii*. T.

FAILURE OF SOUTHERN PLANTS TO COLONISE IN THE NORTHERN HEMISPHERE.

I JOIN with Sir Herbert Maxwell (see p. 293) in some degree of wonder that with his various species of *Senecio* and *Olearia* growing together no hybrid has appeared among them. Spontaneous hybrids, of course, are not very common in gardens, and surprise, therefore must be qualified. In answer to Sir Herbert's query, How it is that crossing does not take place? I can only suggest certain possibilities. One is that although the plants may be well able to cross with each other they do not do so because they have no agent for the transfer of pollen.

In the case of many species of *Iris* growing together in a big bed I never knew of a hybrid coming from them, though certain species always seemed to produce true seed, which must have been the result of insect agency. It might be that the insect suited to one species is unsuited to the other in flower at the same time. I do not think that Sir Michael Foster ever drew attention to a hybrid that was not the result of his own manipulation. The *Compositae*, like the *Irises*, are made for insects and, as a rule, cannot do without them. They are incomplete entities by themselves, so to speak, and it may be that British insects do not take the place of those that "belong" to the plants in New Zealand. It may not be because of structure, as it can be in the genus *Iris*, but it is possible that our insects are not attracted by the plants.

Another possibility is that these plants are incapable of hybridising, though, indeed, I think it unlikely in all cases. Strange things do occur; we get surprises in what will cross, but equally, perhaps, in what will not cross, and the *Antipodes* have a very special natural history.

With regard to the free germination of *Veronica Traversii* and *V. parviflora*, I think it likely that they are of simpler construction and requirement than the more highly evolved *Compositae*, which have been considered to stand at the top of the scale of plant evolution. British insects, attracted by similar properties, might even be at the service of plants that belong to a British genus, for we know that certain properties are apt to run through a whole genus. I have noticed that other *Veronicas* come up self sown, where the seeds find the protection of cracks and crevices, here in Torquay. Spontaneous hybrids of New Zealand *Veronicas* have, I believe, appeared in Britain.

As touching the great question why, since Northern plants successfully colonise in the Southern Hemisphere, there is no reciprocal colonisation of Southern plants in the North, it is easier, I think, to surmise than to find knowledge. We may extend the application of the dictum that plants live, not where they could best live, but where they can live. If we accept this we may easily believe that the climate of New Zealand, for instance, is not only congenial for New Zealand plants, but the most congenial for a good many European plants. It is so according to tales that are told of subjects as diverse as men and Watercress.

It may be, too, that plants of the North find insects in the South that serve their requirements, or that they are less dependent upon them. If New Zealand is the better kind of country both for Northern and Southern vegetation, it is not perhaps surprising, taking into account that as climatic changes take place there must be a strain upon the flora. Plants certainly do keep their necessities of existence, and acclimatisation does not, I think, go very far. In the question of Northern and Southern plants Sir Herbert Maxwell has drawn attention to phenomena of great interest, and in the absence of actual knowledge I may be forgiven, perhaps, if I have taken some licence in speculation. Darwin greatly approved what he called "a fool's experiment." R. Irwin Lynch, Torquay.

THE BULB GARDEN.

THE BEHAVIOUR OF TULIPS IN 1922.

MUCH has been published in the *Gardeners' Chronicle* about the effects of the dry, tropical weather of 1921 in gardens, to which I add a few remarks on the behaviour of a considerable number of May-flowering Tulips. In a large collection a few branched or fasciated plants are always in evidence. La Tulipe Noire is generally a pretty safe draw. This flowering season, however, many varieties have taken on this curious habit *en bloc*. It does not seem to have made any difference whether they were grown last year in Holland or England, the same variety became fasciated in 1922. I have grown Golden Bronze in my garden for years. I had it first when it used to be called Toison d'Or. I cannot assert that no fasciated plant ever appeared in my stock, but I cannot remember any. This flowering season at least every other one was fasciated. I happened to get an odd dozen bulbs from Holland to grow in pots. They were just the same: so was a patch of Dutch grown bulbs that I saw in Messrs. R. Veitch and Son's Exeter nursery. I grow two varieties that are supposed to be "branching," viz., Constellation, a red variety introduced by Messrs. Sutton and Sons, and Mons. S. Mottet raised by Mons. G. Bony. Both are rather shy branchers, and unless they are "done" very well, refuse to take on this habit as they ought to do. They have out-Heroded Herod in their branching this year. I could instance a good many examples, but perhaps the most surprising is the look of a hitherto rather puny-looking florist's cast-off which from its shape has had the garden name of "White Darwin." When in flower each plant resembles a little nosegay. Was it the heat or the sun, or perhaps the effect of both, that has caused these unwanted appearances? Heat artificially applied has the result of retarding the time of blooming, and more than one grower makes use of it to extend the flowering period in his nursery. For some time now I have wondered if a short dose of mild heat (artificial, of course) does not strengthen a bulb. Can any one say if this is so?

Again, I have never seen Tulip-plants throw up so many secondary blooms as they have done this year. Nearly every Rose Tendre, an early variety, and nearly every Prince Charming, a late variety, had an independent second bloom coming from the same root.

In this connection I have yet another fact to lay before readers. Some of my Dutch friends have frightened me very much about Tulip-thieves. They describe them as bulbs which suddenly give up bothering to bloom, but go in for dividing themselves up, and in doing so handing on the non-flowering habit to their descendants. I feared whether my beautiful orange, "The President" (see Wallace's 1921 list), and my Walter T. Ware had not both become a pack of thieves! That my fears were groundless 1922 has abundantly proved. The President gave a mass of bloom, and almost all the little miserable degenerate-looking bulbs of Walter T. Ware have thrown up a flower. Is 1921 accountable for this? The question of breaking is one of perennial interest. One cannot frame a new theory about it every year and scrap the last one. Often as I have come across a broken flower when taking visitors over my Tulip garden, I have said by way of a joke, "It is possible that if you dug up twelve of these self-coloured plants and put them in your garden next autumn, the following year they would be all striped like this" (pointing to a broken flower). I never thought it would be so, but only the other day I had a letter from Mr. Wakefield, of the Parsonage, Broughton-in-Furness, in which he said "I planted twenty-four bulbs of Pride of Haarlem last October, and every one has broken." My gardener and I had only said the very day before the letter came that we thought we never had had fewer breaks in our large collection. There was, it is true, one necessary exception to prove the rule. Couleur Cardinal has broken rather badly, a

thing it has never done before. Hitherto it has been practically immune. Mr. Wakefield's letter has quite upset my latest theory that the exceptional warmth of 1921 had a restraining influence on selfs and prevented them from breaking. Not only has he twenty-four recalcitrant Pride of Haarlems, but he added, "Never have I had so many breaks in the thirteen years I have grown Tulips." I now feel disposed to say that the hot summer of last year had no effect one way or the other on breaking. It would be interesting to know the experience of other growers on this point.

I expect most people's Tulips were like ours here. They had on the whole much shorter stems and smaller flowers than usual. Oddly enough the early section did not show this as much as the May-flowerers. I never wish to see better Pink Beauty, but Valentin and Goudvenk are but shadows of their former selves. Is it to be wondered at, when all the checks and vicissitudes that they have gone through in March and April are taken into account?

BRODIAEA BRIDGESII.

THE genus *Brodiaea* is one of the omnibus genera of the botanical world. It now includes many different looking plants that once were known under other names. How few, for example, would ever recognise the well-tried and widely-grown *Milla uniflora* as *Brodiaea uniflora* or *Calliphora lutea* as *Brodiaea ixioidea*? On the other hand, some have been displaced from the genus. That quaint plant, *Brodiaea coccinea*, has been classed with the *Brevortias*, and the learned ones speak of *Brevortia Ida-Maia*. Thank goodness it has a well-established English name, and gardeners can still talk of it as the Californian Fire Cracker—an alien plant with a good English name more often than not denotes popularity. There are some which ought to have one but have not. I think *Brodiaea Bridgesii* is one of these. I only know it as a pot plant and that it is comparatively easy to grow on from year to year without deterioration. The flat-topped, tubular, pale purple flowers are borne in graceful, light-looking umbels, which have a main stem about a foot to eighteen inches high. They last well growing or as cut blooms. Any one who can manage the better known *Ixias* in pots can also grow this *Brodiaea*. With the selfsame soil and treatment they are a decided success here. Joseph Jacob.

CULTURAL MEMORANDA.

SEED SOWING.

SOMETIME during this month a pinch of seed of *Humea elegans* should be sown, and, in case of failure, which is not uncommon, other sowings may be made up to August. If good, the seed will germinate readily in a cool greenhouse temperature.

Humea elegans is at most times a fickle plant, requiring careful watering in all its stages, and special care should be observed when the plant is in flower, as over watering is fatal at that stage.

Seed of the brilliant flowered *Gilia coronopifolia* should be sown this month in a cool greenhouse. When large enough to handle the seedlings should be potted off singly into thumb pots, and subsequently potted again as they require it into sixty-sized pots, in which they should be wintered. The compost should be light and open, as this plant is very apt to damp off during the winter, especially in the neighbourhood of London, where special care is required to bring them safely through the winter. During that season of the year the plants should be grown in a light, airy position, close to the roof glass of a cool pit or frame, where a little heat can be applied if necessary to dry up superfluous moisture. During winter no more water should be given the roots than is necessary to prevent the plants from shrivelling, and on no account should the foliage be wetted.

The present is also a suitable time to sow seeds of *Rehmannia angulata*. Well-grown

plants are very useful for conservatory decoration during the summer. Seed may be sown again during July if necessary. The successful cultivation of this plant presents no difficulty, as during all its stages it grows well in a cool house, or ordinary garden frame. The plants should be repotted as often as they require a shift until they are in seven or eight inch pots.

Stocks intended for conservatory decoration should be raised from seed sown now, and sowing may be continued until August. The Beauty of Nice type, Sutton's Christmas Pink and the Lothian Stocks are most suitable for pot culture. The plants should grow strong and sturdy, without any attempt at coddling. The soil for potting should consist of rich loam mixed with old mortar rubble, or, failing this, lime should be added to the soil. Little or no leaf soil should be used, as short, firm growth is essential for success. In the country the earlier sowing should prove successful, but in the immediate neighbourhood of London, it is useless to try and flower the plants in mid-winter, therefore later sowings that will bloom during the spring should be relied on. *J. Coult.*

TREES AND SHRUBS.

ACER MACROPHYLLUM.

THE Oregon Maple is not so frequently met with as might be expected, considering the large size and handsome appearance of the leaves. Trees here and there occur in gardens, but are seen less seldom in streets, yet I have seen it so used, in company with the Sycamore and the Norway Maple. It bears hard pruning well, breaks freely, and makes good headway in replacing a head even the first year, and blooms freely the next. The panicles of flowers are as pendant as those of *A. Pseudoplatanus*, notwithstanding Loudon's description that they are erect. The petals are much larger than those of the last-named, yellow, and the flowers are fragrant. The leaves contain a milky juice, like those of the Norway Maple. Besides their size, the leaves are notable for the depth of their divisions in some of the seedlings, more especially on adult trees. The branches grow more or less upright on young or lopped trees, but later assume a spreading habit.

AESCULUS OCTANDRA.

THE trees that may be placed as a group under the above name are flowering well this year, or have done so, for some of them have shed their flowers and set fruits, while others bloomed later in June. The type has soft yellow flowers, with smooth leaves, and flowers very freely, while only 6 to 10 feet high, though older trees grow much taller. The two small petals have a red blotch on the base of the lamina. I have examined a large number of the male flowers, and they contain only seven stamens, notwithstanding the specific name. This tree was named *Æ. flava* by Aiton, which is very appropriate for the colour of the flowers. Many of the trees that come under observation contain a greater or less amount of rose or red, and these are now placed under the varietal name of *purpurascens*, which is wild in the Alleghany Mountains, though there is some supposition that it may be a hybrid between *Æ. octandra* and *Æ. Pavia*. Several forms have since been named, and one of the more common is *Æ. versicolor*, which is yellowish shaded with pale red outside and deep red within. *J. F.*

MYRTUS LUNA.

Few shrubs grow more luxuriantly with us than *Myrtus Luna* (syn. *Eugenia apiculata*), even in shrubberies where the undergrowth of Bracken and Brambles is heavy.

As lawn specimens the plants make fine symmetrical bushes and are at all times attractive with their neat glossy, evergreen foliage and the conspicuous brown bark on the larger branches.

One of our bushes is well over thirty feet high. When in full flower, bearing thousands of small, white blossoms from base to summit, it is a beautiful object. *E. Beckett, Fota Gardens, Queenstown, Co. Cork.*

PALMS OF THE RIVIERA.*

I now deal with a most interesting genus, and one which is not sufficiently planted on the Riviera, since probably all the species would succeed in the most sheltered localities in these parts, and several are hardy anywhere here. I refer to the genus *Livistona*, which is well known to gardeners everywhere, because one of the species, *Livistona chinensis*, R. Br (*Latania borbonica*) is one of the most common dwelling-room plants, and, indeed, was, at least until a few years ago, the most commonly cultivated Palm for this purpose, but now is less frequently grown for the market than *Howea* (*Kentia*) *Forsteriana*. The *Livistonas* are fan-leaved Palms, and more graceful than the other fan-leaved Palms which I have mentioned hitherto, their trunks being comparatively slender, though not so slender

building land, it being situated on a most valuable site right in the town of Nice. This is the oldest garden of Nice planted with exotic plants, it having been formed in 1862. Unfortunately, during the war, this garden, which years ago passed into the possession of a German, was placed under sequestration and quite neglected up to a few weeks ago, so that many of the most precious species have been lost. The new owners have decided to bring it back to its former splendour, and I am occupied with the determination of the plants and the general direction of the garden. I make these remarks which might seem irrelevant because I shall have to mention now and again in these notes the Palms and other plants found in this once famous garden, as they are the oldest specimens found on the Riviera. The numerous plants of *Livistona chinensis* in the park of Villa Venetienne are of very remarkable size, having heights ranging up to eight or ten metres.



FIG. 172.—TELOPIA SPECIOSISSIMA. R.H.S. FIRST-CLASS CERTIFICATE, CHELSEA SHOW (SEE P. 274).

as in some other fan-leaved kinds, and their leaves of a much more beautiful shape. *Livistona chinensis* has wonderfully handsome leaves, forming an almost regular convex surface, like a very low dome, from the edge of which the divisions hang down as fringes. Here this beautiful Palm is quite hardy, and was introduced as one of the very first of Palms; so far as I can find out only one other Palm, namely, *Phoenix reclinata*, Jacq, was introduced as early (always excepting the common date-Palm, *Phoenix dactylifera*). Visitors to the Riviera will know the old famous park of Villa Vigier, to which its first name, Villa Venetienne, has been restored by its new proprietors, the Count and Countess de Mileant, both keen lovers of nature, and who fortunately have saved this park from being cut up as

which may appear to be little for Palms so old, but it must be remembered that *Livistona chinensis* is a slow growing Palm, and, seen side by side with *Washingtonia filifera*, which is numerous also in this park, but planted much later, they appear small, so much quicker is the growth of the other Palm. But of the two *Livistona chinensis* is by far the most graceful, and the crown of beautiful, glossy-green leaves with their long fringe is a sight not to be forgotten. When bearing its large yellowish-white inflorescences, but especially when loaded with its bunches of fruits, the size of small Plums, and of a most splendid bluish-green with metallic gloss, this Palm, with its comparatively slender trunk, has few rivals in beauty.

The slow growth of this Palm is not a sufficient reason for it being so rarely planted, since it succeeds both in full sun and in shade; it will grow even in a northern position. *Dr. A. Robertson Proschowsky, Jardin d'Acclimatation, Les Tropiques, Nice, France.*

* The previous articles by Dr. Proschowsky were published in our issues for May 1, June 12, July 10, September 4, November 29, December 18, 1920; May 12, April 30, June 11, October 8, November 19, 1921; January 21, February 11, and April 1, 1922.

The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Cattleya.—*C. Mendeli*, *C. Mossiae* and their innumerable hybrids are in flower, or have just passed that stage. *C. Trianae* and *C. Schrödera*, with their hybrids, are commencing to make new roots, and, should the compost show signs of exhaustion, fresh rooting material should be given them. These species are as easily grown as any others, provided a few simple details are observed. Their first need is a sweet and suitable rooting-medium; the second to repot them when they are producing new roots, and the third to water them very sparingly after repotting. If treated in this manner they soon become established in the new material, and receive the least check possible. The chief reason why these *Cattleyas* do not thrive in many places is want of air, and another reason is giving the roots too much water during the winter, whilst the plants should be resting, and not sufficient when they are making their growths.

Watering and Ventilating.—It is surprising the amount of water these plants need when they are well rooted in small pots or pans, in which they should always be grown. Most beginners make the mistake of placing these plants in too large receptacles, and growing them in a hot, dry atmosphere, in which they gradually dwindle and die. The atmosphere should be kept buoyant at all times, as a stuffy close house is detrimental to the plants. They delight in an abundance of sunlight, but are not capable of withstanding strong sunshine in glass houses.

Cattleya Warscewiczii.—Plants of *C. Warscewiczii* (*gigas*) that are making strong growths, and showing their flower sheaths, should have an abundance of light and heat, and be supplied with water whenever they become dry. This plant, owing to its short season of growth, should receive generous treatment after growth commences, or it will not develop strong pseudo-bulbs, and good flowers cannot be expected from weak ones. Plants of this species in bloom, and those that have not made flower sheaths, will be greatly benefited by being placed under conditions advised for flowering Orchids; that is, in a house where the conditions are dry and airy. This will assist them in consolidating their growth, and possibly be the means of producing flowers on their next growth. When the flowers are faded the plants should receive sufficient water to keep the pseudo-bulbs plump and healthy. The drastic drying process, often called resting, is most debilitating to the plants and not conducive to flowering, but rather to the general deterioration of the plants.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

The Orchard House.—Where a good collection of early varieties of Peaches and Nectarines is grown, many fruits will have been gathered, and, generally, later sorts will be sufficiently forward to necessitate more fresh air, lighter syringing, and a discontinuance of fire-heat. Flavour in very early Peaches is often sacrificed by hard forcing, but by opening the ventilators freely the quality of the fruits will be improved, and their season prolonged. As these early trees are cleared of the crop they should be well syringed to keep them clear of pests. As they have made their growth, and yet have the summer before them, they may be plunged in the open where they will receive an abundance of sun-light, fresh air and water. Care in water-

ing and syringing is most important; water should be given the roots copiously. The best times to water are just before the trees are syringed, and again first thing the following morning; the roots then have the full benefit of moisture through the night. Mulching or top-dressing is as necessary as ever, and the mulching material should be supplied little and often. Bone-meal, mixed with rich, stiff loam, is an excellent fertiliser for Peaches and Nectarines, as is also liquid manure, which should be diluted.

Late Houses.—Thin the fruits on each tree for the final time, as there is but little danger of fruits dropping in June. Pinching and disbudding of the shoots may also be done on the free side. Water the roots as well as the foliage liberally. As the main object of this house is to obtain a good crop of fruits during the autumn, no particular object will be served by hard forcing, even with solar heat. Allow plenty of time for the fruits to complete their stons, also when the fruits are swelling freely, then, if thought desirable, the house may be closed for two or three hours on fine evenings. All fruit-bearing trees should be well top-dressed and fed liberally. The strongest of the young shoots may be pinched at the fifth or sixth leaf, according to their size and the space at command, but the weak shoots, and especially those near the base of the tree, may not require pinching, as sometimes these shoots have but two wood buds, the removal of which would ruin them for another year.

HARDY FRUIT GARDEN.

By H. MARKHAM, Gardener to the EARL OF STRAFFORD, Wrotham Park, Barnet.

Late Planted Fruit Trees.—Give every attention to the roots of late planted trees and those which were root pruned. Mulch the roots and supply fresh mulching material at intervals so long as hot, parching weather continues. Large trees that were rather severely dealt with will be greatly benefited by being shaded from the strong sun a few hours daily, and syringed to moisten the branches.

Cuttings.—Keep the beds of bush-fruit cuttings clean and free from weeds, and water the cuttings freely to assist in the formation of roots. It will be very helpful if a good mulching of leaf mould is applied between the rows previous to soaking the soil with water.

Sweet Cherries.—Examine the young growths of Cherries at intervals, and should the tips be found to be infested with black aphids, dip them in a mixture of Abol or nicotine wash and syringe them freely with either of these insecticides, so that both leaf and shoots may be thoroughly cleansed before the stoning process is over, when clear water only should be used on a few occasions to clear away all traces of the insecticides on the fruits. Do not use insecticide after the stoning is completed, otherwise the fruits may have a disagreeable taste. Train neatly all the young shoots required for extension and for filling the wall space before they receive any damage by winds, etc., also see that the roots are supplied with moisture if it is needed. A copious watering with lime-water and soot-water, or liquid manure, will greatly assist trees bearing heavy crops.

Gooseberries.—If large berries are required for dessert, thin the fruits early, using the smaller ones for tarts and bottling. Feed the roots at intervals with liquid manure, and mulch them with farmyard dung. Keep the foliage free from red spiders, and should caterpillars appear check them at once, otherwise they will spread rapidly and defoliate the plants.

Loganberries.—Examine these plants and thin out the superfluous growths. Retain those best situated to take the place of the older ones. On light land liberal supplies of water and liquid manure will assist the plants in making large, fleshy berries of the best quality. Protect the fruits from birds early, and use the berries before they get too ripe and seedy.

THE FLOWER GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

Planting Tender Bedding Subjects.—Before commencing to plant, the soil of the beds, previously prepared, should be lightly forked over, and made level by raking. Set the plants in the ground firmly, staking where necessary, and leaving the whole as neat and tidy as possible. The main planting of the beds should be carried out first, and edging plants, where such are employed, put in last, otherwise the edging may be disturbed, and possibly damaged, by reaching over it to plant other items in the beds. When all is completed give the plants a good soaking with water, and thereafter spray the plants freely each day, preferably in the late afternoon or early evening, until they are well established. All carpeting subjects that require pegging down should have this done at the time of planting, and as growth is made this attention should be again afforded them.

Barberis.—The various Barberies have flowered very finely this season, starting with such as *B. japonica*, *B. nepalensis*, and the lovely *B. Bealei*, with its long, sweetly-fragrant racemes of yellow flowers, and followed by the striking *B. aldenhamensis*, which is probably a hybrid between *B. japonica* and *B. aquifolium*, this in turn being closely followed by *B. stenophylla*, a species that makes a fine bush and has exceedingly graceful, long growths, clad with small, dark, evergreen foliage; *B. Darwinii*, which is one of the prettiest of evergreen Barberies; *B. dulcis* and *B. dulcis nana*, with their large, lemon-yellow flowers very freely borne. Many other Barberies are doing well; our native *B. vulgaris* is carrying very many flower racemes this year.

Other Fine Shrubs.—*Amelanchiers* are particularly noteworthy and free flowering this season; *Crataegus* (Thorns) and especially the glorious *American Thorns* have never been finer in flower here; *Horse Chestnuts*, the white flowers of which appear to be particularly pure in colour in this somewhat late flowering period, and white-flowered *Spiraeas*, such as *S. Thunbergii*, *S. gemmosa* and *S. arguta*, are all remarkably pure in tone, and flowering with exceptional freedom. *Viburnums*, starting with *V. fragrans*, have been and still are giving excellent results. Following *V. fragrans* comes *V. Carlesii*, probably the most lovely of all in flower, for its charming umbels of waxy-white flowers are very highly perfumed. Very close to this species, but without doubt inferior, is *V. bithuenensis*, although it is well worthy of inclusion in gardens, being free in flower and also fragrant. Many other *Viburnums* are flowering well, and the members of this family should be largely grown for their various features, such as flower, habit, foliage, and fruit.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir C. NALL-CAIN, Bart., The Node, Codicote, Welwyn, Hertfordshire.

Nerines.—Plants that have completed their growth should be stood on a shelf in a cool greenhouse, where they may receive the maximum amount of sunshine to thoroughly ripen up their bulbs. Water should be withheld entirely at the roots. Plants treated in this manner will be found to flower much better than if placed under stages where they will be shaded from the sun's rays.

Ferns.—Plants that were not repotted in the spring but only top-dressed will be benefited now by some manurial aid. Soot water or weak liquid manure may be given the roots once a week, and these stimulants will deepen the colour of the foliage and give the plants a healthy appearance.

Calceolarias.—Seeds of herbaceous *Calceolarias* may be sown in pots or pans filled with a light, open compost. The seeds are very small, and need to be sown on a fine, even surface. It is also wise to moisten the soil with a very fine rose can several hours before sowing the seeds, which only need covering with the merest sprinkling of soil. The receptacles should be

covered with a sheet of glass and stood in a cool greenhouse, keeping their surroundings moist and shaded from bright sunshine. Calceolaria seed germinates very quickly, therefore it is necessary to watch carefully and remove the glass when germination has taken place. At this stage the seedlings should not be allowed to become dry, for if allowed to suffer from lack of moisture they will scorch and die off very quickly. Calceolarias should be pricked off into boxes, immediately they can be handled, in a light, open compost and stood in a cold frame, one for preference facing north-east. Continue to shade the seedlings from bright sunshine and keep the young plants growing actively, never allowing them to become starved for want of repotting. Green fly is a troublesome pest to these plants, and must be rigorously suppressed by spraying on frequent occasions with Quassia extract.

Zonal Pelargoniums.—Pelargoniums intended for winter flowering are ready for their final potting. The soil should consist chiefly of good, open loam, with a little manure from a spent mushroom bed and lightened with silver sand. After potting them, stand the plants in an open position where they will be fully exposed to sun and air. Pinch out the tops of the plants to cause side shoots to develop, and remove all the flower buds during the growing season. When it is found that the receptacles are well filled with roots, a light, stimulating manure may be given once every week, but not sufficient to cause sappy growth.

Salvia.—*Salvia splendens* and *S. leucantha* intended to produce large specimens should be placed in the pots in which they are intended to flower. The soil may consist of good loam with spent mushroom-bed manure and grit added to render it porous. Arrange the plants in a cold frame until they have rooted in the new soil; afterwards they may be stood on a bed of ashes in the open, for preference where they will be shaded from the mid-day sun. Spray the plants with clear water in the evenings to keep red spider in check.

THE KITCHEN GARDEN.

By JAMES E. HATHAWAY, Gardener to JOHN BRENNAND, Esq., Baldersby Park, Thirsk, Yorkshire.

Asparagus.—The cutting of Asparagus should be discontinued after this date. Keep the beds free from weeds, but do not use the hoe except in the alleys, and then apply a dressing of Asparagus manure or guano, which should be washed into the soil by a copious watering. Very strong growths should be supported by stakes.

French Beans.—Owing to the hot, dry weather it will be necessary to make further sowings of French Beans to ensure a succession of pods. Soak the drills thoroughly before putting in the seeds; this is more effective than watering after sowing.

Tomatos.—Another batch of Tomato plants should be raised to maintain a late supply. Sow the seeds in pots in a shady house, and pot the seedlings singly as soon as they are large enough for the purpose. Grow the plants in the open in large pots, which can be placed indoors at the end of the season. The hot weather has suited Tomatos out-of-doors, but the ground being so very dry, the roots should be supplied with moisture by means of the water can. During their early stages the plants will be benefited by a little quick acting fertiliser, such as guano water or liquid manure, but when growth is active, feeding should be discontinued, for this might cause the plants to make gross growth, which is never so fruitful as when it is of moderate strength. Take out the side shoots as soon as it is possible to do this, and see that the leading shoot is safe against damage by tying it securely to the stake.

Parsley.—Another batch of Parsley should be raised now to furnish a late supply of leaves. This crop needs copious waterings, especially on light land, and frequent dressings of soot.

HARDY FLOWER BORDER.

SANGUINARIA CANADENSIS.

EVERY now and again one hears a comment on *Sanguinaria canadensis*, the Canadian Blood Root, of a nature which is rather displeasing to those fond of the flower. This appears to be mainly due to an author growing or seeing inferior forms of what is, after all, a charming spring plant. That there are inferior types is known to many who have seen the plant in nature and in numerous gardens. Recently I read a note on it in a book of deservedly high reputation, written by a man of great ability and generally excellent taste. The flower was not belittled, yet the manner in which it was discussed came near to that "faint praise" which admirers of the Blood Root would indignantly meet with scorn.

That there are individual plants of *Sanguinaria canadensis* with poor flowers one cannot deny, but a good form such as that supplied from nurseries, as *S. canadensis grandiflora*, is one of the most beautiful of spring flowers.



FIG. 173.—SANGUINARIA CANADENSIS.

whether grown in the border or the rock garden. It is a pleasure to see in its earliest stages the charming leaf of blue grey coming up and shielding the developing flower, then to observe the leaf unfold, to display its charming contour and its colouring in a bolder way; next to watch the large, snow-white flower, with its golden centre, which looks so well associated with the exquisitely lobed and scalloped leaf. A plant a foot or more across, with many of these charming leaves and flowers, is beyond measure delightful in the garden. (See Fig. 173.) It is, of course, no new plant, but one which has been in our gardens for many years, and is frequently overlooked in the desire for novelty; yet it is not deserving of such treatment. Nor does it present any difficulty in cultivation. Although a native of the woods of North America, it grows well in the open border or rock garden, where it flowers excellently and remains open for a longer period each day than when under trees. It has been naturalised by a few, and looks very pretty in the wild garden, but, on the whole, I prefer it elsewhere, where it has a better chance of showing its beauties.

The plant is widely known as the Blood Root, from the red fluid which comes from the roots when they are injured. For the same reason it has also had applied to it the title of Red Indian Paint, and in some parts of Great Britain has been long known as Naked Ladies. The plant is not fas-

tidious in the matter of soil; I have seen it growing in all kinds of compost, and few seemed to cause it any discomfort, except a very poor sandy one, where it was grown well, however, by soaking the roots thoroughly every now and again during the spring and summer. If this was neglected, flagging ensued. Small plants from a nursery, as a rule, generally do well if planted in autumn. *S. Arnott.*

GYPSOPHILA PANICULATA FL. PL.

THE double-flowered variety of the popular *Gypsophila paniculata* is valuable as a border plant or for supplying cut bloom. Its value in the garden was never more realised by the writer than on seeing two magnificent plants in the gardens of Shambellie and S. Mary's, Newabbey. They were truly magnificent specimens of large dimensions, and each a cloudlike mass of flowers of exquisite beauty. Of the two that at Shambellie was a little larger than that at S. Mary's, but both were exceedingly fine. I always have a special interest in this double *Gypsophila*, as before it was distributed

Mr. A. J. MacSelf, so well known in horticultural circles, was in charge of the hardy flowers at Messrs. Thomson's nursery, Wimbledon, where it originated, and he sent me flowers asking if I had ever seen a double variety of *G. paniculata*. This I had never done, and it was with special pleasure that I saw the favour it soon acquired when it was distributed. *S. Arnott.*

LITHOSPERMUM PETRAEUM.

THE beautiful blue tints of the trailing Gromwell (*Lithospermum prostratum*) are very effective on the rock border, especially that of the sky-blue variety, sometimes called "Heavenly Blue." But the rich tones of the taller *Lithospermum petraeum* are not often seen, yet this valuable plant should be in all our herbaceous borders, for it blossoms from the end of May till the end of summer and produces its flowers in great profusion. They are packed in dense tufts on the points of the shoots, and the tubular blossoms are first violet (as buds), opening to clear blue, with red anthers. This small shrub is somewhat like a little Lavender bush in shape, and grows eighteen inches to two feet in height. The plant may be propagated either from seeds or cuttings, which root readily in summer if kept moist. A native of Southern Europe and Dalmatia, this species is not absolutely hardy, but in a well-sheltered position, with a well-drained gravel soil, it does well in gardens in the South of England. *I. L. B.*

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THE MANSE GARDEN.

THOSE familiar with Sir Walter Scott will remember *Old Mortality*, a book that keeps in remembrance an old man who, leaving home and wife and family, for the long space of forty years led a lonely existence traversing those districts of Scotland where persecution raged during Covenanting times, and employed himself in the hewing and erection of monuments to the memory of those who suffered death, or in repairing grave-stones where these already existed.

Nathaniel Paterson, the author of *The Manse Garden*, was either the grandson or the great-grandson of Old Mortality, whose real name was Robert Paterson. He was, when the book was written, minister of Galashiels, at that time little more than a country village, and, later, of one of the Free Church congregations of Glasgow. Some twenty miles lower down the Tweed he had a ministerial friend imbued with a love of similar pursuits, in the person of the Rev. R. O. Bromfield, of Sprouston, articles from whose pen are to be found in *The Gardeners' Chronicle* and other journals of sixty or seventy years ago. He, however, did not venture on book production, while Dr. Paterson wrote, in addition to the one on gardening, several books on religious subjects. *The Manse Garden*, published anonymously, was immensely popular, and the first edition was exhausted in a very short time. Other editions, with the name of the author, followed until at least 15,000 copies had been sold. Like the Rev. John Lawrence a century previously, our author had doubts as to the expediency of a clergyman writing on gardening, but he concluded he could not be wrong in advising persons of sedentary habits, whose tendencies to physical and mental deterioration were great, how to escape these by means of a recreation at once profitable and pleasant and devoid of evil. So he wrote.

Ostensibly, while written to induce fellow-ministers, farmers, and others with small gardens to take to gardening, the popularity of the book did not rest on its qualities as a horticultural propagandist organ, but largely on the philosophy it applied to ordinary things. And though the author was accused of plagiarism by Mr. Patrick Neill—a well-known amateur horticulturist, and the provider of the Neill Prize in Horticulture—inasmuch as he had made use of an article the former contributed to the *Edinburgh Encyclopaedia* in its preparation, though nothing in Mr. Neill's writings gives the impression that Dr. Paterson

needed to go to them for material, theoretical or practical. Of course, it is hardly possible to write on gardening without trespassing on territory already explored or occupied, and not improbably such was the case in this instance.

Dr. Paterson's English is delightfully fresh and vivid, here and there sparkling with happy Scotticisms, illuminated with a dry humour, sometimes a little sarcastic, but never dull. Here are one or two of his sayings out of many: "If I want to know what sort of Peas I should purchase for seed, I meet with a list so long that I am perplexed, like a shopping damsel amidst an ocean of calicoes; and how should I get out of a labyrinth, if indeed I should venture in, to choose an Apple out of three hundred varieties?" Concerning the meticulous scrupulosity of florists there is this: "Florists have given recipes for composts with the trifling exactness of invalids who pore upon dietetics and weigh their food." But I think that florists are now not so pedantic as formerly. The rather lengthy episode of the blackbirds which ate all the Cherries and Plums in advance of the minister, and how

roots into the soil, and he notes how the exceptionally hot and dry summer of 1826 produced fruit of larger proportions and of finer quality than seasons of average heat, conditions and results that were apparent last year. He had not been aware that sloping walls had been recommended in the end of the seventeenth century and proved failures, else he would not have brought forward a plan of forming a sloping bank of earth to promote the ripening of high-class Apples like the Ribston Pippin. Still, there is something in the idea, for our finest Ribstons are produced here from a grass slope, and at one time very fine examples were obtained from trees trained on the roofs of the workmen's cottages here, an illustration of one of which appeared a few years ago in *Country Life*. It is worth recording that Dr. Paterson was far in advance of gardeners in the cultivation of Strawberries, planting, as he did, in August and securing a crop the next summer, while the general practice was to plant in March and to expect a crop sixteen months or so afterwards. Another practice he recommends with these was to mow off the old leaves towards the end



FIG. 174.—POPULUS GENEROSA: MALE AND FEMALE CATKINS. (see p. 321).

shooting, according to the minister's man, "never did them meikle guid," is a charming example of his humour. And the treatment recommended for the management of the "boy" is characterised by much sagacity and sympathy, and well worth attention at the present time, when boys and girls present a perplexing problem.

Evidently the author loved trees greatly, and his advice to incumbents and others, whose fields were without shelter, to pollard trees of ten to fifteen years, when they could be moved at little expense, was worth consideration at a time when much of the south of Scotland was treeless. The reason why so few trees were "moved" he attributed to the "difficulty a man has of moving himself." Pomology, as was the case with his friend at Sprouston, attracted him more than either floriculture or the vegetable garden. Clearly he was an adept at pruning, propagating by budding and grafting—all necessary accomplishments—for he asked for shoots of any Apple or Pear he found in the gardens of his contemporaries and which hitherto had been unknown to him, keeping them by him till the proper season came round for propagation. He preferred planting Apples on the surface and spreading soil over their roots rather than lowering the

of autumn in order to allow the buds for the next year's crop to ripen. This practice became obsolete some fifty years ago. At least, I have not since seen it recommended.

Concerning vegetables, our author had no love for overgrown specimens. What he would have said about the monster tubers of Potatoes we turn up in these days, or the equally obese Onions, one can only imagine, but we are sure from the remarks he made that it would have been condemnatory. Deep trenching was, in his opinion, indispensable. Previously untrenched ground he advised to be turned up to a depth of 18 inches and deepened at every subsequent operation. He was aware of the reciprocal sympathy between surface soil and deep soil in cases of drought and wetness, and regarded the thorough upturning of soil to a depth of at least 2 feet to be equal to an ordinary application of manure. Not more than eight to ten years should elapse between an operation of this kind, when the inert soil in the lower strata being brought to the surface would prove as good as soil hitherto uncropped. In this he erred somewhat, because all experience proves that ground may be trenched annually with profitable results. The Onion he estimated the most precious crop of the garden, and was assured that one sort differed from another more in accordance with

the degree of skill expended in its cultivation than in the variety. James's Keeping was even then a foremost variety.

Little need be said regarding the section devoted to flowers. The lists of varieties were ample for the time, but the remarks are less interesting than those in the other sections.

The fact that even now the gardens of Scottish mansees are, as a rule, not those to which one would go for examples of good gardening raises the question how the incumbent of this, at that time, out-of-the-way village had obtained an experience to enable him to write this living book. Not improbably gardening was "in his bones." The wife of Old Mortality was the daughter of a gardener, and just as the poet Thomson's two brothers took to gardening, thus following in their grandfather's steps, so one might expect this to have been the case with Dr. Paterson. He must have had a love of plants and flowers at an early age, otherwise the original observations broadcast through his book could never have been made. R. P. Berthoulet, Tynninghame Gardens, Prestonkirk.

PLANTS NEW OR NOTEWORTHY.

POPULUS × GENEROSA.

THIS interesting hybrid Poplar was raised in 1912 by fertilising *Populus angulata* with pollen of *P. trichocarpa*. It was first described by Professor Henry in the *Gardener's Chronicle*, October 17, 1914, page 258. The cross was repeated at Kew in March, 1914, and among the seedlings raised, three in particular, proved to be very fast growing trees. To distinguish these trees from the original (1912) seedlings they have been named by Professor Henry *P. × generosa* (secunda).

So far as I am aware previous hybrid Poplars—*P. Eugenei*, *P. robusta*, *P. regenerata*, etc., are only represented in gardens by one sex. The original tree of *P. × generosa* at Glasnevin is pistillate. It is interesting now to be able to illustrate the pistillate and staminate forms of *P. × generosa* (secunda), both of which recently flowered at Kew (Fig. 174). Attempts were made to fertilise one with the other, but at that time (April) we had 8° to 10° of frost on several occasions which destroyed the pistillate flowers. Both have large catkins, about three inches in length, including the stalk. Those of the male tree are the more showy, being dark red-brown in colour. Though Kew, both in the climatic conditions, and its dry sandy soil is far from ideal for the growth of trees, the hybrid Poplars under notice have made splendid progress since the sowing of the seeds eight years ago. All three trees now exceed 40 feet in height with leaves 12-13 inches long, and 10-11 inches wide. A. O.

DIPELTA FLORIBUNDA.

AMONG the many new shrubs introduced from China during recent years none is more promising than *Dipelta floribunda*. It is now 15 years (May, 1907) since the first bush produced flowers in this country in the Coombe Wood Nursery of Messrs. James Veitch and Sons, but during half that period our energies were focussed elsewhere. Now that we are able once again to give attention to the propagation and distribution of rare plants it is pleasant to remember that the subject of this note is one of the newer shrubs which has come through the lean years with an enhanced reputation.

The species was first discovered by Dr. Piatetski, a Russian army surgeon, in 1874-75, but for its introduction to our gardens we are indebted to Mr. E. H. Wilson, who sent home living plants in 1902 from Central China, and seeds two years later from Western China.

A flowering spray, with details of the flower, was illustrated in *Gard. Chron.*, July 6, 1907, Fig. 1, from a sketch by Mr. Herman Spooner.

Among hardy shrubs the *Dipeltas* are nearly allied to the *Diervillas*. The most distinct difference is in the bracts at the base of the ovary of the *Dipelta* which develop, forming wings to the fruit, suggesting the female flower of a *Begonia*. *Dipelta floribunda* (Fig. 175) and

D. ventricosa (also introduced by Mr. Wilson) are both found in a wild state as large spreading bushes up to 15 feet high, and their present free growth suggests they will ultimately attain this height in this country. Found at some 3,000-5,000 feet altitude the *Dipeltas* appear to be as hardy as *Diervillas*. *D. floribunda* has ovate to oval-lanceolate leaves up to 3½ inches long and 1½ inch wide. The fragrant flowers are funnel-shaped 1 to 1½ inch long, pale pink with a yellow throat. They are borne in the axils of the leaves.

The *Dipeltas* are readily propagated by cuttings of the current season's half-mature growth about mid-summer or soon after. These root readily if inserted in pots of sandy soil, and placed in a close frame with slight bottom heat. The bushes thrive in most garden soils, but to get the best results the land should be trenched and manured. By this means one is able to obtain the abundance of flowers suggested by the name "*floribunda*," and indicated by the spray illustrated. A. O.



FIG. 175.—DIPELTA FLORIBUNDA.

MR. KINGDON WARD'S SIXTH EXPEDITION IN ASIA.*

No. 17.—THE SHIN-LU.

FROM the glaciated valleys heads we plunged down through forest where graceful Larches glimmered against dusky Fir trees. Then came Oaks, and open hillsides clothed with scrub *Rhododendron*, and still more open patches of meadow joyous with flowers. And so down, and down again, till at dusk we halted, pitching camp by a small stream. There were only shrubs here—*Rhododendron*, *Lonicera* in flower, Poplar, and so on. An Iris, with flowers of violet velvet, was coming into bloom.

About sunset we had a brief view of the fine snow pyramid across the gorge, but presently it was swallowed up by the clouds, and weeks passed before we saw it again.

We did not really get very far this day, though we travelled long hours. We had yak transport, slowest of all animals, and it was

a wonder we got so far as we did. The men wanted to quit earlier, saying their beasts could not go on. Next day we entered a forest of magnificent *Picea* and *Pine* trees, and, descending very abruptly, reached cultivation in an hour.

We now found ourselves in one of those gorges which are such a feature of this dry, limestone country, growing steeper and narrower as it approached the main river. At first the path kept close to the torrent. There were *Lime* trees here, and several species of *Arisaema* amongst the rocks, well shaded, besides twining plants, such as *Vitis*. In fact, the ravine was fairly well wooded.

Presently we had to leave the torrent, which plunged down by an ever steeper, narrower groove to join the Shin-lu. Our path zig-zagged up the Pine-clad slope to the spur far above, from where we looked down on to the river 2,000 feet below—an inspiring sight. Across this chasm we had a fine view of the next lofty

range to the west, only it was quite spoilt by clouds.

It was a marvel that anyone had been able to hew a path along the face of this cliff. The precipices were frightful. Hour after hour we scrambled along, up and down. I was much too intent on keeping to the narrow path to notice many flowers. However, a dirty yellowish-brown Lily was common hereabouts, and one or two Orchids.

Finally came a tremendous descent of about 1,500 feet to a village at the mouth of a valley not quite so narrow as most. The stream had thrown out a little platform of detritus, which hung some hundreds of feet above the river, and the industrious people had terraced it. I was astonished to find Rice cultivation here.

As for the village, it comprised half a dozen tiny houses of undressed stone and timber. The spaciousness of the Tibetan houses in the A-tun-tzu and Chung-tien districts is entirely lacking in these Hsifan houses.

Next day we descended to the bottom of the gorge and crossed the Shin-lu river a rushing torrent some thirty yards across by a wooden cantilever bridge of doubtful appearance. Chance took me into the bed of the river to examine the strata and there, on the slate rocks down which the water slid in a film, causing a luxuriant growth of *Maiden*

* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 23, August 20, September 3, October 8, October 20, 1921; January 7, January 21, March 11, March 25, April 8, April 22, May 6, May 20 and June 3, 1922.

hair Fern, were the silvery cups and sea-green leaves of a Malacoides Primula! Imagine my astonishment at meeting it again here! I had traced the plant, in one form or another, from Lashie to the Shin-lu, or from latitude 23°, longitude 98°, to latitude 28°, longitude 100° 30', a distance of 500 miles as the crow flies. But, of course, that conveys absolutely no idea of the real degree of separation attained by the most northern and southern plants. To my joy there were seeds in some of the capsules, which I collected with great care.

After crossing the river we climbed to a village perched high up, and then continued through the gorge, ascending gradually towards a mighty cliff which plunged steeply to the river swirling round its base. Except in the widely scattered villages, where Walnut trees were conspicuous, there were no trees down below, only scrubby bushes and any amount of bare rock. A small scarlet-flowered Sedum and a curious Arisaema with very aberrated yellow spathe were the only flowers noticed here. After crossing the high cliff, we found Oak and Pine woods clothing its northern flank for a bit. Purple Pleione grew here, with yellow-speckled Lilies. Down below we reached a well-shaded bog, where a crimson Candelabra Primula, something like *P. Poissonii*, was just coming into flower. This species, whatever it is, grows quite low down—so low as 7,000 feet, probably lower. At these altitudes it has a monopoly of the marshes, so far as Primulas are concerned. But it also ascends to quite 11,000 feet, and here it has to share the ground with *P. pseudo-sikkimensis* and a *Nivalis* Primula. Even so, it does its best to keep to itself, and selfishly appropriates all the ground it can, crowding the other fellows out. It is a greedy plant, and shows none of the toleration *P. pseudo-sikkimensis* and *P. secundiflora* have for each other.

We halted for lunch at a fairly big village where Rice, Buckwheat, Maize, and Wheat were in cultivation. My tame lama came in for much attention at the hands of the superstitious villagers, and was royally fed, petted, and fawned upon. As for me, I was ignored.

In the afternoon we descended gradually to the river again, finally recrossing by another cantilever bridge. There was a fair variety of shrubs down here, and a number of twining plants, such as *Vitis* and *Clematis*, besides rosette plants like *Didissandra lanuginosa* and *Selaginella* sp. on the rocks. One of the men found a white Lily.

Transport difficulties next day prevented us from getting far, and we were compelled to halt at a small village some 2,000 feet above the river, on the edge of the Pine forest. Here, in a bog, I found two small Orchids, and close by the pretty little *Vaccinium modestum*, which I discovered in 1913. It grows in the forest where there are Conifers, and I expect to get seed of it this year, for it occurs at Mu-li too.

Next day we began the long climb to the top of the divide, passing in turn through Pine forest, mixed forest, and finally Abies and Rhododendron forest. We hoped by an effort to reach Mu-li, and made a very early start with that object.

One of the first flowers met with was a pretty cream-coloured *Pyrola* lining the path. Higher up we found a new bush Rhododendron. It was over, but the foliage and habit suggested something in the way of *R. habrotrichum*. Two species of *Clematis*, one with chocolate, the other with yellow, flowers, dangled their bells over the trees in deep shade here, and there was plenty of *Primula sonchifolia* that aggravating plant which refuses to show itself in England—in seed. The large rosy purple *Nivalis* Primula was now a fine sight. I wonder if this is *P. sino-purpurea*. It is not unlike it, at any rate. All the forest was draped with long streams of pale green lichen, and dripping wet. On the dry ridges Oak forest prevailed, and dwarf purple Rhododendron formed much of the undergrowth.

Approaching the summit, we found a wonderful display of violet Iris, *Primula pseudo-sikkimensis*, and *P. secundiflora*—those inseparable friends in the streams and bogs. Here and there the lilac-flowered Muscarioid

Primula, now grown very tall, was seen under the trees.

At last we reached the pass and open moorland, where dwarf lemon yellow Rhododendron revelled. There was no view at all, everything being smothered in mist, and we began the descent with an uneasy feeling that we were "for it." No sooner had we entered the forest than it came, a perfect deluge, with loud thunder. Rivers streamed down the steep path, and the animals moved with extreme caution. It was now certain that we could not reach Mu-li that night, and after crossing a deep ravine (where *Primula septemloba* flourished in a dim, moist atmosphere) and climbing a high spur, we were glad to camp in the Pine woods, wet and tired after ten hours' travel, still three hours' journey short of Mu-li. A bush Rhododendron with scented white flowers, sometimes flushed with pink, was breaking into blossom. This species is widely distributed in Yunnan. I had met with it first in May, some days' journey south-west of Tai-li, and it was in flower then. Either it is a very variable plant, or else there are two species, or at least well-marked varieties; for besides the two colour varieties there are two distinct types of leaf. But I cannot yet be sure that one shape of leaf is always associated only with one flower colour.

On June 28 we awoke in a dense mist, packed up, and marched back to Mu-li, climbing up and down over the spurs at the base of the long line of cliffs. Here we found our first *Suffruticosa* *Primula* (already referred to), the big-leaved, pouting *Cypripedium*, and a crimson flowered *Clematis*. Quantities of Rhododendron racemosem grew amongst the shrubs, and there were bushes of *Cotoneaster*, *Berberis*, *Indigofera*, *Desmodium*, *Jasminum*, etc., forming a thick growth below the forest. Yellow Lilies, purple *Geranium*, *Pyrola*, Orchids, *Roscoea*, and other species grew in the shade. *F. Kingdom Ward*.

SIR FREDERICK MOORE, V.M.H.

AN APPRECIATION.

FOLLOWING closely upon the retirement of Sir David Prain from Kew and of Sir Isaac Bayley-Balfour from Edinburgh, it is regrettable that Sir Frederick Moore has also relinquished the Keepership of the Royal Botanic Gardens, Glasnevin. In this way the three great Royal Gardens of the British Isles have lost their able and distinguished directors in the course of the present year. Born in 1857, Sir Frederick Moore has been intimately associated with Glasnevin from his earliest infancy. His father, the late Dr. David Moore, well known as an eminent botanist and horticulturist, was appointed Curator of Glasnevin in November, 1838, and held the post until his death in June, 1879. He was then immediately succeeded by his son, Sir Frederick, on the 28th of that month. Thus Glasnevin has been under the management of father and son for the extraordinary long and continuous period of nearly 84 years. Under their very able régime, Irish horticulture progressed and prospered; indeed, it may be said they started it, and by their perseverance and enthusiasm kept it going; and thanks to them many an Irish home has been greatly embellished. They have now shown that Ireland is capable of growing exotic plants of great beauty with a success which rivals that achieved even in Cornwall. But their influence has had a much wider range; and Sir Frederick is quite as well-known and his work is quite as much appreciated in England and Scotland as in Ireland. There are, indeed, few gardens in the British Isles which are not indebted to him for much assistance and sympathetic encouragement; and he was always ready to help liberally all lovers of nature who approached him. His main desire was that the beautiful and marvellous products of the vegetable kingdom should, when introduced from other lands, be as widely distributed as possible throughout the country, wherever they might be expected to grow and flourish. It is little wonder, then, that his retirement is widely deplored by all who are devoted to the cultivation of plants.

The care and the development of Glasnevin have naturally been the principal objects of Sir Frederick's busy and useful life; and the very high position which it now holds is due to his great organising ability, his scientific knowledge, and to his unremitting labours. The plant collections there are fully representative of all classes of plants, some of them more richly so than elsewhere. It would not be possible in an appreciation of this sort to give even a meagre description of the many treasures which Glasnevin now contains. Many of the readers of *The Gardeners' Chronicle* have been there and know the place. It may be sufficient to state that the collection of Orchids is unique, and that Ferns, Xerophytes, and Cycads abound: Monocotyledons, Alpine plants, trees and shrubs are very numerous and nearly all the introductions which have poured into this country from the Far East during the past quarter of a century. Everything is in the best of order and condition; the plants well grown, well classified, tastefully arranged, and well displayed. The garden is a dream of beauty; and, moreover, it affords to those who wish to study from a scientific point of view, the means of doing so in the best surroundings. It is thus an educational establishment of no small practical value. And all this has been done at a very small cost to the public exchequer; for Glasnevin has never been so amply endowed with funds, nor provided with as large a staff of expert assistants, as in the case of the other Royal Gardens; indeed, Glasnevin has been somewhat neglected in these very important matters. If, then, the results achieved have been so strikingly satisfactory, it shows how much Sir Frederick, and his father before him, have done for their country, and how much is due to them for their devotion to the public service.

Sir Frederick's efforts to encourage the commercial cultivation of fruit trees and of economic plants deserve a passing notice. Perceiving that the soil and climate of Ireland were favourable to this useful form of industry, he devoted himself with his wonted energy to this important matter. His extensive practical and scientific knowledge was freely placed at the disposal of all who consulted him, and he was indefatigable in his endeavours to impart it to others. He gave frequent lectures on the subject, taught his pupils how to manage their plants to the best advantage, and made many excursions into the country personally to look after the orchards that were being established. It is satisfactory to note that these labours have not been undertaken in vain, and that he succeeded in founding in Ireland an industry of considerable commercial value. A person of his capacity for hard work, sympathy for others, and enthusiasm, could never restrict himself solely to his duties at Glasnevin; and during his leisure, Sir Frederick devoted himself to other activities. He is a fellow of the Linnean Society, and a Member of the Royal Irish Academy, on the Council of which he has often served. His father started the Royal Horticultural Society of Ireland (now the Royal Horticultural and Arboricultural Society of Ireland), and he has for many years been its moving spirit and Hon. Secretary. He is also Hon. Secretary of the Dublin Microscopic Club. He is, moreover, an active Fellow of the Royal Zoological Society of Ireland, and was its most efficient President during the war when it was difficult to keep it going: his exertions at that time are now gratefully remembered by the Society. During the war he organised an Irish association for providing the Fleet with fresh vegetables, with much success. His eminent services to horticulture were recognised by the award of the Victoria Medal of Honour in Horticulture when it was first established in 1887; he also received the silver and gold Veitchian medal. The Royal University of Ireland conferred upon him the degree of M.A. *honoris causa*; and he had the honour of knighthood bestowed upon him by His Majesty personally in 1911.

Sir Frederick leaves Glasnevin a great and thriving Irish institution which has a high international reputation. He has the immense satisfaction of knowing that this is the creation

of his father and of himself, constructed by them during their joint long term of office; with an insignificant endowment and with an inadequate staff, they have gathered there the best all-round collection of plants in the world. He leaves deeply regretted by his numerous friends and by all those who worked under him, who were always devoted to him and who learn with satisfaction that he has fixed his future home in Ireland. *Amat. Hort.*

FLORISTS' FLOWERS.

DAHLIAS.

DAHLIAS are very suitable for planting in bold groups for producing masses of colour in the late summer and throughout the autumn. The first or second week in June is undoubtedly the best time for the planting of Dahlias out-of-doors. Beds of distinct colours or lines of separate kinds are very attractive.

The following varieties are very suitable for exposed or windy positions, and the plants do not need staking. They should be planted about 18 inches apart:—Benbow, rosy crimson; Dazzler, orange scarlet; Etna, crimson scarlet; Janet, rich orange; Julius, rosy scarlet; Kathleen, rich apricot; Louise, primrose; Mincio, scarlet; Olive, deep orange; Pembroke, deep yellow; Regent, brilliant crimson; Roma, maroon crimson; and Royal, deep velvety crimson. These are all of good bushy dwarf habit, with single flowers, none growing over 18 inches in height.

For beds of taller varieties the following sorts are splendid, and if set 2½ feet to 3 feet apart, one stake to each, standing 3 feet out of the ground, will suffice. These are decorative Dahlias, with double flowers and good, erect stems; they are excellent for garden effect or supplying blooms:—Apricot, rich apricot; Hon. Mrs. Clive Pearson, scarlet; Knyswood Beauty, primrose; Pearl, pale rose; Champion, rich coppery yellow; Cambria, pink; Delice, pink; Orange King, rich orange; Paul Crampel, scarlet; Porthos, violet; Prince of Orange, orange; Queenie, amber; and Yellow King. These grow to about 3½ feet to 4 feet.

The following are good dwarf kinds, 2½ feet high:—Barlow's Bedder, scarlet; Reginald Cory, crimson, tipped white; Crimson Flag, crimson scarlet; Cheal's White, pure white; and Brentwood Yellow. *R. H. Holton.*

ORCHID NOTES AND GLEANINGS.

BRASSO-LAELIO-CATTLEYA JUPITER.

THE many forms of this grand hybrid, first shown by Messrs. Hassall and Co. in 1920, and since by several exhibitors at the Chelsea

Show last year, indicate that in this and many other of the outstanding hybrids the parentage discloses primary ancestors of proved good repute. Brasso-Laelio-Cattleya Jupiter was obtained by crossing B.-L.-C. Veitchii (B.-C. Digbyano-Mossiae × L. purpurata) and C. armainvillieriensis (C. Mendelii × C. Warsce-



FIG. 176. —ODONTONIA MEROPE VAR. VIVICANS. R.H.S. FIRST-CLASS CERTIFICATE, JUNE 7 (see p. 310).

NEW HYBRIDS.

(Continued from April 29, page 208.)

Name.	Parentage.	Exhibitor.
Angulocaste Vesta	L. Lawrenceana × A. Clowesii	Sanders.
Brasso-Cattleya Queen of England	C. Germania × B.-C. Mad. Ch. Maron	Mrs. Gratrix,
Brasso-Laelio-Cattleya Lady Rachel	B.-L.-C. Veitchii × B.-C. Digbyano Mos-iae	S. Gratrix, Esq.
Brasso-Laelio-Cattleya Monitor	L. purpurata × B.-C. Marguerite Fournier	Stuart Low.
Cattleya Corydon	armainvillieriensis × Trianae Backhousiana	J. J. Bolton, Esq.
Cattleya Dr. M. Lacroze	Octave Doin × lityus	Flory & Black.
Cattleya Dusseldorfei Aquinii	intermedia Aquinii × Mossiae alba	Stuart Low.
Cattleya Everest	Mossiae Wageneri × Magali Sander	Hassall.
Cattleya Heatherwood	Mossiae × lityus	Flory & Black.
Cattleya G. P. Walker	Mendelii × lityus	Flory & Black.
Cattleya Namur	Mossiae × Robert de Wavrin	Stuart Low.
Cymbidium Emery	Alexanderi × l'Ansonii	Sir J. Colman.
Cymbidium Fanny	Woodhamsianum × l'Ansonii	Sir J. Colman.
Cymbidium Lotta	l'Ansonii × Lowianum concolor	Sir J. Colman.
Cymbidium Nelly	Pauwelsii × Albatross	Mr. Sladden Liege.
Cypripedium Alcar	Alcibiades × Carola	Dr. Craven Moore.
Cypripedium Fessie	keighleyense × Mrs. C. Batten	Mrs. Bruce and
Cypripedium Cambyes	keighleyense × Hera	Miss Wrigley.
Cypripedium Genoa	Invincible × Mrs. W. Mostyn	Mrs. Bruce and
Cypripedium Jade	Memoria Jerninghamiae × Beryl	Miss Wrigley.
Cypripedium Java	Javanicum × callosum Sander	Mrs. Bruce and
Cypripedium Gloss	Thompsonii × Desdemona	Miss Wrigley.
Cypripedium xenophon	insigne Wrigleyanum × Draco	P. Smith, Esq.
Epi-Cattleya Pentomos	E. Pentotis × C. Mossiae	Mrs. Bruce and
Laelio-Cattleya Avon	L.-C. Geo. Woodham × C. Mendelii	Miss Wrigley.
Laelio-Cattleya Melita	L.-C. Cupid × C. Mossiae Reineckiana	Mons. F. Denis.
Laelio-Cattleya Velox	L. Boothiana × C. Schroderae	Stuart Low.
Laelio-Cattleya Yellow Wings	L.-C. Ascania × C. Octave Doin	Pantia Ralli, Esq.
Odontioda Clarinda	Oda. Zephyr × Odm. eximium	C. J. Lucas, Esq.
Odontioda Admiral	Oda. Brewii × Odm. Mars	Flory & Black.
Odontioda Eileen	Oda. Coronation × Odm. Dresdenought	Flory & Black.
Odontioda Brilliantissima	Oda. Sanderæ × Odm. majesticum	Stuart Low.
Odontioda Eulalia	Coronation × Vuylstekeae	Stuart Low.
Odontioda Orange King	Chantecler × ?	Sanders.
Odontioda Radiant	Chantecler × Royal Gem	Mons. C. Vuylsteke.
Odontonia Majestic	Odontonia Laifresae × Odm. crispo Harry-anum	Mons. C. Vuylsteke.
		J. & A. McBean.
		Sanders.

wiczii), and the result is perfection in all respects, including large size, perfect shape and colour, which varies in different forms from bluish white with clear rose front to the lip to rosy-mauve with deep ruby crimson lip, all having the usual yellow tint in the centre. B.-C. Digbyano-Mossiae, the Veitchian triumph of 1889, and for which a First-Class Certificate was obtained, was well illustrated in *The Gardeners' Chronicle*, May 25, 1889, p. 657, as Laelia-Digbyana × Mossiae, authorities of that day suggesting that the generic title assigned to the now more correctly named Brassavola Digbyana should be followed. It is a noted parent, and compares favourably with most of the more modern productions

TREVORIA CHLORIS.

In *The Gardeners' Chronicle* of May 29, 1897, p. 345, a full description of *Trevoria Chloris* (*n. gen. et spec.*) from the pen of its discoverer in the Western Andes of Colombia, the late F. C. Lehmann, together with interesting notes on the new genus and its discovery, was given, and in the same issue a supplementary illustration of the plant was given, showing its pendulous racemes of fleshy, whitish-green flowers. In the issue of November 3, p. 319, the record of its having flowered in the Burford collection appeared. At the meeting of the Royal Horticultural Society, September 25, Eliah Ashworth, Esq., Harefield Hall, Wilmslow, Cheshire, showed a small plant of it, and later it flowered well at Glasnevin, Dublin. It would be interesting to know whether the plant is still represented in gardens. Those who have specimens of any remarkable species of which only small quantities have been imported should attempt to raise small batches from seed.

MARKET FRUIT GARDEN.

MAY was a very dry month in my district, which missed the storms that brought rain to some places in the near neighbourhood. The rainfall was only a little over half an inch (0.56 in.), which is much less than we had in May last year, and very much below the average. Although rain will soon be urgently needed, fruit trees have so far shown no signs of suffering from drought, and the weather has favoured the work of soil cultivation and weed killing. Spraying also has been done without interruption from rain, and insect pests kept under control. The general appearance of the plantations at the close of the month was very pleasing, and I feel justified in looking forward to one of those seasons of fair average crops which are generally more profitable to the grower than years of great abundance of fruit.

FRUIT PROSPECTS.

Plums have not quite fulfilled the promise of their great display of bloom. Monarch is almost a failure for the second year in succession, and President, which suffered from blossom wilt (brown rot), will yield very lightly. But Czar has set a tremendous amount of fruit, really too much, and there promises to be a full crop of Rivers' Early Prolific, the most consistent bearer with me. Victoria and Pond's Seedling look like giving a moderate yield only, but Belle de Louvain, often a strong bearer, has set very well indeed.

Pears and Cherries, which made a fine show of bloom, are not going to crop heavily after all; but as I do not grow these crops for market the matter is of small importance. The failure of Pears is rather surprising, as they had a rest last year. Presumably the nights were too cold at blooming time, though there was only one occasion on which the temperature fell to 2 deg. below freezing 4 ft. above ground level.

THE APPLE CROP.

Apples began to bloom on May 8, but blooming was not general until nearly a fortnight later. Most varieties made quite a good show, and the weather was most favourable for pollination. It is rather early to speak of results, but, so far as can be judged, the crop will be much better than one dared to hope for after last year's great yield and semi-starvation through drought. Worcester Permain and Blenheim Pippin are particularly promising, whilst Allington Pippin and Beauty of Bath are quite satisfactory except in one orchard where the trees are on grass. But the surprise to me is that Cox's Orange Pippin appears to have set a good crop for the second year in succession.

I like to think that the special manuring done last August with the idea of feeding the fruit buds, and overcoming biennial bearing, was not without results. There is some evidence that this is the case. In the grass orchard just referred to the only varieties that have set a good crop are those that missed last year. The rest are going to crop very lightly. The manuring failed here, as was expected, because it could not reach the trees in time through the turf with the ground so dry as it was last autumn. But in the cultivated plantations, varieties like Cox's Orange Pippin, Bramley's Seedling, Allington Pippin, and Beauty of Bath, which cropped very heavily last year, seem to have set a lot of fruit again. Here the manures stood a much better chance of getting into action, as they were worked in by cultivation. The evidence in favour of early autumn manuring may be slender, but it is good enough to encourage me to repeat the practice.

THE SEASON'S PESTS.

Insect pests have not so far given a great deal of trouble, though caterpillars, particularly of the winter moth, are more numerous than they have been for two or three years, especially on Plums and Cob-nuts. Aphides and suckers on Apples were easily controlled, but Apple blossom weevil, which is little affected by spraying, was very much in evi-

dence, particularly on varieties that bloomed earliest in cool weather, and were therefore rather long in the bud stage. Leaf-curling Plum aphid would probably have been very serious had not most of the stem-mothers been killed by spraying before blooming. As it was some varieties had to be sprayed again after the fall of the petals. Red Currants are badly attacked by the leaf-blister aphid, which is also found to a smaller extent on Black Currants.

A NICOTINE SUBSTITUTE.

Chlor-cresol has been suggested as a substitute for the expensive nicotine for spraying against sucking insects. I have made such tests as were possible with a small sample, and am not at all favourably impressed. Currants were thoroughly sprayed for leaf-blister aphid, with only very partial success. Even when a leaf was dipped in the solution some aphides survived, and those that eventually died lingered for some time. Spraying with nicotine and soap, on the other hand, was almost completely successful; and when a leaf was dipped not a single aphid survived for more than a few minutes. Moreover, the chlor-cresol failed to kill half-grown caterpillars, whilst the nicotine wash made very short work of them.

I do not suggest that this small trial is in any way conclusive. I should like to have the chlor-cresol itself, and use it with soap just as I do nicotine, trying different strengths. In this case the chlor-cresol was supplied as a strong solution with soap, to be diluted with 100 parts of water, this giving 3 lb. of the actual chlor-cresol per 100 gallons of wash. This wash did not seem to have very good wetting or spreading powers, so I tried adding more soap to some of it, but without better success so far as the kill was concerned.

In any case chlor-cresol must be made much cheaper if it is to rival nicotine. This wash, when diluted for use, costs 11s. 3d. per 100 gallons when bought in bulk. My home-mixed nicotine wash, which contains 3 oz. of 95 per cent. nicotine and 8 lb. of soft soap per 100 gallons, costs only 2s. 9d. per 100 gallons more, and is probably much stronger in soap than the bought wash. As a matter of fact, 5 lb. of soap is enough with a fairly soft water, but I like to be well on the safe side, and make sure of maximum spreading powers.

We very badly need a cheap substitute for nicotine, but it must be really effective. At present nicotine is far and away the best insecticide we have for aphids and all sucking insects. It is remarkably penetrating and very quick in action, and it has the great advantage that it kills young caterpillars at the same time.

TIPPING LEADERS.

Some of my readers may remember that I decided to tip all the leading shoots of Apples of bearing age during last winter's pruning. Hitherto the leaders have been left full length after the first few years of hard pruning for tree formation. I am pleased with the result so far. The new growth carries much stronger, larger leaves, making the trees look very healthy. Moreover, there seems to be less powdery mildew on the young shoots. This disease is becoming more serious every year. There is a good deal of it about this season, but it is mostly confined to spurs. I attribute the escape of the young shoots to the tipping. I thoroughly believe in leaving leaders full length during the period when trees are being brought into bearing; but once they have begun to crop well, and have steadied down in growth, I think it is wise to return to light tipping.

A FINE RED CURRANT.

Growers who want to try a new variety of Red Currant should plant Laxton's Perfection. It is a strong grower, extremely prolific, and bears big bunches of very fine fruit. The season is rather late, and the fruit will hang for a long while after it is ripe if desired. This variety ought to be tried for market purposes. *Market Grower.*

FRUIT REGISTER.

APPLE STOKE EDITH PIPPIN.

THIS is an excellent dessert Apple, in use from December to early March. It was raised at Stockbridge, a small farmstead on the Stoke Edith estate, a Mr. Merrick, who lived there at one time, about a century ago, being regarded as the raiser.

It was then known as Merrick's Kernel, until a workman named Sanders grafted a number of trees on the estate with this variety, when it obtained the name of Stoke Edith Pippin. The fruit is small, tapering, of pearmain shape, and regular in outline. The skin is yellow, with deeper yellow on the side next to the sun, and marked over the surface with traces of grey russet. The eye is large, closed, and set in a plaited basin; the stalk is short. The flesh is yellow, firm, crisp, juicy, and sweet, with a perfumed flavour. The tree makes healthy growth, and is a free bearer, especially where Apples are planted in variety, for with plenty of pollen foreign to the variety, the fruits set with more certainty than with its own pollen.

Many trees of this excellent dessert Apple are found around the Ledbury side of Herefordshire, but it is not much sought after as a commercial sort, owing to the fruit being small in size and not of attractive appearance. Nevertheless, it is a first-rate Apple. *Pomona.*

VEGETABLES.

RUNNER BEANS.

No crop repays better for good cultivation than the Runner Bean. The most important cultural detail is deep working of the soil. A trench, two feet wide and two feet deep should be excavated in the spring, and into the bottom of this about 18 inches of well-decayed rich farmyard manure should be placed, and left in this condition until the time for planting arrives. Last year we had good results from plants raised in boxes, under glass, the seed being put in on April 26. The plants were hardened gradually, and planted in a double row a foot apart at the beginning of June. The soil previously excavated was used for covering the manure, and planting the Beans in it. By these methods, earlier and more prolific crops result. The plants were carefully and securely staked, an important point, and for this long, stout Pea-sticks are the most useful. Mulching is of great value to the plants in dry weather, and the roots should be given plentiful supplies of water; spraying the plants with clear water at the end of a warm day will prove very beneficial, and assist the flowers to set. Best of All, Prizewinner and Scarlet Emperor are three excellent varieties.

NEW ZEALAND SPINACH.

For a hot season it would be difficult to find a more useful vegetable than New Zealand Spinach, which seems to revel in the heat, and consequently its value this year should be considerable. For early crops it should be sown in heat in boxes, and the young plants pricked off into other boxes, about four inches apart. Get them established, and then harden them off with a view to planting out in a hot, sunny position, allowing about 30 inches each way for growing space. Plants raised from seed sown in the open, in shallow drills three feet apart, at the end of April, should be thinned to 30 inches apart in the rows. Give the plants plenty of water, and beyond frequent hoeings, little attention will be necessary. The best results are obtained on light, porous soil; where the ground is on the heavy side, it should have plenty of road grit or other light friable material added, and the site should be well trenched during the winter. This vegetable is a very palatable one, and much appreciated even by those who do not care for ordinary Spinach, for it lacks the slightly bitter flavour of the latter. *E. Beckett.*

IRIS CONFERENCE.

THE Iris Exhibition and Conference, held at Vincent Square, on June 7 and 8, brought together the best collection of garden varieties of Bearded Irises that has probably ever been seen in the Hall, and also the largest gathering of Iris growers and enthusiasts. It was a pleasure to be able to welcome Monsieur S. Mottet, who brought over a number of flowers from MM. Vilmorin's collection at Verrières, and the President and other members of the American Iris Society, who are fast making up for their late start in the cult of the Iris, by their tireless energy and abundant enthusiasm. Another welcome visitor was Mr. G. Yeld, whom the younger generation knows as a contemporary of Sir Michael Foster, and who has given us a number of good varieties, such as Lord of June, Sunshine and Dawn.

Irises are difficult flowers to exhibit in good form. It is almost useless to go out into the garden and cut a number of flowering spikes, for it is impossible to carry them to the exhibition without crushing and mangling the flowers beyond recognition. Yet this is possibly the only method of dealing with large numbers of varieties and stems. Another drawback of the method is that the flowers which develop later from buds are always undersized when they open after the stems have been cut some forty-eight hours or even longer. There is another and somewhat laborious method, which is to choose only stems on which fully developed buds are about to open and to tie these buds with wool before cutting the stems. These can then be packed much more closely and the buds should open into perfect flowers as soon as the wool is cut, when the stems are placed in water on their arrival. It is best to cut the stems in the late afternoon, and to put them in water for some hours before they are packed for the journey.

In one way the whole meeting was disappointing. It seemed to be taken for granted that Irises mean only tall Bearded Irises of the Pogoniris section. Irises of other sections of the genus are little known and little grown, but, if an Iris show becomes an annual event, it might be well worth while to include a class for species either of the Pogoniris or of other sections.

On this occasion the prizes were nearly all won either by Messrs. Wallace and Co., of Tunbridge Wells, or by Mr. Bliss, whose flowers came from their gardens. The late date fixed for the show and the fact that their Irises are grown on a north slope, no doubt eliminated several possible competitors, and for the group of twelve varieties, staged for the silver medal of the American Iris Society, Messrs. Wallace were very nearly defeated by Mr. Baker, whose spikes of Lord of June and Asia were better than anything showed from Tunbridge Wells.

Mr. Bliss' winning varieties were Bruno, a large flower of considerable substance. Indoors the colour is a dull, murky combination of brown and purple, but sunshine lights it up, and it then becomes a much-improved Prosper Laugier; Duke of Bedford and Swazi, both of a dark blue purple shade with five large flowers of much substance, better distributed on a taller stem than the much-lauded Dominion; and Citronella, a large flower with pale yellow standards and dark reddish-purple falls edged with yellow. Seen in the distance, this last is a fine addition to the numerous variegatas, which we already possess, but, when closely examined, it is seen to possess a central line of yellow, running down the red-purple of the fall, which, as one spectator expressed it, was as disfiguring as a hare lip in an individual.

All Iris raisers are striving to produce a tall variety with clear yellow flowers. A distinct advance in this direction was shown by Chasseur, one of the varieties brought over by Monsieur Mottet. In this the yellow colour is brighter at the edges of the flower than in the centre, but the variety has hardly the tall stature, which is desirable if a yellow is to appear side by side with such fine things as the dark blue Duke of Bedford and Swazi, or the purple Ambassadeur and Cardinal.

Those who judge Irises at a show or in a large collection in nursery beds are rather apt to lose sight of the fact that not all Irises must be tall or dwarf at the same point of the Iris season. In garden borders we need a gradation in height from the front to the back of the border, and this lends additional value to the tall variety of early-flowering habit and also creates a need for varieties of dwarf or moderate stature, which flower late in the season.

It was to help amateurs arrange Irises in their gardens that the R.H.S. attempted to classify the garden varieties according to colour and

at the edges or nearly all over by veinings and dottings of blue or red-purple, to those varieties where the standards are white, or nearly so, and the falls purple. The authors of the scheme of classification had attempted in the former case to separate those varieties in which the feathering appears only at the edge from those in which the colour is suffused over the whole flower, and in the latter to draw a distinction between those varieties in which the veins on the falls remain distinct, and those in which they run together so that the colour is suffused over the whole surface. When the varieties



FIG. 177.—IRIS OCHRACEA COERULEA. R.H.S. AWARD OF MERIT, JUNE 7 (SEE P. 311).

published a preliminary draft of the proposed classification in the latest number of the *Journal*. This classification rightly ignores the botanical affinities of the various varieties, for much hybridization has now obscured the original species and mixed the characteristic features. The authors of the classification have also wisely decided not to become involved in disputes as to whether a colour is lilac, lavender, pale violet or mauve, and have confined themselves to blue-purple and red-purple, qualified when necessary by the addition of light or dark.

On the occasion of the Conference, all obtainable varieties of Bearded Irises were arranged round two sides of the Hall in accordance with this classification. The series began with the whites, of which the well-known albicans may be taken as the type, and went on through such flowers as Madame Chéreau and Parisiana, where the white ground is covered either merely

were placed side by side, it was found impossible to draw these distinctions with any certainty and they were therefore abandoned.

Next in the scheme to those varieties with white standards come the purple localities with standards paler than the falls, and then the purple selfs, among which are to be found the great majority of the forms of *I. pallida*.

Then come those varieties in which the yellow of *I. variegata* begins to make itself felt, though it may be as little apparent as it is in *Isoline* or as obvious as in *Iris King*. The various varieties of *I. variegata* come next, and these pass naturally into the yellow of Mrs. Neubronner, and the cream of *flavescens* and Dawn, which complete the circle and bring us back again to the whites with which we began.

When the list is eventually published, all the best known varieties will be fitted into this

scheme, and details will also be given as to the height of the stem and the time of flowering. If this proves successful and useful, it should be possible, at the end of each season, to publish a supplementary list allotting to each new variety its appropriate place in the classification.

At the present the best varieties are mainly of English origin, though a few years ago those sent out by Messrs. Vilmorin-Andrieux and Co. attracted most attention. Unless the number of raisers in this country increases, it seems as though America must soon take the lead, for there the growers are already raising seedlings by the thousand, and when they do this, with our best varieties as seed—and as pollen-parents—they are bound to obtain some good results. The raising of seedlings is a fascinating pursuit, and really it is not tedious. Seeds ripened one year should, in the majority of cases, germinate the next, and, if the young plants are properly treated, a fair proportion of them may be expected to flower in the following year. Then comes the really difficult task, for to some, all geese are swans, and yet in reality the swans are few and must tend to be ever fewer in years to come.

Most raisers have a bias, conscious or unconscious, in some one direction. Some aim at uniform colour, others at the shot or smoky shades, which seem to be so popular in France. Let us hope that this divergence of tastes will save the Iris from the awful fate of becoming a florist's flower, when it would have to conform to some set of arbitrary and rigid rules. Irises are garden plants. They must have sun if they are to be healthy and to display the colours of their flowers. These colours are seldom seen to advantage in a room, and never in the gloomy yellow light that filters through the canvas of tents. W. R. Dykes.

HOME CORRESPONDENCE.

Daisies (*Chrysanthemum maximum*).—After the Pyrethrums there is often a shortage of flowers for cutting before the Lothian Bell and King Edward type of large Daisies are ready. At a recent visit to the gardens of Framingham Manor, Norwich, I found the genial gardener, Mr. Samuel High, striving hard to obtain a variety to fill in this gap. He has thousands of seedlings now bursting into flower, many of them of extra good form and with fine stems. As a market flower there is great demand for these wiry-stemmed Daisies. H. P.

Tulip Carrara.—The beautiful snow-white Tulip Carrara, to which an Award was given by the Tulip Committee at the Chelsea Show (see p. 280), was raised by Mr. E. H. Krelage. By the way, this is not the first white Darwin Tulip, as Mr. Van Tubergen introduced a few years ago his white variety, Zwanenburg. I believe the Tulip placed before the committee as *Phemis* should be *Thémis*. The wonderful pink Parrot Tulip Fantasy shown at Chelsea was a break from the Darwin Tulip Clara Butt. Peter R. Barr.

SOCIETIES.

GRAND YORKSHIRE GALA.

JUNE 14, 15, AND 16.—On these dates the Grand Yorkshire Flower Show and Gala celebrated its diamond jubilee, and its president, James Melrose, Esq., is the only man living who was present at the inaugural meeting when just over sixty years ago a few enthusiasts decided the time had arrived when the City of York should have a flower show of its own. He has seen wonderful developments in horticulture, and lived to see the York Show become one of the finest exhibitions in the country. Mr. Melrose was present on this occasion, and presided at the luncheon given to the judges and exhibitors, and, in spite of his more than ninety years, he is hale and hearty.

The exhibition, in Bootham Park, just outside the old city walls, was, in our opinion, the finest yet held at York, and we write with nearly thirty years' experience. The whole display was under one roof, as was the International

Show of 1912, and as the recent Chelsea shows have been. The arrangement was excellent, as, with few exceptions, all the taller exhibits and those needing background, were disposed at the sides, leaving the great central area for lower and lighter arrangements, for cut flowers, and for rock gardens.

The rock gardens attracted a large amount of attention, and for many of the visitors they formed the chief feature of the show. In our opinion, the hardy flowers in competitive classes provided the feature of outstanding interest, and but for the recent devastating effect of hailstorms in the Bedale district we believe this section of the show would have been superior to the high standard it reached, even under difficulties. Scarcely less interesting and effective were the Orchids, provided the non-competitive displays are included, while for extent and beauty we doubt whether York or Shrewsbury have ever previously included such a superb display of bouquets and other floral designs.

The specimen plants of other years are no more to be seen at York, but there are groups of plants, and, this year, a large contribution of Roses and Sweet Peas.

Non-competitive exhibits were large, numerous, and of excellent quality. The managing body of the show encourages traders to send exhibits, and does everything in its power to ease their expenditure and lighten their labours. The result is a very fine show, and the traders feel their presence and their exhibits are desired—they are neither patronised nor merely tolerated.

We hope fine weather and a good attendance combined to make York Show as great a financial success as it deserved to be, judged alone by the liberal prizes offered in the admirable schedule of seventy-five classes.

Luncheon.

The officers and committee of the York Show entertained a very large party of exhibitors, judges, and visitors to luncheon on the opening morning. The veteran president, Mr. J. Melrose, proposed the loyal toasts, and the Archbishop of York proposed "The President," a toast which was received with enthusiasm, and to which Mr. Melrose responded in reminiscent vein. The Dean of York proposed "The Royal Horticultural Society," to which Mr. W. R. Dykes, R.H.S. secretary, responded. "Exhibitors and Judges," proposed by Mr. Hodgson, chairman of committee, was replied to by Mr. James Hudson, V.M.H. Mr. Hunt, vice-chairman of the Gala Committee, gave "Kindred Societies and other Visiting Friends," and to this the Lord Mayor of York and the vice-chairman of the Shrewsbury Show replied. The final toast was "Prosperity to the Grand Yorkshire Flower Show and Gala," proposed by Mr. Charles H. Curtis (*Gardeners' Chronicle*).

Groups.

Unfortunately there was but one exhibitor in the premier class for a large group of flowering and foliage plants arranged for effect upon a space not exceeding 300 square feet. This exhibit—to which the first prize of £20 was awarded—was set up by Mr. W. A. HOLMES, West End Nurseries, Chesterfield, whose elegant arrangement only needed the addition of a few choice flowering subjects to make it a very fine display. The central arch, with Palms, Codiaeums, and pendant Fuchsias, was a feature, while tall Codiaeums, Bamboos, and Jacaranda mimosaefolia were the principal subjects in the base of the group. Ixoras, Hydrangeas, Lantanas, Clarkias, and Fuchsias were the chief flowering plants, while ferns of many kinds, Nandina domestica, Pandanus, Dracaenas, Oleas, and variegated Abutilons served to fill in the ground work.

In the class for a smaller group there were four competitors, and together they made an effective display. Messrs. JAS. CYPHER AND SONS, Cheltenham, won the first prize with a brilliant group, in which the leading items were Cattleyas, Brasso-Cattleyas, Odontoglossums, yellow Arums, and Ixoras, with Palms, Bamboos, Codiaeums, Selaginellas, Rex Begonias, Caladiums, and Jacarandas as the principal

foliage plants. Needless to state, the arrangement was in that good taste which always characterises the Cheltenham exhibits. Second prize fell to Mr. W. A. HOLMES, who associated Heaths, Orchids, and Ixoras with bright-hued and graceful foliage plants in considerable variety; third, Mr. T. M. PETER, Bradford.

Amateurs' groups were scarcely so fine as at some previous York shows, but Mr. JOSEPH ROWNTREE made a successful display, and won first prize with an arrangement of Schizanthuses, salmon-hued Clarkias, four fine specimens of *Haemanthus Katherinae*, *Kalanchoe flammea* Spiraeas, and *Rhodantha Manglesii*; second, Mr. E. SPINK, Harrowgate; third, Mr. J. W. CLARK, York.

Plants.

Mr. J. ROWNTREE was an easy first prize-winner for a group of Begonias, as he had not only erect and pendulous tuberous-rooted sorts, but numerous Rex varieties, B. Haageana, B. sanguinea, and other interesting kinds.

MESSRS. BLACKMORE and LANGDON set up a group of very fine Begonias, surmounted by three baskets of pendulous varieties, and every plant represented high-class cultivation. Needless to state, this display secured a first prize.

Mr. J. ROWNTREE just managed to beat Mrs. AKENHEAD for eight Gloxinias, but a week later the lady's plants would have been the better. Dr. MACDONALD led for eight Calceolarias with large free-flowered loosely trained specimens; 2nd, Mrs. AKENHEAD, with smaller but admirably grown examples.

Dr. MACDONALD, York, was particularly successful in the classes for Calceolarias, and won first prize for a large group of these showy greenhouse plants, in which herbaceous varieties and C. Clibrani were pleasingly associated.

Orchids.

Orchids are usually shown in good condition, as they were on this occasion, but we remember York shows when they were more numerous and the competition was more exciting than this year.

MESSRS. JAS. CYPHER AND SONS, Cheltenham, led in all the classes they entered. The first prize of £12 for a table of Orchids fell to their share, and their exhibit was a handsome one, in which Vanda teres and light Bamboos formed a pleasing background for fine Laelio-Cattleyas, white and coloured Odontoglossums, *Oncidium Papilio*, *Dendrobiums* and *Cypripedium bellatulum*, all arranged admirably.

The Cheltenham firm led for a dozen Orchids in bloom, and some of their best plants were examples of Laelio-Cattleya *Tyntesfieldensis*, L.-C. Canhamiana, L.-C. Bedouin magnifica; Vanda teres, Brasso-Cattleya *Digbiana-Mossiae*, Brasso-Laelio-Cattleya *Veitchii*, and *Dendrobium chrysotoxum*. Messrs. A. J. KEELING AND SONS were awarded a third prize. For six Orchids in bloom Messrs. J. CYPHER AND SONS led with *Cypripedium grande*, *Laelia purpurata*, *Laelio-Cattleya Aphrodite*, and L.-C. Canhamiana alba with five handsome flowers; 2nd, Messrs. A. J. KEELING AND SONS.

The best three Orchids came from Cheltenham, and they were Laelio-Cattleya *Wiganiana*, L.-C. Bedouin and Brasso-Laelio-Cattleya *Veitchii*, the latter a very fine example; 2nd, Messrs. A. J. KEELING AND SONS. Messrs. J. CYPHER AND SONS won easily in the class for a specimen Orchid, in flower, showing a handsome plant of Laelio-Cattleya *Canhamiana* Rosslyn variety, with five beautiful flowers; 2nd, Messrs. A. J. KEELING AND SONS.

In the amateurs' classes Mr. JOSEPH ROWNTREE (gr. Mr. F. Dean), Clifton Lodge, York, won first prizes for three Orchids and one Orchid.

MESSRS. FELTON AND SON, Hanover Square, W., presented a silver cup to be awarded for the best Orchid in the show, whether in competitive classes or not; the judges decided in favour of a fine plant of *Coelogyne pandurata*, with two spikes of its green and black flowers, exhibited by Messrs. MANSELL AND HATCHER, in their non-competitive group.

Rock Gardens.

The premier award for a rock garden arranged on a space of 30 ft. by 12 ft., was won by Mr. JOHN WINN, Moorgate, York, who had a pleasing, low design wherein every plant could be

seen without effort. The laminated rock was also admirable for the purpose. The planting was carried out carefully and no effort was made to create a brilliant effect. In two of the low portions moisture-loving *Mimulus* and *Primulas* were associated, while on and among the rocks the low growing kinds of *Campanula*, *Dianthus*, *Sedum*, *Viola*, *Linum*, and *Oxalis* were disposed. Messrs. J. BACKHOUSE AND SON were awarded second prize for a restrained effort, in which were colonies of *Oxalis enneaphylla*, *Ranondia pyreniaca*, *Campanulas* and *Dianthus* in great variety, *Edelweiss*, *Sedums*, *Alpine Asters*, and *Violas*, with tiny *Pines* occupying the higher positions. Mr. R. V. ROGER, Pickering, was placed third for a scantily planted design, wherein the plants appeared to have been set in sand.

The ornamental rockwork class proved a great attraction, and here Mr. P. GARDNER, Ilkley, had the best arrangement in a space 30 ft. by 12 ft. The rock was disposed quite naturally and the planting was restrained. A few especially attractive plants were *Viola Golden Wave*, *Saxifraga aizoon rosea*, *Helianthemum*, and the white *Viola Clarence Elliott*. The second prize was awarded to Mr. S. PICKERING, Clifton, York, for a bold and effective arrangement, wherein the planting was a trifle too dense. A feature of this design was the admirable collection of *Sempervivums*.

Floral Designs.

The splendid array of floral designs attracted much attention and many of the items received unstinted admiration. Messrs. FELTON AND SON, Hanover Square, won the lion's share of the awards, and this firm's name occurred with monotonous frequency on the first prize cards.

In the class for a hand-basket of flowers Messrs. FELTON scored a great success with a very pretty combination of *Odontiodas*, *Odontoglossums*, *Laelio-Cattleya Canhamiana*, and a trail of *Cymbidium* over the handle; 2nd, Mr. M. STATHER, Cottingham; 3rd, Mr. F. WARD, York. In the succeeding class for a hand-basket of flowers, Orchids excluded, Messrs. FELTON AND SON led with a charming design in pale yellow Carnations and small, rose-coloured *Richardias*; 2nd, Mr. STATHER; 3rd, Mr. WARD. The bowls of Roses were not particularly good; Messrs. FELTON AND SON were placed first for the low arrangement of *Golden Ophelia*; 2nd, Mr. ELISHA J. HICKS, Twyford; 3rd, Mr. M. STATHER, who had an excess of luxuriant foliage. For a bowl of flowers the Messrs. FELTON won premier position with a bold and rich arrangement of Orchids, including *Laelio-Cattleyas*, dark *Odontoglossums* and *Cymbidium Lowianum*; Mr. STATHER followed with red *Malmaison* Carnations, and Mr. WARD took third prize with blush and crimson Carnations. The Hanover Square florists were the only exhibitors of a bowl of *Nymphaeas*, but their exhibit showed how successfully these Water Lilies may be used in a suitable bowl.

Messrs. FELTON AND SON won all the first prizes in the bouquet classes, and in most instances they were easy winners. Their bride's bouquet was a delightful design in white *Cattleyas* and *Odontoglossum crispum xanthotes*—a dainty, light and lovely bouquet; 2nd, Mr. STATHER, with a goodly design in white Orchids, which included *Phalaenopsis Rimestadiana*; 3rd, Mr. WARD, with white Carnations. Messrs. FELTON's bridesmaid's bouquet was the design of a genius in floral art; it was a light combination of *Odontiodas*, yellow *Odontoglossums* and *Anthuriums*; Mr. STATHER came second with mauve and white Orchids, and Mr. WARD third with pink Carnations. Using chiefly large mauve and purple *Laelio-Cattleyas*, the Messrs. FELTON won first place for a pair of ball bouquets, their second bouquet consisting of small yellow *Richardias* and crimson spathes of *Anthurium Andreanum* and *A. Scherzerianum*—a glorious bit of colour work. Messrs. STATHER and BACKHOUSE AND SONS were second and third respectively. In the classes for a pair of hand bouquets and for a single bouquet the order of merit was Messrs. FELTON AND SONS, Mr. F. W. WARD and Mr. M. STATHER. Altogether, there were forty-three separate exhibits in this section.

Hardy Flowers.

Three very fine exhibits were forthcoming in the class for a collection of hardy perennials, including *Liliums*, but excluding *Roses*, arranged on a space not exceeding 300 square feet. In themselves these three displays made quite a respectable show, and each represented a vast amount of forethought and skill. Judgment was by points as follows:—Quality of bloom, 60; harmonious blending of colour, 20; artistic arrangement and general effect, 20; total, 100.

The prizes offered were £15, £12, £8, and £5, respectively, and Messrs. W. ARTINDALE AND SON won the first prize, and deservedly so, as their effective group was admirably arranged, and some pains had been taken to give it a good finish. The points awarded were 50, 15, and 18 respectively; total, 83, out of a possible 100. The Sheffield firm had three fine groups of *Eremurus Elvesianus*, comprising about nine dozen fine spikes; they also had a fine selection of *Pyrethrums*, *Spanish* and *Bearded Irises*, *Paeonies*, *Erigeron Asa Gray*, *Poppies*, *Delphinium*, *Capri*, *Lilium umbellatum*, *L. Martagon*, *Dictamnus Fraxinella alba*, *Anchusas*, and *Heuchera sanguinea grandiflora*. Messrs. HARKNESS AND SON won second prize with a display in which oriental *Poppies* and *Lupins* were conspicuously good; their points were 55, 12, and 13 respectively, or a total of 80 out of a possible 100, so the competition was fairly close. Messrs. G. GIBSON AND CO. won third position with 40, 10, and 12 points respectively, or 62 out of 100.

Messrs. HARKNESS AND SON were a good first in the class for a collection of hardy flowers, arranged in the form of a low bank. *Papaver Kathleen*, *Lupins*, *Pyrethrums*, *Geums*, *Iris*, and *Liliums* were all well shown; second Messrs. G. LONGSTER AND SONS; third, Messrs. G. GIBSON AND CO.; fourth, Messrs. W. ARTINDALE AND SON. All the exhibits were of good quality.

For two dozen bunches of hardy flowers the judges awarded the leading position to Messrs. G. LONGSTER AND SONS, Malton, who had very fine bunches of the white form of *Lupinus polyphyllus*, *Pyrethrum James Kelway*, *P. Queen Mary*, *Achillea serrata*, *Spiraea Queen Alexandra*, *Verbascum Caledonia*, *Inula glandulosa*, *Centaurea aurea*, *Hesperis matronalis*, *Erigeron B. Ladham's*, and other good things; second, Messrs. HARKNESS AND SON, Bedale.

Mr. W. HUTCHINSON won first prize for a dozen bunches of hardy flowers, and his best bunches were of *Inula glandulosa*, *Heuchera sanguinea grandiflora*, and *Papaver Mrs. Perry*; second, Mr. R. KETTLEWELL, who was strong with *Pyrethrums* and *Erigeron B. Ladham's*; third, Mr. J. KETTLEWELL.

Messrs. W. ARTINDALE AND SON led for a display of *Irises*, followed by Messrs. HARKNESS AND SON and Mr. H. SWANN. Messrs. HARKNESS AND SON and Messrs. E. GIBSON AND CO. won first and second prizes respectively for a group of *Lupins*, and the first-named firm was awarded first prize for a display of *Oriental Poppies*.

Messrs. E. W. KING AND CO. contributed a very fine display of *Sweet Peas*, arranged on a space of 100 square feet. The flowers were disposed in tall stands and in baskets, and the whole effort was very greatly admired. Advance, The Sultan, and Mrs. Tom Jones were conspicuously good varieties. This exhibit was awarded the first prize in its class.

Roses.

Considering the early date and the period of hot dry weather experienced, the *Roses* were fairly good, and, on the whole, competition was good also.

For seventy-two blooms in not less than three dozen varieties Mr. H. DREW, Ledbury, secured the first prize, and we noticed good blooms of *Lyon Rose*, *Mme. Edouard Herriot*, and *Mrs. C. E. Shea* in his boxes; second, Messrs. JARMAN AND CO.; third, Mr. E. J. HICKS. Mr. DREW also had the best set of four dozen blooms, and in this class the prizes were well contested, Mr. E. J. HICKS, Messrs. JARMAN AND CO., and Mr. J. PRINCE following Mr. DREW in the order of mention.

Mr. G. PRINCE and Mr. G. BURCH were first and second respectively for a dozen blooms, dis-

tinct, and these exhibitors held similar positions in the class for twenty-four blooms. In the class for thirty-six blooms the contest was a keen one, and finally the awards were made in order to Mr. G. PRINCE, Mr. DREW, and Mr. BURCH.

The best table of decorative *Roses* was the one set up by Mr. GEORGE PRINCE, Oxford, who had a pleasing arrangement, wherein the vases and stands of *Hoosier Beauty*, *Golden Emblem*, *Mrs. H. Moore*, *C. V. Haworth*, *Golden Ophelia*, and *K. of K.* were the most conspicuous.

Fruits.

York Show is held rather too early in the season for fruits, but before the war there was invariably a good competition in the several classes provided. This year there was evidence of reviving interest, but the number of competitors was rather limited.

J. BRENNAND, Esq. (gardener, Mr. J. Hathaway), Baldersby Park, Thirsk, won first prize for a collection of six kinds of fruits, with good examples of *Black Hamburg* and *Foster's Seedling Grapes*, *Cardinal Peach*, *Figs*, *Cherries*, and a *Melon*; and for a collection of four kinds, with *Black Hamburg Grapes*, *White Heart Cherries*, *Early Rivers Nectarine*, and *Hero of Lockinge Melon*. Mr. BRENNAND was premier prize-winner in the classes for *White Grapes* (*Foster's Seedling*), for *Cherries*, and for a *white-fleshed Melon*. HIRAM CRAVEN, Esq. (gardener, Mr. N. Hague), Sunderland, led for a *scarlet-fleshed Melon*, a *green-fleshed Melon*, and six *Figs*. Major J. W. DENT exhibited the best *Nectarines* (*Early Rivers*), and the *MARQUIS OF RIFON* (gardener, Mr. E. Thomas), Studley Royal, Ripon, led for *Peaches*.

Mr. F. H. WARD was the only exhibitor of a decorated table of ripe fruit, and was awarded first prize. His exhibit contained *Pineapples*, *Oranges*, *Apples*, *Apricots*, *Melons*, *Grapes*, *Cherries*, *Peaches*, and *Nectarines*, and his floral decorations were of *blush Carnations*, *Clarkias*, and *Gypsophila*.

Medal Awards.

The following awards were made to non-competitive exhibits:—

Large Gold Medal.—To Messrs. MANSELL AND HATCHER, Rawdon, for Orchids; to Messrs. J. CARTER AND CO., Raynes Park, for "Queen Alexandra's Garden"; to Messrs. SUTTON AND SONS, Reading, for flowers and vegetables; to Messrs. ALLWOOD BROTHERS, Haywards Heath, for Carnations and Pinks; to Messrs. KENT AND BRYDON, for *Iris*, formal and water gardens; to Messrs. PULHAM AND SON, New Oxford Street, W., for rock garden and waterfall; to Messrs. R. BOLTON AND SONS, Baythornend, Halstead, for *Sweet Peas*; and to Messrs. S. BROADHEAD AND SON, Huddersfield, for *Alpine Garden*.

Gold Medal.—To Messrs. SANDERS, St. Albans, for Orchids; to Messrs. WHITELEGG AND CO., Chislehurst, for "Queen of Spain's Garden"; to Messrs. J. PEED AND SON, West Norwood, for stove and greenhouse plants; and to Messrs. WM. CUTBUSH AND SON, Highgate, for *Roses* and *Hydrangeas*.

Large Silver Medal. To Messrs. STORRIE AND STORRIE, Glencarse, for *Aquilegias*; to Messrs. RYDERS, St. Albans, for flowers and vegetables; to Mr. MAURICE PRICHARD, Christchurch, for hardy flowers; to Messrs. R. H. BATH, Wisbech, for *Paeonies*; to Mr. C. ENGELMANN, Saffron Walden, for Carnations; to Mr. W. WELLS, Merstham, for hardy flowers; to Messrs. S. BIDE AND SONS, Farnham, for *Sweet Peas*; to Messrs. TOOGOODS, Southampton, for flowers and vegetables; to Mr. R. V. ROGER, Pickering, for alpine and shrubs; to Mr. G. MILLER, Wisbech, for hardy flowers; and to Messrs. MAXWELL AND BEALE, Broadstone, for hardy plants.

Silver Medal.—To Mr. H. N. ELLISON, West Bromwich, for *Ferns* and *Cacti*; to Mr. G. BURCH, Peterborough, for *Roses*; to Messrs. BAKERS, Wolverhampton, for *Poppies*; to Mr. P. GARDNER, Ilkley, for alpine and shrubs; to Mr. H. BROWNHILL, Sale, for seedling varieties of *Campanula persicifolia*; to Messrs. W. H. SIMPSON AND SONS, Birmingham, for flowers and fruits; and to Messrs. JARMAN AND CO., Chard, for *Centaureas* and *Pelargoniums*.

NATIONAL VIOLA AND PANSY.

The monthly meeting and show of the above Society was held on June 7, at the Crown Hotel, Birmingham. Mr. H. J. Milner occupied the chair, and there were 35 members present, including the Hon. Secretaries.

Mr. CHAS. COCKBURN, of Bee Cottage, Pencaitland, East Lothian, was awarded a Silver Medal for an honorary exhibit of show Pansies, most of which were seedlings of his own raising. Mr. Cockburn is to be congratulated on his endeavours to revive the show Pansy, and the Floral Committee was of the opinion that Mr. Cockburn's blue self seedlings were exceptionally fine.

Mr. C. BECKETT, last year's most successful amateur exhibitor at the Society's shows, gave a Paper on "Violas from a Beginner's Point of View," which was both instructive and humorous. Mr. Beckett emphasised the fact that he made the mistake made by most beginners in growing too many varieties and not sufficient of each variety, and advised intending growers to stick to the best dozen or eighteen exhibition sorts and grow at least a dozen of each.

Mr. W. H. C. TOOLY DESMOND, winner of the Viola Challenge Cup in 1920 and 1921, gave the members several valuable hints as to feeding and manuring of Violas for exhibition, and Mr. J. Bastock, founder of the Society and raiser of Moseley Perfection, and several other well-known varieties, congratulated Mr. Beckett on his past successes, and moved a vote of thanks for his excellent paper.

The following awards were made in the Members' Monthly Medal Competition:—Open (Viola Vases), 1st, Mr. W. H. C. TOOLY DESMOND, Moseley; Open (Viola Boards), 1st, Mr. W. H. C. TOOLY DESMOND; Amateurs (Viola Vases), 1st, Mr. WM. HARWARD, Sparkbrook; Amateurs (Viola Boards), 1st, Mr. A. HOLBROOK, Harborne; Amateurs (Pansy Boards), 1st, Mr. T. H. JUSTICE, Wolverhampton.

Obituary.

F. Clarke.—We record with deep regret the death of Mr. F. Clarke, for over forty years gardener to the Earl of Lonsdale, Lowther Castle, Penrith, Cumberland. Mr. Clarke, who died at a nursing home at Carlisle, on the 31st ult., retired about seven and a half years ago, and resided at Penrith. The death of his wife about six months ago, after fifty years of happy married life, proved a great blow to him, and some three months later he had a breakdown in health. He underwent two operations, from which he so far recovered as to be able to return to his home at Penrith, but complications ensued, and he returned to the nursing home for special treatment, but, unfortunately, pneumonia supervened, and he died, as stated, in his eighty-first year. He leaves a family of one son and two daughters; the son is Lord Lonsdale's private secretary.

THE WEATHER.

THE WEATHER FOR MAY.

MAY was a particularly pleasant month, the easterly winds often frequent in that month being replaced by south-westerly and westerly ones, and these mainly of a light, fine, anti-cyclonic type. The month was therefore clear, sunny, warm and quiet with sea breezes practically every afternoon, and only sufficient rainfall to keep vegetable growth healthy. There was a slight excess of evaporation, and a large amount of ozone. Air pressure was above normal, and very steady. The mean temperature was 52.5°, or 2.1° above the average. The only cold spells occurred during the first few days, and from the 11th to the 14th; these included three nights with moderate frost in the open, but there was none in the screen. In marked contrast to the great heat experienced over much of England, the maximum thermometer at Southport only twice rose above even 70°, and never reached 75°. There was a shortage of nearly half an inch of rainfall, the total fall amounting to only 1.66 inch but it was spread over the usual number of days, viz. 14. Of bright sunshine, 230 hours were recorded, or nineteen more than the normal number. A shower of hail fell on the 4th, and some thunder was heard

on the 21st and 22nd, but no storms occurred, nor was any lightning seen. Gales were entirely absent. A fine lunar halo was observed on the 5th. Joseph Bazendell, The Fernley Observatory, Southport.

THE WEATHER IN SCOTLAND.

The cold weather which was such a marked feature of the spring of the present year extended well into May, but towards the end of the month there was a sudden rise of temperature, culminating in a day of midsummer warmth on the 31st. The rainfall was abnormally low, viz., 0.78 inch for 12 days, against an average of 0.09 inch for 14 days, the wettest days were the 20th and 21st, with 0.14 inch each. Bright sunshine was almost normal, with an aggregate of 168.3 hours, giving an average of 6.1 hours per day and a percentage of 37; there was only one sunless day while the brightest day, the 31st, registered 15.1 hours. While the mean temperature was almost normal, the mean maximum was above and the mean minimum below the normal; the figures for the month are:—Mean temperature 49.5°, mean maximum 60° and mean minimum 41°. The highest maximum of 78° was recorded on the 31st, and the lowest minimum of 30° on the 12th; there were only two nights of frost. On the grass the mean minimum was 36°, with a lowest of 23° on the 12th; there were 7 nights of ground frost. At 1 ft. deep the soil temperature, with a mean of 50°, rose with fluctuations from 45° to 56°. Hail fell on the 12th; thunder was heard on the 17th. The prevailing winds were from the south-west, with gales on the 14th and 26th. John Davidson, Director of Studies, St. Andrews Training College Gardens, Kirkton-of-Mains, near Dundee.

NEW HORTICULTURAL INVENTIONS.

LATEST PATENT APPLICATIONS.

- 13,420.—Brown, A. S.—Apparatus for trimming hedges, grass, borders, etc. May 12.
13,345.—Clarke, W. S.—Gardening implements. May 11.
13,057.—Ercole, A.—Processes for manufacture of fertilisers. May 9.
13,470.—Fitzgerald, D. W.—Plant pots. May 12.
13,144.—Lee, J. G. T.—Garden label. May 10.
12,586.—Brown, F. A.—Floorboards for hives. May 4.

SPECIFICATIONS PUBLISHED THIS MONTH.

- 178,922.—Pugh, Ltd., C. H.—Grass boxes of mowing machines.
179,055.—Harvey, J. N.—Planting and transplanting of seedlings.
178,512.—Kontio, T.—Mowing or like machines.
164,713.—Singham, A.—Form or backing for wreaths or the like.
178,638.—Spirway, R. W.—Garden forks and like digging tools.
178,255.—Rhoads, H. F.—Insect attracting and exterminating devices.

ABSTRACT PUBLISHED THIS MONTH.

Pollinating Plants. Patent No. 177,441.—An apparatus for artificially fertilising plants has been designed by Mr. M. Belgirate, of Piedmont, Italy. It consists of a water vessel heated by a burner, and containing a pump with delivery pipes and suction pipes, connected to flexible pipes having bell-mouthed ends. The flowers to be treated are placed between the ends, and the pump being operated, the pollen is sucked from the flowers and drawn through the pipes. Finely divided substances, such as talc or ash, impregnated with iron sulphate or lead arsenate, are placed in a chamber and, passing into the pump through a valve, mix with the warm air and pollen, which is carried through the pipes and thence projected upon the pistils of the flowers. The apparatus may be fitted with shoulder-straps, or may be placed on a truck, etc.

Messrs. Rayner and Co. will obtain printed copies of the published specifications, and forward on post free for the official price of 1s. each.

This list is specially compiled for *The Gardeners' Chronicle*, by Messrs. Rayner and Co., Registered Patent Agents, of 5, Chancery Lane, London, from whom all information relating to patents, trade marks, and designs, can be obtained gratuitously.

ANSWERS TO CORRESPONDENTS.

BLACK ROT IN TOMATOS: E. F. G. Your Tomatos are suffering, as you suspect, from *Macrosporium tomatum* (Black rot). The diseased parts should be burnt and the plants sprayed at frequent intervals with a solution of potassium sulphide. An excess of moisture at the roots, or in the atmosphere, will cause the fruits to crack, and thus render them peculiarly susceptible to this disease.

FOOT ROT IN TOMATOS: J. W. B. The trouble is caused by the "damping-off" or foot-rot disease, which is a very frequent cause of collapse in seedling Tomatos. The disease is frequently fatal after water has been applied. Experiments carried out at the Experimental and Research Station, Cheshunt, by Mr. W. F. Bewley, show that infection of the seedlings comes primarily from the soil and water, and that seed boxes and pots may carry on the infection from one season to another. High temperature, careless watering, and thick sowing may all assist the spread of the disease. Sterilisation by heat or the application of formaldehyde will free the soil from disease, therefore all seeds should be sown and seedlings potted in sterilised soil. When the disease has made its appearance an application of a fine mixture of ten parts of dry slaked lime and one part of copper sulphate, at the rate of 3oz. to the square foot of soil surface, is useful in reducing the disease.

HYDRANGEAS: J. H. M. It is difficult to account for your failure to flower Hydrangeas. You do not state what varieties you are cultivating. Some of the older sorts of *H. hortensis* are rather uncertain in flowering. The newer varieties such as Mme. E. Mouillère, Générale Comtesse de Vibraye, and Radiant flower more regularly, as also does the black-stemmed var. *cynoclada*. Cuttings made of strong shoots, rooted now and potted on into five-inch pots, should flower next year. The plants should be grown in cold frames, and exposed freely to the weather at all times except during frost, which is apt to destroy the buds; during autumn and winter the roots should be kept on the dry side. Do not introduce the plants into strong heat directly, but start them gradually in an ordinary greenhouse temperature, for, in common with many other plants used for forcing, they need to develop gradually, and at no time should they be grown in a temperature above 60°.

NAMES OF PLANTS: H. N. 1, *Scilla italica*; 2, *Asphodelus ramosus*.—R. I. L. We do not recognise the variety of *Fuchsia*. Send it to some nurseryman who makes a speciality of these plants, such as Mr. H. J. Jones, Ryecroft Nurseries, Hither Green, Lewisham.

POTATOS WITH WEAK GROWTH: T. H. W. The trouble is doubtless due to the seed being over-ripened. We have had one or two similar cases sent us this season, and no doubt the trouble is due in part to the very hot summer of last year.

TULIP BULBS: A. M. L. The Tulip certainly forms a new bulb every year. If you examine a plant, you will find the new bulb and offsets already formed or in course of formation. The bulb you planted has almost disappeared, the food in the fleshy scale leaves having been absorbed by the growing plant. The stem and leaves are attached at the base to the new bulb, and on no account should the growth be severed from the bulb. After the plants are removed from the bed, heel them in, so that food which is manufactured in the leaves may pass to the new bulb. After the foliage has died down, lift the bulbs and store them in a dry place. October is the best month for planting, but you will not obtain very good flowers from bulbs which have been prematurely lifted. Such bulbs are best planted in the reserve garden and utilised for bedding the next year.

Communications Received.—Enquirer—W. A.—E. E. B.—H. T.—F. E. B.—R. S. L.—C. & S.—L. G.—R. H. H.—G. G.—W. J. S.—G. M. P.—E. G. H.

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 60°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, June 21, 10 a.m. Bar. 30.3; temp. 65°. Weather—Sunny.

Green Manuring,

The question of the economic value of green manuring in garden and market garden practice is one to which no confident answer can as yet be given. Experiments were begun at Wisley some years ago, and we believe are still in progress. The results of these experiments were very interesting; but so far as we can remember, no final conclusions have as yet been published. A very thorough and readable account of Green Manuring has recently been published in America*, but although it contains the best account which we have seen of the rationale of the process, it has reference primarily to farm, and not to ordinary garden practice. It is doubtful whether any gardener would find it necessary to consider the adoption of green manuring as part of his routine practice were it not for the fact that organic manure is becoming increasingly expensive and difficult to obtain. Where this is the case, a gardener would probably find it more economical to undertake the keeping of pigs, with the object of securing from them the organic matter needed by the garden, rather than to resort to the practice of green manuring. Pigs bought in for summer keeping, fed in part on waste garden produce and sold in the late autumn when the chits of the Potato crop are exhausted, are a not uneconomical means of providing the humus without which the fertility of garden land cannot be maintained at its highest pitch. From the poultry yard, also, with economical management, valuable manures, rich not only in nitrogen

but also in phosphorus, may be obtained, and if incorporated with the general garden debris in a well made compost heap, these supplies will prove of great benefit to garden crops. But there are many gardens in which pig-keeping cannot be practised, and it is in these places where green manuring might be tried with possible economic advantage. Anyone who decides to adopt this practice would do well to make up his mind at the outset whether he means to practise green manuring as part of a garden rotation, or by means of catch crops. Which of these two methods is adopted must depend primarily on the amount of land available. Where garden space is restricted, only the catch crop method can be tried, but where plenty of land is available, the rotation method might, perhaps, be adopted with advantage. By the catch crop method is, of course, meant the sowing of a crop for digging in between main crops of one year and the next. For example, it is possible, if the land is not required for other purposes, to sow White Mustard or other catch crops after early and second-early Potatoes have been lifted or after the main crop Peas have finished. Experience shows, however, that to leave the sowing later than about the second week of August is to risk a poor germination. The land is generally dry and always warm at that season, and it not infrequently happens that the germination even of Mustard is poor. Winter Rye sown late and dug in when the ear begins to shoot in spring, gives a good bulk of green manure, and although it does not enrich the soil in nitrogen as do the Legumes—Red or Crimson Clover, Lucerne or Vetches—Winter Rye has often given good results as revealed by the yields of crops succeeding it. It is probable that a mixture of Winter Rye and a Leguminous crop would give even better results. There is, however, to be considered in these cases the fact that the ground has to be left unworked throughout the winter—a serious drawback in the case of land on the heavy side. Mustard, of course, has an advantage in this respect, for it needs to be dug in before the autumn frosts. It is said, also, to have a good effect on land infested with wire-worm, though in our experience its value in this respect is doubtful. Where plenty of land is available, green manuring might be tried on a more systematic scale by introducing a crop to be dug in with the ordinary garden rotation. In such cases there would be no risk of partial failure of the green manuring crop, and Legumes which stand for more than one season might be used. Among such plants, Russian or Hairy Vetch (*Vicia villosa*) is often used in the United States and has the advantage of being thoroughly hardy. In our climate, however, it is not unlikely that the common Vetch (*Vicia sativa*), would prove a better plant for this purpose. In orchards in America, Alfalfa (*Medicago sativa*) is much used as a cover crop and might prove valuable here for green manuring. Another plant which has been tried on a large scale in America is Crimson Clover (*Trifolium incarnatum*)—a winter annual with a high nitrogen content. Whatever crop be used it is important that it should be turned in not less than a fortnight before the ground is sown with another crop, for otherwise germination is apt to be poor, probably due to toxic substances produced during the early stages of decay. In the present state of knowledge it is not possible to state that green manuring in the garden is in all cases a profitable operation, but there is enough evidence in its favour to make it worth of a systematic trial by all gardeners who find difficulties in securing adequate supplies of farmyard manure at reasonable cost.

Royal Horticultural Society of Aberdeen.—For a number of years, the directors of this Scottish society have experienced considerable anxiety over the financial results of their annual exhibition. The venue of the show for many years has been the Duthie Public Park, Aberdeen, an ideal and charming setting for such a display, but it is rather remote, being situated on the outskirts of the city. This difficulty of access has led the directors to the conclusion that if the people will not come to the show, the show must be brought to them. To this end, application was made to the Town Council, asking leave to allow the show to be held in Union Terrace Gardens, on August 24, 25 and 26, instead of in the Duthie Park. The Terrace Gardens are situated in the heart of the city, and the twenty arches which carry the roadway which gives name to them, could easily be adapted to house a large exhibition. The span measure of each arch is over 20 feet, and would enable much greater scope for a display than that afforded by the marquees and tents used in Duthie Park. The matter came before the Links and Parks Committee of the Town Council on 14th inst., and it was unanimously resolved that the application of the Society be granted.

Gardeners' Company and London Children's Outing.—For the seventeenth year, the Gardeners' Company is defraying the cost of a day's outing in the country for 200 poor London children, under the auspices of the Fresh Air Fund. Commencing from Tuesday, the 13th inst., the Fund will provide outings to Epping Forest for from 600 to 1,000 children daily throughout the summer.

Economic Biologists' Visit to Wisley.—By kind invitation of the Director of the Royal Horticultural Society's Gardens, Wisley, Ripley, Surrey, the Annual Field Meeting of the Association of Economic Biologists will be held in the R.H.S. Gardens on Friday, June 30. The party will travel by motor charabanc, leaving London about 11.15—11.30 a.m. Lunch will be partaken of at the Hut Hotel, Wisley, after which the gardens of the Society, the laboratories, orchards and field trials will be visited. The Association will be entertained to tea by Mr. F. J. Chittenden, and leave about 5.30 p.m., reaching town about 6.45 p.m. Members proposing to take part in the outing are requested to notify Mr. Wm. B. Brierley on or before Saturday June 24. The provisional programme of the day's proceedings is as follows:—(1) Variety trials and yield tests; (a) Vegetables—Peas, Beans, Potatoes, etc.; (b) Flowers—Sweet Peas, Stocks, Violas, etc.; (c) Fruits—Currants, Strawberries, and Raspberries. (2) Fruit collections—Apples, Pears, Grapes, Figs, etc. (3) Ornamental plants and new Chinese and Tibetan plants, rock garden, herbaceous borders, wild garden, and trees. (4) Fruit experiments—bud variations, pruning, planting, pollination. (5) Investigations upon plant diseases. (6) Investigations upon insect pests. (7) Green manuring experiments. (8) The laboratories.

The late Mr. S. T. Wright.—We are informed that a subscription list has been opened for those who wish to mark their appreciation of Mr. S. T. Wright's services to the Fellows of the Royal Horticultural Society at Wisley and elsewhere. Contributions should be sent either to Mr. F. J. Chittenden, at Wisley, or to Mr. Frank Reader, at Vincent-square, and cheques and postal orders should be made payable to one or other of these gentlemen.

Forest Rambler's Club at Gravetye Manor.—On Thursday last, at the invitation of Mr. William Robinson, members of the Forest Rambler's Club, some twenty in number, spent a pleasant and profitable afternoon in the beautiful gardens and grounds at Gravetye Manor, in Sussex. It would be difficult to say when Gravetye is at its best, for it is attractive at all seasons of the year, but mid-June, when Iris, Clematis, Water Lilies, and a large percentage of the rarer trees and shrubs are at their best, is perhaps the most interesting

* Green Manuring. *Farmers' Bulletin*, 1250, United States Department of Agriculture.

period to the lover of hardy plants and trees. The Clematises in the cultivation of which Mr. Robinson specialises, and of which he has a large selection, were superb, and allowed to grow on their own roots, not grafted, as is usually the case, and they wander at will amongst the branches of trees and shrubs, presenting a sight not soon to be forgotten, whether for range of colour or size of the individual flowers. Some uncommon and interesting shrubs such as *Cornus Kousa*, *Euonymus*, *Osmunda*, and many kinds of *Magnolia*, were flowering with unusual freedom. Mr. Robinson, whose interest in plants has never flagged, and who is constantly adding to his collection—not in ones and twos, but by the hundred—accompanied the party around the grounds, and proved a most interesting guide.

A Yucca Wood Table.—The late Sir Walter Henry Harris, C.M.G., of Rothley House, Macaulay Road, Clapham, has bequeathed a table made by his father from *Yucca* wood in 1844, and his indentures of apprenticeship, to the South Kensington Museum, or, if not accepted by the museum, then to the museum at Kew Gardens.

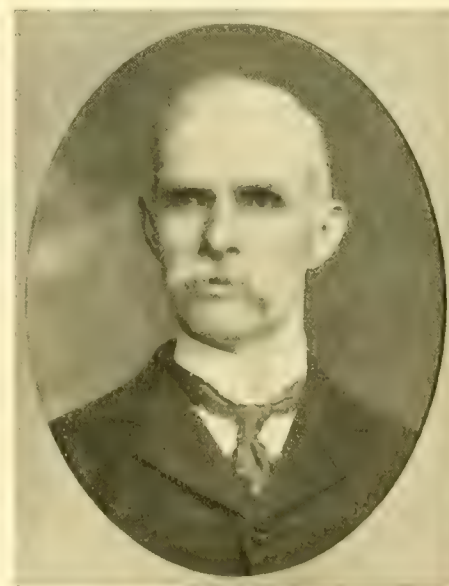
British-grown Tomatos.—The enterprising effort of the Lea Valley Growers to extend the consumption of British-grown Tomatos and Cucumbers by means of advertisements induced growers of other districts to combine with them. The effort is proving so successful that a film has been produced for display at seaside cinemas; this film shows the work done at the Experiment Station at Cheshunt, and how the Tomatos are cultivated in the Lea Valley and finally packed in non-returnable containers which are boldly labelled to indicate that the contents are British grown. The pictures of the enormous ranges of glasshouses in the Lea Valley will come as a great surprise to those who see the film, and will give the British public a new idea of a great industry. A simple little love story is woven into this filmed presentation of Tomato cultivation, wherein the Love Apple (Tomato) is the means of defeating the Apple of Discord and of rekindling the love of a young and handsome husband for his young and beautiful wife.

Bequest to a Gardener.—Miss Alice de Rothschild, of Waddesdon Manor, Aylesbury, who died in Paris on May 3, has left to Mr. G. Sims, her bailiff, at Waddesdon, a legacy of £2,000 and an annuity of £150, and to Mr. Johnson, her gardener, £3,000 and an annuity of £52.

Sale of a Famous Herbarium.—The United States National Museum has purchased the herbarium of Dr. Otto Buchten, formerly director of the Museo Nacional, La Paz, Bolivia. The herbarium is said to consist of approximately 45,000 specimens, acquired principally through many years of botanical exploration in South America, and through exchanges with institutions in many parts of the world. It is notable for its large proportion of tropical American species, particularly of the floras of Bolivia, Chile, Argentine and Paraguay.

Distributing Insecticide by Aeroplane.—One of our daily contemporaries devotes considerable space to the report of an experiment in spraying said to have been carried out on a farm near Sevenoaks. It appears that the crop on fifty acres of fruit trees was in danger of destruction owing to the ravages of caterpillars, when the owner hit upon the idea of having the trees sprayed with a dry powder insecticide by means of an aeroplane. Arrangements were made in due course and the aeroplane, flying from ten to twelve yards above the fruit trees, distributed about half a ton of insecticide, and "the operation was so successful that, after the whole fifty acres had been treated, hardly a caterpillar was left live." We should like to hear more about this experiment, as doubtless would the manufacturers of spraying machinery; moreover, we find it difficult to believe all the leaves could be sprayed by aeroplane, or that the majority of the caterpillars were feeding on the upper surface of the leaves at spraying time.

Award of the Neill Prize to Mr. W. G. Pirie.—The Neill Prize has been awarded by the Council of the Royal Caledonian Horticultural Society to Mr. William G. Pirie, Factor to the Earl of Dalhousie at Dalhousie Castle. This prize is in the gift of the Society through a bequest by the late Dr. Neill, and by the terms of the bequest falls to be awarded every second year to a distinguished Scottish botanist or cultivator. Mr. Pirie was born in 1859 at Broomfield, Midlothian, where his father was gardener to the late Mrs. Wilson. After leaving school he was indentured as a clerk in a shipping office, but as he found the business did not appeal to him he quitted it after three years. He then became an apprentice gardener at the Marquis of Tweeddale's seat at Yester, East Lothian. The gardener there at that time, Mr. Shearer, was energetic and very thorough, and Mr. Pirie obtained a good grounding in his profession. Shortly after he went to Yester Mr. Shearer asked him to draw to scale a plan of the flower garden, and this Mr. Pirie did, much to the gardener's surprise. After serving three and a half years at Yester, he was in various situations as an under gardener and ultimately took charge of the planting of vines, etc., at Gallowhill, Paisley. From there he passed on to Sunderland Hall, Selkirk, and it was when at Sunderland Hall that his connection



MR. W. G. PIRIE.

AWARDED THE NEILL PRIZE, 1922.

with the Royal Caledonian Horticultural Society and the Scottish Horticultural Association began, as he was an exhibitor at all the shows held by these societies at that time. He then began crossing *Narcissi*, and has continued this work more or less ever since, with excellent results. He has been awarded gold and silver medals for his seedlings. Mr. Pirie remained for ten years at Sunderland Hall, and then migrated to the south, where he was stationed near Newmarket. He appears, however, to have been anxious to get back to Scotland, and after two years' sojourn in England, went to Valleyfield, Penicuik, as gardener to the late Mr. Charles W. Cowan. Mr. Cowan took a lease of Dalhousie Castle, and Mr. Pirie went there with him to find only a wild garden, but with patience and perseverance he very soon transformed this into one of the finest gardens in the country. In 1916 the Earl of Dalhousie offered Mr. Pirie the management of the Dalhousie Castle Estate, which he accepted and still carries on, even in these strenuous times for landowners. He is a member of the Parish and County Councils for the Cockpen District of Midlothian. Mr. Pirie's connection with the Royal Caledonian and Scottish Horticultural Associations extends over a period of

thirty years, and he has served various terms on the Councils of both. He acted as President of the Scottish Horticultural Association for a term, and is at present a Vice-President of the combined societies.

Flowering of *Rhododendron sino-grande*.—Mr. Lionel de Rothschild writes:—"I noticed in your issue of June 10 (p. 298) a note about the flowering of *Rhododendron sino-grande* in this country. I think there is no doubt that the first time this occurred in England was at Heligan, where I saw it in flower in the first week of May, 1919. The plant was in the sun and the previous year's growth rather stunted, and this undoubtedly produced the early flowering, as it is essentially a shade-loving *Rhododendron*."

Yorkshire Gala.—The receipts on both the first and second day of the Yorkshire Gala constituted records for this show, the sums being £1,244 17s. 10d. and £1,558 respectively. The attendance on the second day was over 24,128, which is well up to the average, but not a record, for in 1908 35,506 persons were present on the second day.

Appointments for the Ensuing Week.—Tuesday, June 27: Royal Horticultural Society's Committee meetings (two days); lecture by Mr. E. A. Bowles on "Plants of interest from his Garden"; Bournemouth Horticultural Society's meeting (two days). Wednesday, June 28: Irish Gardeners' Association's meeting. Thursday, June 29: Bristol and District Gardeners' Association's meeting; National Rose Society's show in Regent's Park; Deal and Walmer Horticultural Society's show; Norfolk and Norwich Horticultural Society's show. Friday, June 30: Association of Economic Biologists' meeting; Paisley Florists' Society's meeting. Saturday, July 1: Windsor and Eton Rose Society's show.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Green Park.*—It is highly meritorious for Government to form new Parks for the benefit of the working classes. But why, in this zeal for creation, is there not even the wish for improvement on one especial spot—one so placed that in its present condition it is a positive eyesore. Why is the eastern portion of the Green Park left in its present unsightly condition? Why, in glancing from Devonshire House to Buckingham Palace, is the eye allowed to rest on nothing but a dingy surface of grass? It cannot be that the public would abuse the enjoyment of tastefully arranged public grounds. The idea is now negated unquestionably. It cannot be that the means are wanting. The whole sum required would not be large, and even if large the nation is not insolvent. It cannot be that Lord Morpeth wants the will to improve any works which fall within his department. He has again and again proved that he has an earnest will in the right direction. It cannot be that he wants the taste; that he is known to possess in a very exalted degree. We will indulge in a hope, then, that this site, so abundant in capabilities, will, ere long, yield a triumph to his Lordship's taste. We trust that in the immediate neighbourhood of the residences of the Sovereign and her nobles—a spot witnessed day by day by those whose rank and station peculiarly qualify them to enjoy graceful objects—a scene will be created worthy of the metropolis; and that the nation will no longer be burdened by a reproach which hitherto it has too largely deserved. While a Paxton exists there is little doubt who would create the scenery well.—*Gard. Chron.*, June 26, 1847.

Publications Received.—*Insect Pests of the Horticulturist: their nature and control.* By Messrs. K. M. Smith and J. C. M. Gardner. Benn Bros., Ltd., 8, Bouverie Street, E.C.4. Price, 8s. 3d., post free. *A Critical Revision of the Genus Eucalyptus.* By J. H. Maiden. Vol. VI. Part LII. William Applegate Gullick, Government printer, Sydney. Price, 3s. 6d. *Phoma Rot of Tomatoes.* By George K. K. Link and F. C. Meier, United States Department of Agriculture Circular, 219. Government Printing Office, Washington.

NOTES FROM WISLEY.

THE peculiar weather of this year, following the remarkable season of 1921, has caused much irregularity in the flowering of plants. While some are very late, others are at least a month earlier than usual. Consequently there is at the present time a great wealth and variety of flowers at the gardens of the Royal Horticultural Society. Unfortunately, however, in many cases the duration of bloom has been considerably shortened owing to the succession of cloudless days.

The old ponticum *Rhododendrons* on the edge of the wild garden are unusually full of bloom and form a beautiful background to the picture of the pond at the foot of the rock garden, crossed by a bridge, from each side of which hang the long racemes of *Wistaria multijuga*. The banks of the pond are resplendent with the many coloured forms of the Japanese *Iris Kaempferi* and with the bright blue *Iris sibirica* × *orientalis*, the foliage of the *Irises* contrasting with the large leaves of *Saxifraga peltata* coming up now that the flowers are over.

A pleasing combination of colour was presented recently in the ditches, where the yellow and orange *Meconopsis cambrica* is grouped among *Bluebells* and blue *Aquilegias*, with occasional patches of pale-hued *Primula japonica*.

In the wild garden a fine example of *Azalea amoena* in flower is noteworthy in that this particular plant bears on different branches flowers of two distinct shades of crimson.

The large specimens of *Rhododendron* *Pink Pearl* and *R. Gauntlettii* have both flowered with their accustomed elegance, and *Kalmias* are beginning to take up the succession of bloom. Among the latter *K. latifolia* is the finest, but *K. myrtifolia*, *K. angustifolia* and *K. glauca* are also very beautiful and at home throughout the wild garden.

In shady nooks the delicate pink flowers of *Lilium rubellum* may be seen (see Fig. 178). Other *Lilies* will soon be in flower, such as *L. pardalinum*, the stems of which have already attained a height of about five feet. There will also be a goodly number of spikes of *L. giganteum*. Flowering beneath the latter are some plants of *Orchis maculata*. The leaves of one or two are spotted to such a degree as to be almost completely purple, and are most conspicuous on that account. The green-veined *Orchis Morio*, another of our native plants, has flowered very well this year in the grass behind the herbaceous border. Many pale pink and pure white forms were observed.

In the rock garden *Helianthemums* and *Cistus* are revelling in the dry conditions and provide a change in colour from *Genista hispanica* and *Lithospermum prostratum*. The last-named plant has a special attraction for bumble bees, and is also visited by the broad-bordered bee hawk moth.

The dwarf-growing blue and white-flowered *Aquilegia Helenae* has been much admired. It is remarkable that, though a hybrid (*A. flabellata nana* × *A. coerulea*), it has come quite true from seed collected and grown at Wisley. A very beautiful hybrid rock *Pink* is in flower—*Dianthus Lindsayii*. The flowers are bright pink, about $\frac{3}{4}$ of an inch across and borne on stems 3 to 4 inches long. *Dianthus alpinus* is flowering in the moraine, as also are *D. deltoides*, *D. sylvestris* and *D. neglectus*.

Other fine plants are the purple-flowered *Calamintha alpina* and the sky blue *Linum narbonneuse*. A peculiar plant, *Ephedra helvetica*, bears its male and female flowers on separate stems.

In the new field garden several noteworthy shrubs are in flower, including a seedling from *Ceanothus azureus*, and Farrer's dwarf variety of *Potentilla fruticosa*, which gained an Award of Merit at the R.H.S. meeting on June 7. *Buddleia alternifolia*, for which we are also indebted to Farrer, has been planted here by the waterside. This plant has a very graceful habit and honey-scented, mauve flowers, which completely cover the arching stems for 2 feet or more, and when better known cannot fail to be popular in the garden. *J. E. G. White.*

THE BULB GARDEN.

TRITELEIA UNIFLORA.

MR. R. H. CROCKFORD, on p. 195, states that he considers the very pale purple form of *Triteleia uniflora* preferable to the pure white one. He should have seen the white masses I saw at Exmouth at the time his note appeared, and I think he would have altered his opinion, unless he is one of those who have a prejudice against white flowers in a garden. I am by no means enamoured of them myself, but the white form of *Triteleia uniflora* will henceforth be one of my exceptions. Wherever the coloured form appeared it invariably gave one the impression of something having gone wrong, or that the flowers were past their best. The picture of a long, broad edging, planted haphazard with Heavenly Blue Grape Hyacinths and pure white *Triteleia uniflora*, will long remain in my memory. I went more than once to look at the border through the garden railings.



FIG. 178.—LILIUM RUBELLUM

ORNITHOGALUM NUTANS.

I WAS very glad to read Sir Herbert Maxwell's note, on p. 225, about this good old garden plant, which seems to have got itself a bad name; at least I know when I first planted it I told a well-known head gardener whose garden knowledge and practice I never call in question, that I had done so. He was not encouraging, but remarked, "You will rue the day you planted it. It will over-run everything and you will never get rid of it." This is not the case at Whitewell. It keeps pretty well in bounds and gives us no trouble. My original purpose in getting it was to provide a cut-flower to go with Tulips. On the occasion of a visit to the Floral Farms at Wisbech, Mr. Leak informed me that a lady told him that she always grew this flower to associate with her Tulips, and that the two made an excellent combination in a vase. The lady was quite right, *O. nutans* goes splendidly with cut Tulips, especially if a little greenery of an appropriate nature be added. The rough leaves of *Kedlock* are excellent. Why not make use of our weeds? Hedgerows might be turned into useful garden annexes more often than they are. *Joseph Jacob.*

ORCHID NOTES AND GLEANINGS.

FEATHER-LIPPED BULBOPHYLLUMS.

SEVERAL examples of the pretty dwarf *Bulbophyllums*, with motile, feathery labellums, which never fail to attract attention, were shown in the group staged by H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr., Mr. T. Thurgood) at the recent meeting of the Royal Horticultural Society. The tropical African *B. barbigerum* is a general favourite and easy to cultivate, but the taller *B. saltatorium* and *B. Calamarium* from West Africa are rare. So also is the little Indian *B. tremulum*, a compact tuft of which, with several slender sprays of flowers with blackish feathery labellums, was also shown. Other species of this class which have flowered in collections are the strong-growing *B. Sanderianum*, originally imported with *Cattleya labiata* from Brazil, and the singular *B. Penicillium*, a native of Burma, which appears occasionally with importations from that

region. Other species have been described, but probably not received in gardens. *J. O'B.*

REPOTTING ORCHIDS.

ORCHIDS in general are best repotted after the plants have finished flowering, for at such times new roots develop. After repotting, the chief aim of the cultivators should be to get the plants re-established as quickly as possible, and this is best accomplished by keeping the compost on the dry side. If the cultivator will look after the roots of his plants, the tops will look after themselves, provided they are kept clean and placed in suitable quarters.

The basis of a good Orchid compost should consist chiefly of Fern rhizomes; or, rather, the fibrous portions of them, from which all the finer particles of soil have been removed.

Different Orchids require different material, but most will grow quite satisfactorily in a clean, open mixture of any of the different fibres now used for the purpose, with live *Sphagnum* moss on the surface.

Half-decayed leaves, dried cow manure, and loam are used for some species, and a sufficient supply of all these materials should be kept ready for use. *J. T. B.*

The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Cattleya Dowiana.—The beautiful *C. Dowiana*, and its variety *aurea*, having started into growth, may be placed in the warmest position in the Cattleya house, and be given generous treatment as regards heat, light and air. These plants should be very carefully watered at all times, as their roots are not capable of withstanding excesses of drought and moisture. When the flowering period is over, the plants should be gradually inured to more air and light to consolidate the growth, so that it may withstand the vicissitudes of the winter.

Cattleya Lueddemanniana and C. Warneri.—*C. Lueddemanniana* (speciosissima) is another species that delights in the temperature of the warm Cattleya house, and one that many have some difficulty in flowering. It may be treated in the same manner as regards repotting as advised for *C. gigas*. It may be taken as a general rule to repot Cattleyas, *Laelias*, *Laelio-Cattleyas*, or *Brasso-Cattleyas* a few weeks after their flowering period, provided they are making, or are about to make new roots. The many hybrids raised from the different species succeed under precisely the same conditions as their parents; and, being plants acclimatised from infancy, are considered easier to grow under artificial conditions. *C. Warneri* and its hybrids grow under similar conditions to the preceding, and the earliest plants are now producing flowers. When their flowers are over these plants also should be exposed to more air and light, but never allowed to shrivel for want of water at the roots, even whilst they are at rest.

HARDY FRUIT GARDEN.

By H. MARKHAM, Gardener to the Earl of Strafford, Wrotham Park, Barnet.

Peaches.—These trees have good crops of fruits, and the young growths are strong and healthy. Stopping, disbudding, and training are details that need unremitting attention, and should be very carefully carried out. All new growths not wanted for next season's crop should be removed and others trained in position against the walls with light ties and small lengths of suitable twigs or canes split into small, flexible pieces, so as not to injure the soft bark. Thin the fruits to the number required to ripen, leaving those best situated and at regular distances apart. Do not overcrop the trees, but strong growing trees may be allowed to carry more fruit than older ones that are not making growth sufficiently strong to bear heavy crops annually. Syringe the trees thoroughly on all available occasions, taking care to wash the underpart of the leaves as much as possible. Syringing should be done thoroughly in order to keep the foliage clean and free from insects, especially red spider, which frequently attacks Peaches trained on brick walls. If red spider is detected, syringe the foliage with "X.L.-All" insecticide late in the afternoon, and again with clear water the following morning. See that the roots are thoroughly soaked with water at intervals, and use liquid manure occasionally, or clear water after a good mulching of manure, so that the manurial properties are thoroughly washed down to the roots. Alexander is our first Peach to ripen out-of-doors, and following this Hale's Early, River's Early York, and then the mid-season's varieties. Early York is one of the very best of Peaches to follow quickly on Hale's Early. The colour is good and the flavour excellent, while the tree is an excellent cropper. The newer Peregrine variety is an excellent Peach and as valuable for cultivation out-of-doors as under glass.

THE KITCHEN GARDEN.

By JAMES E. HATHAWAY, Gardener to JOHN BRENNAND, Esq., Baldersby Park, Thirsk, Yorkshire.

Runner Beans.—Make further sowings of Runner Beans to maintain late supplies. The supports for these plants should be very strong, as they offer a great surface to the wind in autumn, and night dews at such times cause them to be heavy with moisture.

Onions.—Plants which were raised in pots will have grown rapidly during the recent hot weather. A dressing of manure from a spent mushroom bed or well rotted manure should be spread over the beds and watered in. A slight dressing of sulphate of ammonia will greatly assist them in their growth, as will also Icthemio guano applied once every fortnight.

Winter Greens.—All kinds of winter greens should now be planted. The distance between each kind must be ruled by the variety. The larger growing Brassicas require a space of not less than 2 ft. each way. The recent rain has been helpful and made the ground in a suitable condition for planting.

Peas.—To ensure late crops, of Peas, trenches should be made with a thick layer of manure at the bottom. Choose an open site for this sowing, as the plants will be less susceptible to attacks of mildew if they are fully exposed to the sunlight and air. Ne Plus Ultra, Gladstone, and Sutton's Latest of All are good varieties for this late crop.

Leeks.—Every encouragement should be given these plants to develop by affording them regular waterings. Plants intended for exhibiting should have brown paper collars put around them, as these can be drawn up as the stems lengthen, keeping the plants earthed up with fine mould.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir O. NALL-CAIN, Bart., The Nods, Oodivote, Welwyn, Hertfordshire.

Francoa ramosa.—Where old plants of the Bridal Wreath have been given cool treatment, they will now be throwing up their flower spikes, which will undoubtedly be greatly improved if the plants are given manurial aid in the form of manure water. Francoas are by no means tender, and may be safely stood out of doors early in May. To have this plant in flower over a long season—a few plants may be stood in a warm greenhouse at intervals, and the main batch of plants stood under a north wall to retard their growth. *Francoa ramosa* may be raised from seed sown now, and germinated in a cool greenhouse, but I much prefer propagating by means of side growths.

Chrysanthemums.—Where cuttings of Chrysanthemums were inserted about the end of April, to produce plants for growing in small pots, they should now be ready for placing in 4½-inch receptacles. In about three weeks' time they may be shifted again into 6-inch pots, in which they may be allowed to flower. After potting, the plants should be sprayed frequently during hot weather. Where bushy specimens are required the growths may be pinched twice, finally selecting the first bud that appears from the last stopping.

Stephanotis floribunda.—This beautiful stove or intermediate house climber having passed out of its first blooming stage, is making a considerable amount of fresh growth, and attention should now be given to the thinning and regulating of the young shoots. *Stephanotis* is generally trained on wires near the roof rafters in a stove house. This climbing plant undoubtedly enjoys warmth and plenty of atmospheric moisture, although I have seen two excellent crops of flowers obtained from plants grown in an intermediate house. It does, perhaps, best when planted in a restricted root space, and some stimulants given the roots during the growing season. Good, fibrous loam and peat, in equal parts, with charcoal and plenty of silver sand added, form a suitable compost for *Stephanotis*.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPANDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

Cucumbers.—As the plants in frames are in full bearing, and the older ones in heated pits are more or less infested with spider, the latter should be cleared out and the pit replanted. Young plants make rapid progress, and replanting, wherever practicable, is more profitable than retaining old plants. When planted out in soil resting on heated chambers in a house having a close, moist atmosphere, the plants will make rapid growth, and may soon be brought into full bearing. New rough turf should be mixed with charcoal, crushed bones, old rubble, and similar materials as a compost for adding as often as is required, and warm, diluted liquid manure may be given the roots liberally. Another advantage, after this season of the year, is in lowering the trellis to an extent that will allow every leaf to be clear of the glass, when, other conditions being suitable, shading in the brightest weather will hardly be necessary.

The Frame Ground.—When manure is plentiful and good frames or pits are well managed, a large summer supply of Cucumbers from this time forward should be forthcoming. A single hot-water pipe is, no doubt, a great help, but, independently of this, an abundance of clean, straight fruits may be obtained by regular attention to the renewal of the fermenting materials, by linings, and external coverings. Frames in which Potatoes and other forced vegetables have been grown should be cleansed and planted as they become vacant. A steady bottom-heat being essential, manure and leaves, supplemented later by external linings, will give new life to the bed for the remainder of the season. If the summer proves extra fine and warm the plants will require water at least twice a week, not cold and in dribbles, but in overhead showers through a fine-rosed can at a temperature of 80° to 90°. Train and pinch the growths as recommended in the calendar of April 29, ventilate the frame early on fine mornings, and close it again early with sun-heat and moisture in time to cause the temperature to rise to 90°.

THE FLOWER GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

Ornamental Crabs.—The various trees and shrubs have flowered finely this season, and the present is a suitable time to take stock of the best sorts to make a selection for future planting. One of the first groups that call for special attention are the flowering Crabs that for several weeks past have been such beautiful objects in these gardens, where we have a very large collection. *Pyrus Malus spectabilis* Kaido (Dippel) is one of the most glorious of them all, producing double flowers, that are larger and deeper in colour than the type, with great freedom. Closely following this is the beautiful *P. M. Scheideckeri*, which gives a wealth of semi-double, pale rose-coloured flowers in clusters of about ten blossoms. *P. M. floribunda* is too well known to need description; it is one of the most lovely flowering Crabs in British gardens today, as well as one of the first to blossom, coming into flower about a fortnight prior to *P. M. Scheideckeri*. There is a beautiful deep coloured variety known as *P. M. floribunda atrosanguinea*, which makes a fine contrast to the type, and has the further merit of possessing very pretty, shiny foliage. Another charming Crab is *P. M. purpurea*, a variety with deep purplish-rose flowers, and somewhat similar to this is *P. M. Niedzwetzkyana*, and both are worthy of inclusion in gardens. Even more lovely than either, and flowering later by a fortnight to three weeks, is *P. M. aldenhamensis*, which, besides its fine reddish-purple flowers, has purplish foliage, and in the autumn carries a wealth of deep similarly coloured fruits that hang like enormous Cherries on the trees. *P. M. arnoldiana* is another striking flowering Crab, of healthy and vigorous habit which was raised in the U.S.A., and is a charming plant in every respect.

THE ROSE GARDEN.

SOME EARLY FLOWERING RAMBLERS.

CLIMBING Roses seem to be extra vigorous this season, in contrast to the dwarf kinds, which, apparently, found the hot, dry summer of last year too exhaustive of their energies, and old plants especially seem much weakened in consequence. The foliage and growth of climbers are strong and healthy, whilst the flower trusses also are extra vigorous. Amongst the first to bloom was Carmine Pillar (syn. Paul's Carmine Pillar), a splendid early Rose for furnishing pillars, arches and pergolas, and one of the earliest of all Roses if grown against a warm wall. The habit is strong and free, and a well grown specimen gives a profusion of the big, single carmine-scarlet blossoms.

René André is another early bloomer of vigorous habit, suitable for training on arches, pergolas, pillars or walls. The flowers are Camellia-shaped and open flattish. The colour is saffron yellow shaded red, but in full sun the blooms assume a pink tone.

Albéric Barbier is a general favourite and suitable for a variety of purposes. In a well grown plant the creamy white blossoms almost smother the plant, which has fine glossy foliage. In the bud the flowers are of perfect shape and very pale cinnamon at the base. This excellent Rose makes a charming weeping standard.

Jersey Beauty ranks amongst the strongest growers, and is very fine for training over tall trellises, for the shoots grow to a great length. The flowers are small but of very dainty appearance, like little cups of ivory white.

François Guillot belongs to the Wichuraiana section, and is worthy of including in collections for its attractive glossy foliage and white flowers, which have a creamy white centre. In a collection it will hold its own as a pillar Rose, the tall, columnar plant being covered from top to bottom with the large, full petalled blooms.

François Foucard is similar to the last, but in the particular collection it was certainly inferior, although it has the additional merit of flowering again in the autumn. The blooms also, which are lemon yellow, are not so pleasing in shape. Aglaia is very free on old established plants. The small, creamy yellow blooms develop in big clusters, which have long stalks.

Tausendschön is one of my favourite Roses, and I consider it second to American Pillar, although it would be difficult to name the third, but perhaps Mrs. F. W. Flight is worthy of this honour, with Blush Rambler (see Fig. 179) running it closely. Tausendschön does not make such long growth as some others, but it is fine for a fence and splendid as a weeping standard. The rosy-pink blooms come in big clusters, which may be cut with long stalks. This fine Rose flowers from now to October. Blush Rambler has all the attributes of a good climbing Rose, and the large clusters of soft pink flowers are produced in profusion, but their season is not so early as some. Mme. d'Arblay is a pretty, hybrid-musk, white cluster Rose with a very faint pink tinge in the bud. The trusses are large and the flowers are sweetly fragrant. Being a strong grower, this Rose may be used for furnishing tall pillars and pergolas.

Goldfinch is another excellent early Rose for arches, as its growth is exceedingly vigorous. There is just a touch of gold at the base of the petals and a boss of golden stamens, which reflect their colour on the interior of the white, semi-double flowers. The buds are deep cream coloured. Shower of Gold is deeper in the centre than Goldfinch, but the plant is not such a good grower. The foliage is very pretty, being glossy and shining like that of a Tea Rose. Tea Rambler is a climbing polyantha Rose of much merit, and must be classed with the best of the ramblers. The flowers open light pink and make a flattish, double bloom. They are developed in big trusses at the ends of long, stout side growths.

Paul's Scarlet Climber is very early flowering. I have not yet seen a very vigorous specimen, and am inclined to believe that it will never grow more than some eight feet or so high. Still, as a dwarf pillar variety it is worthy of inclusion in the best company of Roses of its type. *Lomea*.

CAPE PELARGONIUMS FOR SUMMER BEDDING.

CAPE Pelargoniums comprise one of the most interesting groups of plants for incorporation with the summer bedding subjects. Generally known as Scented Geraniums, these plants are old favourites, of which our forebears thought a great deal, and it is now something like nearly three hundred years since the first species arrived in England from South Africa, presumably during the reign of the Stuart Kings, for it is believed to be in the year 1632, i.e., during the time of King Charles I., that Pelargonium triste came to hand. Thereafter, at intervals, came other species and varieties, until at the

will prove a very striking and effective feature, for not only does such a bed form a beautiful object, but the difference that exists between the various species always arrests the attention of visitors.

The preparation of the plants for the purpose in order to ensure good, shapely specimens is not a difficult nor arduous task. They require a certain amount of shaping as growth progresses, in the case of some of the larger-growing sorts, in order to prevent them growing in too ragged a shape, and this should be commenced from the early days of the young plants, removing growths that are too rampant, and stopping others where it is considered advisable, to ensure good shaped specimens. This work should be done carefully and with a cer-



FIG. 179.—ROSE BLUSH RAMBLER AND LAVENDER HEDGE.

present time we have something like 300 species and varieties. At Aldenham we generally employ them freely in the summer bedding, and beds and borders formed of them always afford great interest to visitors, an interest which is growing year by year as the love for these charming subjects increases.

Plants of all sizes and shapes are used, from tiny cutting plants in 60-sized pots, to large standards 6 feet high. All the plants are plunged in their pots in the soil of the beds and borders, the standards being placed in effective positions first of all. Next, the large bush and pyramid specimens, together with smaller standards, are worked into place, and the whole is finished off with the smaller plants. This method of planting can be adopted as well for small beds as for large ones, and the whole

tain knowledge of the plants, or deformed habit may result instead of merely shaping and training. Pyramid plants may be shaped by promoting the progress of the main growth and carefully stopping the side shoots. Standards are a little more difficult and are obtained by selecting a number of healthy young plants and restricting them to one growth only, and as height is attained side shoots should be cut cleanly away. When of sufficient height the main growth should be stopped and the side growths at the top of the standard encouraged to make good progress, again shaping the head as required. We use Pelargonium crispum variegatum, largely for bedding, in all shapes and sizes. The variety has the same habit as the type, with fine variegated foliage, which lends itself remarkably well to the scheme. *E. Beckett*.

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BUD VARIATION IN POTATOS.

FROM time to time the question of bud variation in Potatoes comes up, and gives rise to much discussion as to its possibility. Cases are brought forward where a white variety throws a coloured tuber, or vice-versa, and as these are seldom or never found attached to the plant, but are dug with the others, opponents of mutation say that it is a rogue or self-set. There is no doubt that many of the cases brought forward by non-scientific growers are of this character, but such changes of colour in the tuber are accepted by Mr. A. W. Sutton, who, in a paper read at Ormskirk, in 1918, refuses to accept the idea that bud variation can give rise to new varieties. Another probability is that a hybrid may have got into the stock, the hybrid having most of the characteristics of the parent stock, with one or more characters modified. Such is not very probable, but it would occur occasionally, although seldom seen by a grower who would notice the difference. Such a hybrid is seen well marked in the variety *Marvel* or *Variation*, where two differently coloured tubers occur on the same plant. Such cases, however, cannot be termed mutations, as they are the result of distinct crosses.

Interesting evidence, however, has come from Germany to support those who consider mutation probable. In *Deutsche Landwirtschaftliche Presse*, 45, 1918, p. 2, Von Ryx gives what is presumed to be an instance of mutation in *Early Rose*. Attracted by their resistance to Blight (*Phytophthora infestans*), he has found plants several times in fields, which to all intents and purposes are of the variety in question, and which have been found amongst typical plants. When grown on, these tubers, however, give rise to plants which, although *Early Rose* in other respects, are stronger in growth, more resistant to *Phytophthora*, and whose terminal leaves differ in a distinct way from the leaves of the original stock and from leaves of many other varieties. The author finds that if the broadest part of the leaflets is taken and a line drawn across at right angles to the mid-rib, the length of the mid-rib below this line is always longer in the "sport" than the portion above it, while in the original stock and in other varieties he has examined, the reverse is the case.

Killer, in *Deuts. Landw. Presse* for December 4, 1920, p. 660, gives a more interesting instance of possible mutation. He remarks that he has had white blooms from practically undeniable Up-to-Date stocks submitted to him

from time to time. He has, however, remained unconvinced and denied the possibility of such variation. The finding of an Up-to-Date plant with an inflorescence showing both white and lilac flowers, an illustration of which is given, has led him to the statement that isolated instances may occur.

At the International Potato Conference, held in London last year (*Rept. Inter. Potato Conf.*, Roy. Hort. Soc. London, 1921), the well-known Potato breeder, Mr. Donald Mackelvie, gives an instance of bud variation which he has noticed in his variety *Arran Victory*. Normally, this has a round, purple-skinned tuber, with white flesh and purple sprouts, but the author gives the further history of specimens with tubers having skins differently coloured from normal. Two of these gave tubers which were either normal or only varied in skin colouration, as did their parents, but the third, a white one with purple sprouts, gave a haulm identical with normal haulms of the variety, but with nine entirely white tubers and five white tubers with purple eyes and purple spot on the root end. These latter developed normal sprouts,



FIG. 180.—SARRACENIA FLAVA GIGANTEA.

but the former had sprouts which were pink at the base with green points, and were quite distinct. The tubers with purple sprouts developed into plants with normal *Arran Victory* characters, but the nine which had abnormal sprouts developed into plants which Mr. Mackelvie describes and which he truly says would constitute a new and distinct variety if the change proves permanent.

Such examples as are here quoted certainly suggest mutation, and in view of these and other observations, the supporters of the idea that new varieties arise through mutation, will receive a fresh stimulus. G. C. Gough, A.R.C.Sc.

INDOOR PLANTS.

SARRACENIAS.

AMONG warm greenhouse subjects there are few in which visitors are so much interested as the various insectivorous plants. Indeed, there are not many plants more attractive than these, although there are many more gaily coloured. A goodly bank of insectivorous plants is grown each year

at the end of the Orchid house in Mrs. J. J. Neale's Garden at Oxtou, Kenton, near Exeter, where *Sarracenia* and *Drosera* are grouped together. Of *Drosera dichotoma* we manage to grow large specimens, and *Sarracenia* also reach a considerable size. I enclose a photograph, taken by Miss Muriel Neale, of a plant of *Sarracenia flava gigantea*, which may serve to remind readers of the peculiar grace and striking appearance of these easily grown plants. The specimen illustrated (see Fig. 180) is two feet six inches high from the rim of the pot, and the pitchers are of a bright yellowish-green colour. Some of the specimens carry as many as twenty-six perfect pitchers, and the largest pitcher has a spread of six and a half inches across "the lid."—E. Swinden, *The Gardens, Oxtou, Kenton, nr. Exeter*.

ZONAL PELARGONIUMS.

WHEN well-grown, there are few subjects so brilliant for furnishing the conservatory during the autumn and early winter months as Zonal Pelargoniums; but at those seasons the clear, pure air of the country is essential to their well-being. In the London neighbourhood, where fogs are prevalent, they are very uncertain subjects, as one night's fog is sufficient to spoil all the season's work.

Plants intended for winter-flowering should now be ready for transference to their flowering pots, those of six- and seven-inch diameter being a suitable size. The potting compost should consist largely of good loam of a medium texture, without too much lightening material in the way of leaf-mould, for when the soil consists mainly of loam growth is short and firm, which is so desirable in this class of plant intended for winter flowering. A 48-sized potful of bone meal may be added to every bushel of soil, and sufficient sand to render the whole porous, as a water-logged condition of the roots is fatal to the well-being of these plants. After repotting they should be placed in a cold frame for a few weeks, until they are well re-established, when they should be stood out of doors on a layer of coal-ash in full exposure to sun, light and air, to ripen and mature their growth before they are housed in the autumn. During the summer the flowers should be kept picked off, and any unduly long growth pinched, to secure shapely specimens.

ROUPALA POHLII (SYN. CORCOVADENSIS).

THIS handsome plant, which was at one time a general favourite in gardens, is now very seldom seen in cultivation; which is rather surprising, considering how beautiful its large pinnate leaves are, and there are few foliage plants that withstand the wear and tear of conservatory decoration better. Planted out this *Roupala* makes a fine specimen, while grown in pots and allowed to develop a single stem, it is very graceful for grouping with other plants. In the dwelling-house it gives just that bold, massive effect that is often so desirable in large rooms and saloons. The growth is very hard and woody, and cuttings generally take several months to root. Plenty of bottom heat, in a close propagating, is necessary for success in rooting them, and the smaller and less gross shoots are best suited for propagation.

The inflorescence forms a cluster of orange-red flowers, but it has no especial attraction from a decorative point of view.

SCUTELLARIA COSTARICANA (SYN. MOCINIANA).

THIS old garden plant is now seldom seen in collections, having shared the fate of many other beautiful subjects; because they are not suitable for supplying cut blooms. It is a very striking subject with its scarlet and yellow flowers, and its cultivation presents no difficulty, as it roots readily and is easily grown in a house having an intermediate temperature. Plants propagated some time ago should be potted on as they require it, while strong shoots rooted now should still make useful, small plants by the end of summer. J. Coult.

GARDEN NOTES FROM S.W. SCOTLAND.

THOSE who esteem blue flowers, should make a note of the Himalayan *Cynoglossum nervosum*. Its blossoms, freely borne on bending stems two feet high, or thereby, are intensely blue. The plant has none of the coarseness which unfits some of the genus for the front of a herbaceous border, nor does it conform to rule, under which so many of the Borage order open pink before turning blue. The flowers are pure blue from start to finish and very showy. The habit of the plant is compact and its foliage bright green. It flourishes best in full sunshine.

All flowering trees and shrubs, except some of the Asiatic *Rhododendrons*, have responded lavishly to the stimulating heat of the summer of 1921. Such a result was to be expected; but in none is the effect so remarkable here as in *Xanthoceras sorbifolia*, from Northern China. This small tree, rather nearly related to the Horse Chestnut, is very shy of flowering in Scotland; so shy, indeed, that I wearied of waiting for a display, and, having two specimens here about 40 years old, allowed one of them to be nearly smothered by a Rambler Rose. Last year, neither of them bore a single flower; just now (June 9), every branch is crowded with erect panicles of bloom—white, with a carmine stain at the base of each petal. There is apt to be trouble if much fruit sets; for the capsules are as large as those of a Horse Chestnut, shaped like a pegtop, and the branches, being very brittle, are apt to snap off under the weight. The pinnate foliage, now nearly all hidden by the flowers, is very beautiful.

In a season like the present, it cannot but occur to one how much trouble is taken to grow many foreign flowering things which are far inferior in beauty to our common native Hawthorn. In May, 1913, the late Mr. Joseph Choate, so well and affectionately remembered as the American Ambassador at St. James's, took me in his car from New York, across Long Island, to lunch with the late Theodore Roosevelt, at Sagamore Hill. The woods were richly undergrown with *Cornus florida*, then in full flush of flower. "How I wish," said I, "that we could grow that lovely shrub in England." "Well," replied Choate, "it's a pretty thing, but I don't reckon it a patch beside your English May." And, truly, I think he was right.

The most startling flower in the borders at present is the Dragon's Mouth, which used to be known as *Arum crinitum*, but which we are now told answers to the less handy name of *Helicodiceros*. The massive spadix, hairy and brownish purple—nearly black—lolls along the horizontal spadix, which is of a livid hue, suggestive of carrion, the suggestion being strengthened by the powerful stench exhaled from it. Blowflies and bluebottles, deceived by the double semblance, crowd into the chasm and deposit their eggs at the base of the spadix. I measured a flower this morning, and found that the spathe was 17 inches long and 8 inches wide. The plant is a native of Corsica, but thrives vigorously here in a sunny border. Truly, it is one of Nature's fearsome freaks. *Herbert Maxwell, Monreith.*

THE GRAPE VINE.

It is so seldom that the Grape Vine forms the subject of discussion that it is refreshing to read such a fresh series of articles as those recently published in your pages. The exigencies of the war period showed that the heating and steaming previously indulged in were of no use to the vine, but rather indicative of how much it can stand under domestication, and when we consider how it is cut about, and restrained in its attempts to grow as nature intended, it must be conceded that no other cultivated fruit is equally amenable to such treatment, and able, under fair conditions, to go on year after year for an almost unlimited period producing its quota of fruit.

It is surprising, at this time of day, to find vineries being constructed of far too small cubic

contents, for, however well vines may succeed in short-raftered structures, there can be no doubt that the vines in large vineries are far easier to manage, and, as a rule, produce better Grapes than is possible in those of small dimensions. And I take it that the somewhat unqualified proposal to ventilate freely, without distinguishing as to season, shows that the great benefit of fresh air as a means of keeping the vine in robust health and in a condition to fruit well is gaining ground, just as the need for steaming is losing ground.

Another cultural item worth emphasising is that of the suppression of all lateral growth which is of no benefit to the vines, probably the opposite, and results in a very great reduction in the summer work on the vines. I have known a gardener occupied for nearly two days at a time cutting away lateral growths, which, had the practice of rubbing everything from the main shoots been in operation, would never have been needed.

There are one or two points which, I think, might be improved on in practice. One is the

responding similarly to a like treatment. At the same time, there seems to be a feeling among gardeners that the cutting of vine roots is, like the suppression of lateral growth, a hazardous experiment. *B.*

VEGETABLES.

RUNNER BEANS.

I HAVE started Runner Beans in heat for several years past. In Scotland it is almost essential to do so in order to secure a supply over a sufficiently long period to pay for the trouble of growing them at all. Instead of sowing seeds in boxes, we place one bean in a five-inch pot in a compost of two parts soil to one part old manure. Directly the growth is long enough to get hold of it is pinched, and two shoots result. Runners are much harder than French Beans, and ours are stood out of doors about the middle of May and planted during the last week of that



FIG. 181. IRIS GARDEN ARRANGED AT THE CHELSEA SHOW BY MESSRS. GEORGE BUNYARD AND CO., MAIDSTONE (SEE P. 230).

supporting of the shoulders of bunches. Not only does it ease the vine to support heavy shoulders, but the whole bunch should be supported by passing a broad strand of raffia under one or two of the uppermost shoulders at their junction with the main stem of the bunch, tying it to the wires or to a piece of wood resting on the wires. Anyone who experiments with bunches from 1½ lbs. upwards will be convinced of the benefit of a support of this kind. Pushing the berries up from time to time should not be omitted.

I think that it is possible to leave too many berries in the inside of the bunch. These inner berries never colour so well as those exposed, nor are they so well flavoured, and for these reasons the inside of the bunch ought to be well thinned.

With regard to shanking, some old Black Hamburg vines here shanked badly in some years, so the roots running outside were cut close to the wall in autumn, which proved effectual to an appreciable extent. Since then, the roots have never been allowed to extend more than about four feet from the wall; every two years a trench is dug out and fresh soil introduced. This treatment benefited the vines in another way, for before the roots were cut many of the berries were stoneless, and did not swell, but since then that objectionable fault has been little apparent.

Experience with other shrubs and trees proves that the cutting of roots is invariably followed by increased flower production and fruit, and there is nothing wonderful in the Grape vine

month. The training material used is wire sheep netting to a height of nine feet or ten feet, and to this the growths attach themselves automatically. A few years ago a white sport originated here with white flowers and white seeds, otherwise there is no difference between it and the scarlet form. The first flowers of both are open at the time of writing—June 16. *R. P. Brotherston.*

DEEP CULTIVATION.

THE advantages accruing to the different crops of vegetables in deeply cultivated land with an abundance of rich, well-decayed manure thoroughly incorporated with the soil, is always apparent, and the extra labour bestowed in carrying out the work is amply repaid, more especially in dry seasons.

Where the soil is light and shallow, most gardeners are only too well aware that plants on deeply worked land will grow and flourish in the fullest vigour and produce heavy crops of sweet, crisp vegetables, whilst on similar soil but shallowly worked and sparingly manured, just the reverse is the case. This is not surprising seeing that the roots are able to draw food and moisture from a greater area than on shallow land, and they are enabled to grow deeply enough to reach the moist soil in the region of the subsoil, whilst the manure will absorb and retain moisture that will be available for the plants in dry weather. Mulchings of suitable materials applied early on light land and in dry seasons are of the utmost benefit and should always be applied where there is sufficient labour and ample manure, especially when the water supply is short. *H. Markham.*

NURSERY NOTES.

NEW IRISES AT ENFIELD.

ALTHOUGH Mr. W. R. Dykes prophesies, on p. 326, that American specialists may soon take the lead in Iris raising because of their numbers, we are glad to know that raisers in this country are still actively engaged in Iris breeding, and that such specialists as Sir Arthur Hort, Messrs. Bliss, Yeld, Wallace, Bunyard and Perry, to name only a few, are following up their former successes with novelties that should retain our supremacy, at least, for some time to come.

Mr. Amos Perry's nursery, at Enfield, which we had pleasure in visiting during the Iris season, contains a large number of Iris seedlings, and there are fine novelties in many sections, beside the tall bearded type. For instance, he has raised crosses between *I. tenax* and *I. longipetala*, and, although the progeny were poor, miserable plants in the first generation, the second generation of seedlings includes very many of merit. Again, he has crossed *I. Pseudacoris* with *I. Kaempferi* and also *I. Pseudacoris* with *I. spuria*; *I. sibirica* with *eryiographes*, also *longipetala* and *tenax*; *ochroleuca* with *euprea*, and so on. *Iris tenax* crossed with *I. longipetala* has given a totally distinct form from *tenax*, of a beautiful violet mauve colour. The largest collection of seedlings is of the tall, bearded section, and of these there are many of great promise, although the majority were under numbers at present. The most remarkable are as follows:—A seedling from Alcazar with bronze purple standards, and another seedling of this type with clear blue standards, and purple violet falls that are pleasingly reticulated with bronze, whilst still another seedling of this type has claret coloured falls and standards.

In his endeavour to obtain tall stature in this noble race of Irises, Mr. Perry has used as one parent a form of *I. pallida*, some four to five and a half feet high, and with soft, lavender-blue flowers. This has been crossed with various others, giving some excellent results. One of the best, named Marjorie Tinley, has falls two and three-quarter inches wide, of a delicate shade of soft lavender-blue and broad falls of pale lavender, against which a rich orange beard shows conspicuously. It is a very large flower and measures five and a half inches in depth. Another seedling is a gigantic Archeveque some three feet high and with flowers three times as large as in the older sort, but of exactly the same colour, save that the standards are a little richer in tone. Another fine novelty of rich, rosy plum colour is in the style of Her Majesty, but of a better and deeper colour. A seedling of the squalens breed, of a clear, cloudy blue, is very promising. No. 190, P., is a glorious Iris, with a tall, bold spike, of lavender-blue colour, whilst 57, P., is a clear pink flower, of excellent shape, and developed on a strong spike. No. 68 has a gigantic flower of the Alcazar type, but almost double the size. A pretty Cengialtii pallida Iris, with brilliant, rosy crimson flowers, that are produced with great freedom, gives much promise as a fine garden plant. No. 179, of the Germanica type, has beautiful chocolate-brown falls and golden standards; a variety of much worth. No. 81 is a pallida seedling with broad falls of blue colour with a purple suffusion and clear blue standards. The form of this fine seedling Iris is all that could be desired. Another novelty that attracted our notice was a Belladonna pallida seedling of a delightful blue colour. No. 430 is a charming Iris of the squalens section with buff apricot standard and madder crimson falls, which are beautifully reticulated.

Altogether there are 16,000 seedling Irises in this nursery that have not yet flowered, and as the parents have been selected with the knowledge that this noted Iris-raiser possesses, they will doubtless include many that will be heard of in the future. Amongst the newer named sorts Lady Sackville has standards of the palest azure blue colour and rich blue falls that are reticulated with chocolate at the base, and set off by a fringe of orange; Mrs. Fred

Stern has standards of bright rose colour and falls of a richer rose; Mrs. Jennie Pearson is a glorious Iris of the palest blue colour; Eden Philpotts is a very distinct sort, with flowers of the largest size, often measuring more than six inches long, and coloured bright steely blue with a conspicuous yellow crest; and Miss Broughton, a tall variety bearing large, brilliantly coloured flowers with pale purple standards and bright crimson falls with a white ground at the base, on which rises a bright yellow crest.

Others that attracted our special notice were *I. Cengialtii*, The Czar, a beautiful shade of silvery blue with purplish-violet falls, that stand at right angles, and Cengialtii Perry's Favourite, a variety of the largest size and of rich violet colour in all the segments.

All the Irises in this nursery seem to grow with extra vigour, and Mr. Perry attributes their success in part to the use of burnt garden refuse and burnt soil. The large bed of tall, seedling, bearded Irises was on ground that had been top dressed with five inches of this burnt ballast, and from their appearance this material is eminently suited to Irises. Beside the Irises the nursery includes much else that is of interest, and Mr. Perry has many frames and beds filled with seedling Lilies; the extent to which Lilies are raised

back in records to the twelfth century. The "Permain" Pear is also of great antiquity, and is mentioned in 1285. Later it appears in Le Lectier's list, though it seems to have disappeared by Leroy's time, since he does not refer to it. Anyhow, both Apple and Pear must be considered together.

That the name has nothing to do with shape, as is now sometimes pretended, is clear from Gerard (1633), who uses the terms *Platomela* and *Platurchapia* (*platymela* and *platarchapia*); these evidently refer to a flattened fruit. Later we have the carefully executed figures given by T. A. Knight (*Pom. Hereford*, 1811), in which the specimens are evenly elliptical in shape in the case of the Old Pearmain; the other Pearmain he figures is The Loan, but its shape cannot be seen in the plate, although it is interesting to observe that he suggests it really to be the Marigold Apple, which, according to Worlidge (1676), was "sometimes called Johns Pearmain, from its likeness to a Pearmain." Here colouring seems to have been the Permain feature, as also with Philips (1709). Size also has evidently no connection with the name.

John Rogers (*The Fruit Cultivator*, London, 1837) wrote of the Pearmains: "Why they are called by this specific name is not very evident; but it appears that it is a cognomen



FIG. 182.—A WELL-TRAINED VETERAN TREE OF APPLE KESWICK CODLIN.
(SEE PAGE 337.)

in this nursery may be judged from the fact that there is one batch of seven to eight thousand hybrids of *Lilium candidum*. Crosses of *L. Parryi* and *L. pardalinum* have given some glorious hybrids, of which the most striking had rich, orange-coloured flowers. Pardon-parry, which gained the Royal Horticultural Society's Award of Merit on July 5, 1921, is a very beautiful Lily with yellow flowers freely spotted with dark brown. A cross between *L. superbum* and *L. pardalinum* has resulted in another very fine hybrid.

In the glasshouses plants of Mr. Farrer's *Nomocharis pardanthinum* were finely in bloom, and Farrer's description of this beautiful flower is in no wise exaggerated, for the flowers are like miniature Lilies of shell-pink colour with crimson spots at the base.

FRUIT REGISTER.

PEARMAIN APPLES.

"POMONA" (*Gard. Chron.*, June 10, 1922, p. 306) writes: "The name Pearmain has always been understood by fruit growers and pomologists to indicate a conical or pointed variety." This may be true to some extent of writers since somewhat before the middle of last century, but hardly accords with earlier records. The "Permene" or "Permaine" Apple goes

of some kind of pre-eminence." Summer P., "small size and oval", Scarlet P., "oval and about the middle size"; Royal P., "large," no shape given; Chester P., "small, quite the pearmain shape (that is, larger at one end than the other)"; Lamb Abbey P., "the fruit is less tapering than other pearmains, but there is a family likeness in the eye and stalk"; Herefordshire P., "middle size, oval, tapering towards the stalk, the eye and stalk like the other pearmains"; Winter P., "middle size, oval, somewhat tapering to the stalk, at which it is a little flattened." In respect to modern introductions, the use of the name Pearmain remains mysterious, for there are many which, so far as shape is concerned, present much more conical appearance, and yet have escaped being classed as Pearmains.

The trouble and confusion with a piriform, or rather ob-piriform, shape, probably arose from the two old prefixes "par" and "per" having become written with both the vowels by some seventeenth century writers.

Elsewhere (*Gard. Chron.*, October 12, 1918, and *Journal of Pomology*, Vol. 2, p. 115) I have pointed out that probably originally the term was applied to long-keeping varieties, and that the Latin "*permanere*" and old French "*permaindre*" and "*permaindre*" showed the source of the word, which would be better spelt as Permain or Parmain. H. E. Durham.

HOME CORRESPONDENCE.

Leaf-Curling Plum Aphid.—I am fully convinced that *Market Grower's* method of spraying with nicotine and soft soap for leaf-curling Aphid before the opening of the blossom is the best and correct way to combat this pest. I have for several seasons past made a point of spraying Plum trees before the opening of the bloom, but last season, owing to being ill in bed with a severe chill, this work was overlooked, with the result that the trees were badly attacked with this leaf-curling pest. Although the trees were sprayed immediately the bloom was set it appeared to be too late, and undoubtedly the Aphides had protected themselves in the young leaves. To make doubly sure the trees were sprayed twice this season before the opening of the bloom, with excellent results, for they are making clean, healthy growth, with no signs of leaf-curling Aphid. *T. Pateman, The Node Gardens, Welwyn.*

A Veteran Apple Tree.—I send you a photograph (see Fig. 182) of an old tree of Keswick Codlin Apple, which has been planted over fifty years, and bears well in most seasons. This proves that trees properly cared for can be kept in good condition over a long period. The tree has been under my charge for over twenty-two years.—*Jno. W. Barks, Castle Estate Office, Betchingrey, Surrey.*

"Breaking" in Freesias.—In answer to Mr. Jacob's note on Freesias (p. 255), I am glad to say I have found no "breaking" in the variety Merry Widow, and very little in other varieties, though once a flower breaks it is broken for ever, as in Tulips, and in the majority of cases breaking spoils a Freesia. As to "duds" I have had none this year, due, I feel sure, to the hot dry summer of 1921, which ripened the corms thoroughly. I have been of the same opinion ever since the question arose as to "duds." I think Mr. Jacob will remember my writing him that I felt sure "duds" were the result of insufficient ripening. I may be wrong, of course, but my experience is that a thorough baking in full sun is necessary to avoid "duds" appearing in the following season. *T. H. Dalrymple, The Nurseries, Bartley.*

Branched Tulips.—Mr. Jacob, in his notes on Tulips, on page 269, draws attention to Monsieur S. Mottet and its branching habit. I do not know this particular variety, but among the varieties I have grown this year Whistler developed this habit to a marked degree. Of fifty bulbs planted eight only carried a single bloom. Of the others four had four flowers on a stem, nineteen had three, and the remainder two. *C. G.*

White Fly.—The remarks of "*Majester Palae*" on p. 294 lead me to give my experience of the pest here. Last summer we had a very bad attack of White Fly, and neither fumigating with nicotine nor spraying with various specifics were of any avail to keep it in even reasonable check, with the result that at the end of the summer our Tomatoes were practically ruined. This spring White Fly again attacked our plants and gradually got worse, until I tried "*Alvesco White Fly Fumigant*," made by Messrs. Murphy and Son, Mortlake. I am glad to state that this specific proved a complete cure, and all our houses are now clear of the pest. I confidently recommend this specific to anyone bothered with the pest, and claim that if the directions are followed out, no matter how bad the attack, it will destroy the fly. *Alvesco* is quite harmless to Tomatoes and easy to use, having to be simply poured on the floors of the houses to become evaporated. *J. Chilcott, Dogleap Gardens, Limavady, Co. Derry, Ireland.*

Hardening Plants (see p. 251).—The leader on hardening plants was timely and most interesting, but may I venture to differ from the dictum that spraying frozen plants hastens the thawing. If so, why not spray with warm water and finish the job (and the plants) quicker? The best practice is to shade the plants, spray them with ice-cold water, and open the ventilators

sufficiently to cause a gentle current of air. In hot climates the natives put a snailie (porous pot) with tepid water and hang it in the air, and the evaporation from the outside causes the water inside to become ice-cold. Again, if a human being is frost-bitten, the remedy is snow rubbed gently on the part affected. In both examples thawing is checked, not hastened. So with plants, cells that are frozen have the air driven out and are distended to bursting point, and a quick thaw means the sudden inrush of air and the fracture of weakened cell-walls, thus causing the death of the parts affected. That is my opinion, but I am open to correction, because I am—*Only a Gardener.*

Flowering of *Rhododendron sino-grande*.—The statement that *Rhododendron sino-grande* is flowering this year for the first time (see p. 291) in this country is not strictly accurate. I saw a plant in full flower in Mr. Tremayne's garden at Heligan, Cornwall, in June, 1919. This spring it was to be seen flowering in many Cornish Gardens. *C. W. James, Welbeck Street, London, W.*

Fasciated Alder Growth.—I am sending you a curiously fasciated shoot of Alder, which I hope may interest you and your readers. The



FIG. 183. FASCIATION IN ALDER.

specimen was found in a small copse here, and at first sight appeared to be a small horse shoe caught up in the bush. I also enclose a photograph, which you may like to reproduce (see Fig. 183). *K. E. P. Trench, Belle Orchard, Hawkhurst, Kent.*

Dunkeld Larches (see p. 258).—The following extract from a MS. of my great great grandfather is of interest, as it gives the date of planting, also the girth of one of the Dunkeld Larches measured at 5 feet in 1817: "One of the famous Larch trees at Dunkeld, which the present Duke of Athol's father brought over as greenhouse plants in 1738, measured, August 17, 1817, girth at 5 ft., 13 ft." *H. Clinton Baker, Bayfordbury, Hertford.*

Tulip Carrara.—I have noticed that Tulip Carrara, which was given a First Class Certificate at the Chelsea Show, is described as a Darwin variety. I have grown this Tulip, and always regarded it as a Cottage variety, and Messrs. Barr and Sons so describe it in their list. I believe it was raised by Mr. Krelage. Who is right? *W. A. Watts, Anglesey.*

Poor Fruit Prospects.—Although fruit trees of all kinds, and Apples, Pears and Plums in particular, flowered in profusion in my garden, my fruit crops are almost nil. Is this general? *Essex.*

SOCIETIES.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

The monthly meeting of this society was held in the R.H.S. Hall on Monday, June 12th, Mr. Chas H. Curtis presiding. Five new members were elected. One member withdrew interest amounting to £5 0s. 4d. Five members over the age of seventy years were allowed to withdraw sums from their deposit accounts amounting in all to £228 11s. 7d. The sick pay for the month on the ordinary side was £34 15s. 8d. and on the State side £49 12s. 4d., and maternity benefits came to £4. The trustees were instructed to invest a further £500. Arrangements are being made with a view to holding the annual dinner during the R.H.S. Holland Park Rink Show in the autumn.

ROYAL SCOTTISH ARBORICULTURAL.

ABERDEEN BRANCH.—The members of this branch held an excursion on Saturday, 17th inst., the venue being the beautiful estate of Castle Forbes, on the banks of the Don, the seat of the premier Baron of Scotland, Lord Forbes. There was a large and representative attendance; the weather was excellent, and the sylvan beauty of this part of Aberdeenshire was seen under the most favourable conditions.

The party was warmly received by Lord Forbes, who, throughout the whole day's proceedings, proved in very truth a guide, philosopher and friend. Cattlehill Wood was first visited, where some capital specimens of Spruce and Scots Pine, of about 50 years of age, were seen. Lying low, it was quite evident the soil conditions were more suitable for the Spruce than the Scots Pine. The former were of magnificent growth and excellent in quality.

At this stage, Mr. Tait, of the Limerick Paper Mills, exhibited samples of paper which had been made from Spruce obtained from Castle Forbes. The paper was of the very finest quality, and was very favourably commented on by the party. The episode aroused an interesting discussion as to whether it would not be possible to grow big enough Spruce woods to supply a large part of the requirements of the paper mills situated on the banks of the Don, and the conclusion came to was that it would be quite feasible.

The fine old woods on the Black Knap were next visited. The hill contains rare specimens of Scots Pine, Spruce, Oak, and other trees, planted about 1770, a period when tree planting in the north of Scotland was very active. A goodly part of the hill has been cleared, but a large part still stands, and this is to be treated as amenity woods. Some hill climbing was then enjoyed on a spur of Bennachie, where many years ago one of the best crops of Larch ever produced in this country was cut by Mr. Millar, a well-known timber merchant. The Bennachie area is to be afforested by Lord Forbes after planting on the Black Knap is completed. Some experimental plots of the following Larches, which have recently been planted, were next visited. They are *Larix kurlensis*, *L. dahurica*, and *L. Rupprechtii*, all recently introduced.

The nurseries on the estate were then inspected, and proved one of the most interesting and instructive items in the day's programme. Started in 1920, the nurseries are well stocked with different species of Conifers. In this area of Aberdeenshire it is extremely difficult to raise trees in nurseries because of frost, but this obstacle has been obviated at Castle Forbes to some extent by the adoption of a special method of protection. In the nurseries the visitors found Larch, Scots Pine, Sitka Spruce, Abies grandis, and the Western American Larch, which is very difficult to raise in most parts of this country, but here was thriving particularly well. The Sitka Spruce is susceptible to frost, but the others looked quite healthy. The beautiful trees in front of the Castle and stretching down to the Don were greatly admired. Handsome specimens of Spanish Chestnuts, Copper Beeches, Limes, and Elms formed an umbrageous display which it was

felt could hardly be equalled, certainly not bettered, in any part of this country.

After hours of rambling among the woods, the party were kindly entertained by Lord and Lady Forbes. Mr. John Michie, M.V.O., as senior vice-president of the branch, expressed the pleasure the members had experienced on their visit to Castle Forbes. They had seen the beautiful valley of the Don, the woods in various stages, the nurseries which were going to produce the sylvan beauty of the country which had been more or less depleted of forests, and enjoyed the hospitality of Lord and Lady Forbes. From the keen interest his lordship took in the subject of forestry, he hoped for great results. They returned to him their warm thanks for his kind invitation, and particularly to Lady Forbes for kindly honouring them with her presence that day. Lord Forbes returned thanks, and then showed the party interesting relics in the Castle, many of them associated with the history of the family and Scotland. A tour was then made of the spacious and well-stocked gardens, and thus concluded an excursion which will ever remain memorable in the annals of the Society.

A business meeting of the branch was then held, Sir John Gladstone, Bart., of Fasque, presiding. Resolutions recording the deep regret felt at the death of Mr. Alexander Forbes Irving, of Drum, a greatly esteemed member of the Society, were passed, and the next excursion was fixed to be held to Durris Estate, on September 16.

Obituary.

Abner Hassall.—We regret to have to record the death of Mr. A. Hassall, which took place at his residence on June 15, after a very brief illness and while apparently he was but little beyond the prime of life. Mr. Hassall was greatly interested in Orchids for many years, especially in the Southgate Orchid Nurseries, formerly of Messrs. Lewis and Co. and afterwards Stanley, Mobbs and Aston, which was taken over as Hassall and Co., with Mr. John C. Cowan as manager, in January, 1911. The change was a great success, Mr. Cowan enlarging the scope of the firm, which was chiefly famed for Brazilian Orchids, by making the hybrid department under his direct supervision the leading feature, their new Cattleyas, Laelio-Cattleyas, and Brasso-Laelio-Cattleyas being among the best yet produced. Mr. Hassall had other business interests, which he successfully pursued, and was much esteemed by all who knew him.

William Parkin.—While engaged at his ordinary duties, on June 13, Mr. William Parkin, curator of Ruchill Park, Glasgow, was seized with illness and expired in a few minutes. He was overcome with faintness, and went to a well for drinking water, and while there expired. Mr. Parkin, who was only fifty-three years of age, had been in the service of the Parks Department of the City of Glasgow for about sixteen years, and was for a long time in charge of Ronken Glen Park, but was transferred to Ruchill Park about a year ago. Mr. Parkin, who belonged to Lanark, leaves a widow and two children.

ANSWERS TO CORRESPONDENTS.

NAMES OF PLANTS: R. W. N. 1, *Pyrus Aria*; 2, *P. intermedia*; 3, *Spiraea van Houttei*; 4, *Amelanchier canadensis*; 5, *Phillyrea decora*; 6, too small to identify; 7, *Acer platanoides* var.; 8, *A. pseudo-platanus* var. *aucubae-folium*; 9, *Acer opulifolium*; 10, *Pyrus americana*.—*Torbau*. *Petteria ramentacea*.—*M. B.* The white flower is *Staphylea colchica* and the other *Euonymus europaeus*.—*M. P. H.* *Primula malacoides*.

PEACH FRUITS DROPPING: W. H. B. Your Peaches are evidently growing in too rich a compost, and will not fruit satisfactorily while in their present extra vigorous condition. Root-prune the trees next October, give

the roots no manure, except a little bone-meal, and incorporate more open material, such as lime rubble, with the soil. To grow Peaches well the trees should be planted in a moderately rich compost and fed only when carrying heavy crops of fruit. The roots should be examined at least every other year to encourage the development of hard, short-jointed wood of moderate growth.

PEACH LEAF CURL: J. C. This disease is always more in evidence when there is a sudden fall in temperature, and especially when cold winds prevail, but it is checked by an increase of temperature. The affected leaves should be removed and burnt. Spraying the trees with Burgundy mixture just before the leaf buds burst is a preventive measure that has proved eminently satisfactory; the mixture is rendered more effective if $\frac{3}{4}$ pint of milk is added to every three gallons, as this addition increases its adhesiveness.

RICHARDIAS (ARUMS) UNHEALTHY: A. B. Your plants are affected with the bacterial disease of Arum Lilies recently investigated by Dr. Bewley, Director of the Lea Valley Research Station, Cheshunt, from whom, doubtless, information as to its control can be obtained.

TOMATO DISEASED: C. H. The plants are affected with foot rot disease, caused by the fungus *Phytophthora cryptogaea*. The remedy is the use of the Cheshunt compound described by Dr. Bewley in a recent number of the *Journal of the Ministry of Agriculture*.

VEGETABLE MARROWS: H. M. By stopping the main shoots of Marrows, the plants will develop side shoots freely, and, if these, also, are stopped after they have grown a reasonable length, short, fruitful growths will develop and prove more profitable than when the plant is allowed to run unrestricted.

WILLOW BARK RIDDLED WITH HOLES: R. H. L. The injury has been caused by the Willow Gall Gnat, *Cecidomyia saliciperda*, one of the two-winged or dipterous insects. The female insect deposits her eggs in chains or rows on the bark. The eggs are extremely minute, roundish at the ends and orange-yellow in colour. The pupa, which is yellow, develops just under the bark, and when the flies escape the bark is seen to be riddled with small holes. Infested shoots—which may be distinguished by their irregular, streak-like growths—should be cut off and burned before the flies have issued. Cart grease or some similar material applied to the places attacked makes it difficult for the flies to escape, for most of them become entangled in the sticky material.

WHITE FLY: C. E. S. In place of potassium cyanide you may use the following formula: Water 3 fluid oz., sulphuric acid $1\frac{1}{2}$ oz., sodium cyanide 1 oz. Put the water first into a glazed earthenware jar and add the acid slowly. The amount of cyanide to use is from one-fifth to one-quarter oz. per 1,000 cubic feet, according as to whether the house can be more or less completely sealed. According to the size and construction of the house the charge is distributed in a number of jars placed along the centre of the house. Prepare the water and acid in the jars in the afternoon, weigh out the proper quantities of cyanide and wrap each charge in paper. Cut off the fire-heat if this can be done with safety. Close the ventilators at dusk and place a cyanide charge by the side of, but not in, each jar. Then, the exit door being open, walk down the house from the far end, pour the cyanide from the paper into each jar in turn without undue hurry, but without pausing. Pass out and lock the door, which should be kept locked until dawn. It should then be opened and the ventilators also, which should have been arranged so as to be opened from the outside. After one hour of ventilation the house may be entered.

Communications Received.—W. G. W. L.—A. T. —W. G.—G. A. O.—B. E. C. H. J., Notts.—J. A. C.—N. McM.—J. T.—A. Y. L.—M. A. B.—L. S. A.—A. C. P.

MARKETS.

COVENT GARDEN, Tuesday, June 20th, 1922.

VEGETABLES AND FRUITS.

Practically all fruits have felt the competition of the Strawberry, and prices have dropped all round. Ample supplies of Australasian Apples are on offer, and their condition is reported as better. English Cherries are now coming to hand, arrivals from France having nearly finished. Black and Red Currants are also arriving from the same country, and are in fair demand. Oranges and Lemons are quoted easier. Plums and Apricots from Spain are on offer, although supplies of the latter show a slight falling off. Choice fruits such as Grapes, Melons, Peaches, Nectarines, and Figs are meeting only a moderate demand. Gooseberries are plentiful and lower in price. New Potato values, after improving slightly, have receded. English Tomatoes are also easier, the quantities being much heavier than of late. The Cucumber trade is, however, poor, the very large quantities of Dutch Cucumbers materially altering values of home grown produce. Asparagus has been a better trade, supplies being much lighter. Mushrooms are quoted comparatively low, owing to larger arrivals. Green vegetables are fairly plentiful. Peas are cheaper, and old Potatoes are a quiet trade.

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Adiantum decorum, doz. bun.	10 0-12 0	Lilium longiflorum ..	3 6-4 6
—cuneatum, per doz. bun.	8 0-10 0	Lily of the Valley, per doz. bun.	18 0-36 0
Asparagus plumosus, per bun.		Marguerites, yellow, per doz. bun.	3 0-4 0
long trails, 6's	4 0-5 0	Nigella ..	
med. sprays ..	2 6-3 6	per doz. bun.	4 0-9 0
short ..	1 0-1 6	Orchids, per doz.,	
—Sprengeri, per bun.		—Cattleyas ..	12 0-18 0
long sprays ..	2 6-3 0	—Cypripediums ..	6 0-9 0
med. " ..	1 3-1 6	Paeonies per doz. blms.,	
short ..	0 9-1 0	—White ..	1 6-2 6
Carnations, per doz. blooms ..	2 6-4 6	—Pink ..	1 6-2 6
Cornflower, per doz. bundle	1 6-2 6	—Blush ..	1 0-2 0
Croton leaves, various, per bun.	2 6-4 0	Pelargonium, per doz. bunch,	
Chrysanthemum maxima, per doz. bun.	2 0-4 0	—double scarlet	15 0-18 0
Coreopsis, per doz. bun.	2 6-3 0	Pink Her Majesty per doz. bun.	6 0-9 0
Delphiniums, various, per doz. spikes ..	0 6-1 6	Pyrethrum per bun.,	
Galatardia, per doz. bun.	3 6-4 0	—Double White	4 0-6 0
—Sultan, white per doz. bun.	6 0-8 0	—Pink ..	2 0-3 0
—mauve, per doz. bun.	6 0-8 0	—Single ..	2 0-2 6
Fern, French per doz. bun.	1 0-1 3	—Red ..	2 0-2 6
Forget-me-Not, per doz. bun.	4 0-6 0	Richardias (Arums), per doz.	4 0-5 0
Gardenias, per box ..	2 0-4 0	Roses, per doz. blooms—	
Gladioli Hally, per doz. spikes	5 0-6 0	—Frau Karl Druschki ..	1 3-1 6
—Ackermannii per bun.	1 6-2 0	—General Jacqueminot, per doz.	1 0-1 6
—The Bride, per bun.	1 0-2 0	—Madame A. Chatenay ..	1 6-2 6
Gypsophila per doz. bunch	3 0-6 0	—Melody ..	1 6-2 6
Heather, white, per doz. bun.	8 0-10 0	—Niphedea ..	1 6-2 6
Iceland Poppies per doz. bun.	1 6-2 0	—Ophelia ..	2 0-3 0
Iris, blue, per doz.	1 0-1 3	—Liberty ..	2 0-3 0
—mauve, per bun.	0 9-1 0	—Richmond ..	1 6-2 6
—Spanish yellow, per bun.	1 0-1 6	—Sunburst ..	1 3-2 6
—white, per bun.	1 0-1 6	—White Crawford	1 6-2 6
Lapageria per doz. ...	3 6-4 0	Scabiosa caucasica, per doz. bun.	4 0-5 0

REMARKS.—Large consignments of outdoor flowers are now available. Numerous varieties of Delphiniums are on sale, in excellent condition, and these flowers comprise one of the most prominent subjects in the market, although the commoner varieties exceed the present demand. All outdoor subjects show a further increase in numbers, with a general reduction in prices. Statice sinuata is becoming more plentiful in white, yellow, and mauve colours. Other attractive lines are the various Gladioli, including Brechnevsky, Halley, Prince of Wales, and The Bride. Peach Blossom, Blushing Bride, and Ne Plus Ultra. The Bride is arriving in good condition, but the last three are only medium in quality. Pyrethrum and Paeonies show signs of finishing. Roses exhibit no improvement on last week. The supply of good outdoor blooms remains limited, the most prominent sorts being Mrs. J. Laing, Molly Sharman, Crawford, Frau Karl Druschki, and General McArthur. Carnations are fewer in quantity and very medium in quality; no better blooms are expected until the newly grown plants are in flower. Lilium longiflorum is again rising in price owing to a more limited supply, and the same is true of Lily-of-the-Valley. Larger supplies of Lapageria and Stephanotis are on sale. There is an abundant supply of Mrs. Sinkin Pinks, and double white Stocks, also Cornflowers and Gypsophila. Spanish Irises are finishing.

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Nerine Fothergillii (September 2, 1922).

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ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, June 28, 10 a.m. Bar, 29.8; temp. 62°. Weather—Dull.

The Chelsea Shows.

The last Chelsea show will doubtless remain in the memories of those who had the good fortune to witness it as a splendid illustration of the skill and good taste of British horticulturists. Rarely, if ever, have so many groups of magnificently staged plants been seen at any exhibition. From the point of view of the general public, which looks for and enjoys wealth of floral beauty, the last Chelsea show may be described as the most successful since the war. Nevertheless, we are inclined to think that horticulturists concerned with the maintenance of the great reputation which this country enjoys as a producer and introducer of new plants of horticultural value or promise, must have come away from the exhibition with somewhat mingled feelings; gratitude for and full of admiration of the many exhibits of undoubted excellence; disappointment at the relative scarcity of new plants and of recently raised or introduced varieties. If this is an accurate presentment of the feelings of horticulturists, it would seem that the moment has come for the Royal Horticultural Society to examine carefully into the question whether it is possible to do more at the Chelsea show to encourage the staging of new plants and those of conspicuous promise. Although we are aware of and applaud the many activities which the Royal Horticultural Society displays for the benefit of horticulture,

yet we would commend to its notice the desirability of making renewed and special efforts to promote yet more vigorously what may be called the creative side of our horticulture. It is possible that this could be done by an extension on a well-considered and liberal scale of their awards and rewards for exhibits. Whilst maintaining the existing system of awards it should be practicable to introduce a series of new rewards for especially noteworthy, new and promising plants, which mark a distinct advance on those already in our gardens. As matters are at present, an exhibitor is apt and wise to include his novelties in his large exhibit. But there they may fail to attract the attention they deserve. There are, of course, the special awards A.M. and F.C.C., but our point is whether a judicious and liberal allocation of rewards for horticultural enterprise might not be added thereto! There is, of course, a certain air of importance created by caging specimens of novel or new plants behind a wire screen, but we think that a more imposing method of exposition might be tried. Where possible these new plants and new varieties should be so exhibited that their full value may be judged, not as isolated specimens—though in some cases they must be so represented—but as groups. Raisers and introducers of new plants have many troubles and few rewards, and to encourage and recompense them must always be among the first concerns of the Royal Horticultural Society. The object of such an exhibition as the Chelsea show is to display to the world not only the present performance of British horticulture, but also its promise. Of the performance at Chelsea no praise can be too high, but with the increasing popularity of gardening there is a danger—signs of which were not wanting at Chelsea—lest the spectacular side of horticulture should, like the lean kine, devour the fat kine—the creative side of horticulture, which finds expression in the improvement and discovery of new plants and the encouragement of the cultivation of rare and difficult kinds of real garden value.

Retirement of Mr. William Watson, A.L.S., V.M.H.—The retirement of Mr. W. Watson from the Curatorship of the Royal Botanic Gardens, Kew, at the end of the present week, serves as a reminder of the inevitableness of the passing of time. To many thousands of horticulturists "W. W." and Kew seem inseparable, and to the majority of gardeners and botanists, Kew will not be quite the same place in the absence of the strong personality of Mr. Watson, who has been Curator since July, 1900, when he succeeded Mr. George Nicholson. Mr. Watson has always maintained that the first qualification of a gardener is practical experience coupled with cultural ability, and during his many years of service at Kew, he has set this ideal before several generations of young gardeners. To Mr. Watson's qualifications, qualities and services, we hope to make further reference in another issue. For the moment we add our good wishes for his continued health and a long period of happy retirement from public duties to those he will receive from hosts of appreciative horticulturists throughout the world.

New Curator at Kew.—Mr. W. J. Bean, V.M.H., for many years Assistant Curator, and formerly Arboretum Foreman, succeeds Mr. W. Watson as Curator of the Royal Botanic Gardens, Kew. Mr. Bean has a world-wide reputation for his unique knowledge of trees and shrubs, but his acquaintance with Orchids, tropical plants and hardy plants is scarcely less intimate. He is a Yorkshireman by birth and education, and obtained his early experience in gardening at Belvoir Castle, whence, after four years, he went to Kew, in 1883. At Kew he became sub-

foreman of the Palm House, and later of the Orchid Department, and afterwards was foreman in the Temperate House and in the Arboretum, becoming Assistant Curator in 1900. Mr. Bean has travelled somewhat widely on the Continent and in the United States, always adding to his knowledge, increasing the collections at Kew, and helping others in his quiet, modest way. He had written several books on horticulture and has been a contributor to these pages for very many years, but his chief literary work is *Trees and Shrubs Hardy in the British Isles*. Old Kewites will remember that for a period of five years Mr. Bean edited the *Journal of the Kew Guild*; they will also remember his abilities as a cricketer, and, later, as a tennis player. Mr. Bean does not love the limelight, therefore we make no attempt to refer in detail to the services he has rendered Kew in particular, and to horticulture in general. We would, however, add that in recognition of these services he was awarded the Victoria Medal of Honour in Horticulture in 1917.

Award of the "White" Medal.—The Massachusetts Horticultural Society has awarded the George R. White Medal, the highest horticultural award in America, to Mr. A. C. Burrage, President of the Massachusetts Horticultural Society and of the American Orchid Society. Mr. Burrage has, during the past few years, organised exhibitions of a special nature, including one of tropical Ferns and wild Orchids, and of wild flowers and wild Ferns. The latter show, held on May 3 of this year, is described in the *Florists' Exchange* as the greatest horticultural exhibition ever held in the United States and in point of attendance it eclipsed every exhibition in the history of the Massachusetts Horticultural Society. The public was admitted to the show free of charge.

The Royal Society Conversazione.—The Conversazione of the Royal Society, held in the Society's rooms at Burlington House on June 20, was notable by reason of the numerous and interesting botanical exhibits. Professor Seward and Mr. R. E. Holttum showed specimens of fossil and recent plants which they had collected during their recent expedition to Greenland. The specimens exhibited in striking manner the contrast between the present vegetation of Greenland and that of the Cretaceous epoch when Ferns closely resembling tropical and sub-tropical Gleichenias were abundant. From Kew were sent specimens of the double Coconut, *Lodoicea seychellarum*, which is confined to the Seychelles. One of the specimens had germinated and pushed out its long, thick cotyledonary tube, which, like that of an Onion, carries the plumule and radicle out of the seed. Another Kew exhibit was that of *Ecanda rubber* from Angola. The source of this rubber is the tuber—which may weigh so much as fifteen pounds—of *Raphionacme utilis*. Dr. Rendle showed an interesting series of specimens and photographs illustrating replacement of the terminal bud in Horse Chestnut seedlings. An exhibit which attracted much attention was that provided by Dr. Alexander Fleming, which illustrated the recently discovered fact that tissues of the animal and plant body have the power of secreting a substance, lysozyme, which exercises a remarkable lethal action on certain bacteria. So powerful is this destructive action that it may be demonstrated in "tears" diluted to one in five million of water.

Sale of Diseased Plants.—The Sale of Diseased Plants Order of 1921, which came into operation on October 1, 1921, has proved very efficacious in preventing the sale of diseased plants and trees. Close watch was kept on sales throughout the country by the inspectors of the Ministry of Agriculture during the past season, and it was found that the standard of health of the plants exposed for sale was on the whole satisfactory. In some cases, it was necessary to call the attention of persons concerned to the presence of disease, but legal proceedings were instituted in one case only. There was, however, a strong feeling throughout the industry that further powers should be taken in order to enable the Ministry's inspectors to require

the treatment or destruction of badly infected plants or trees exposed for sale, and a recommendation to that effect was passed at the last meeting of the Minister's Horticultural Advisory Council. Following on this recommendation, the Minister has issued a new Order, which comes into force on July 1, giving powers to the inspectors of the Ministry to require the destruction or disinfection of any plant exposed or offered for sale which is substantially affected by any of the scheduled pests, in addition to the existing power to prevent the sale or movement of such plants.

Hereford Rose Show.—The schedule of the Rose show, to be held in the Shirehall, Hereford, on the 19th inst., provides liberal prizes in twenty classes for Roses, seven classes for hardy perennial flowers, Sweet Peas and Carnations, and four decorative classes. During the past two years the committee of the Hereford and West of England Rose Society has not received that enthusiastic support its work deserves, and in a letter sent out with the schedule the chairman, Sir Geoffrey Cornewall, wrote: "The committee feel that, considering the show is in a measure a county institution, it has a very meagre backing. This does not refer so much to the subscription list, though this, of course, is a prime essential, as to the lack of personal interest. There seems to be a strong feeling amongst a large proportion of the gardening community against showing, a feeling which is, of course, fatal to the efforts of the Show Committee. They not only lose thereby an equivalent proportion of exhibits, but also that personal interest and patronage which would follow entries. I appeal to those who love beautiful flowers to remember what a great part exhibitions have played in the improvement of varieties and methods of cultivation, and to help the committee by all the means in their power to make this season's show on July 19th an exhibition worthy of the horticulture of the county." We hope Sir Geoffrey Cornewall's appeal will prove successful.

Flowers in Season.—Mr. Amos Perry has forwarded flowers of his beautiful form of *Coreopsis grandiflora*, known as Perry's variety. The flowers are semi-double and of deep, clear yellow colour. This fine hardy perennial commences to flower early in June and continues in bloom throughout the whole of the summer.

R.H.S. Gardens Club.—The annual meeting and outing of the R.H.S. Gardens Club will take place on Saturday, July 8, 1922, by the kind invitation of Messrs. James Carter and Co. at their establishment at Raynes Park, S.W. (close to the L. and S.W. Railway Station). The tour of the warehouses and trial grounds will commence at 2.30 p.m. The annual meeting will be held at the conclusion of the inspection. Messrs. J. Carter and Co. are very kindly inviting the Club to tea, and in order that arrangements may be made, old Chiswick and Wisley students who hope to be present are requested to notify the Hon. Sec., Mr. W. D. Cartwright, R.H.S. Gardens, Wisley, not later than Monday, July 3.

Conveyance of Pot Plants by Passenger Train.—Just as we go to press we learn that the railway companies have agreed to afford most of the facilities and rate reductions which growers asked for on the occasion of the visit of the deputation from the Chamber of Horticulture, British Florists' Federation and Horticultural Trades' Association, to the Railway Clearing House, just before Whitsuntide. We referred to this subject at some length in our issue of June 10, p. 297.

Gardeners' Royal Benevolent Institution.—The annual festival dinner of the Gardeners' Royal Benevolent Institution, held on Tuesday last, in the beautiful Grocers' Hall, was the 77th of the series and one of the most successful. The Right Hon. Lord Lambourne presided, and he was supported by many distinguished horticulturists and prominent supporters of the Institution, the total number present being 215. The chairman and other speakers expressed their deep regret at the absence of the treasurer, Sir

Harry J. Veitch. Lord Lambourne made a stirring appeal on behalf of the Fund, which he stated required £5,500 annually to carry on its work. Later in the evening, the secretary, Mr. G. Ingram, announced that the total amount collected on behalf of the Fund, at and in consequence of the dinner, amounted to £3,000. A musical programme was rendered, and the whole proceedings were marked with conspicuous success.

Mr. Walter Easlea.—The name of Easlea has for many years been associated with Roses, for Mr. Walter Easlea, head of the firm of Messrs. Walter Easlea and Sons, of Danecroft Rosery, Eastwood, Essex, is the son of a noted Rose-grower who was connected with some of the most famous Rose nurseries in the country, including those of Mr. Thomas Laxton, Mr. G. Prince, and Messrs. Wm. Paul and Son. It is a coincidence that Mr. Walter Easlea, junior, was born in one of the most celebrated Rose-growing districts in England, for his father was then a gardener in a private establishment at Colchester. Mr. W. Easlea commenced his professional career with Mr. Laxton whilst his father was employed by that firm, and he followed him to Mr. G. Prince, of Oxford, and



MR. WALTER EASLEA.

also to Messrs. Wm. Paul and Sons at Waltham Cross, where he remained for many years. In 1909 he acquired land at Eastwood, not far from the flourishing town of Southend-on-Sea, where the soil is of a heavy, clay loam, and most suitable for Roses. The Danecroft Rosery has an area of some sixteen acres, and the whole of it is devoted to Roses, Mr. Easlea, in association with his sons, having built up an extensive business in these flowers. Mr. Easlea is not only a clever grower of Roses, but his writings on Rose matters are always read with interest, and his essay on the Hybridisation of Roses won the special prize and medal offered by the National Rose Society for a paper on that subject. He is a frequent contributor to this journal, and also to other horticultural papers. He has won many cups and medals for Roses at exhibitions, and gained several awards for novelties of his own raising. It will be remembered that the hundred-guinea Clay Challenge Cup offered for the best seedling Rose not in commerce, of good form and colour, and possessing the true old Rose scent, was won by Mr. Easlea last year with his variety, Prince of Wales. Amongst other notable Roses sent out by his firm are Climbing Mme. Abel Chatenay, Little Meg, Cherry Page, Lania, Mrs. H. D. Greene, Countess of Warwick, Glow Worm, Lulu, Romeo, Mrs. Ramon de Escofet and Peggy Astbury. Mr.

Easlea, who is a member of the Council of the National Rose Society and a member of the American Rose Society, is a well-known personality at Rose exhibitions, where he is usually either officiating as a judge or exhibiting. During recent years the firm has erected greenhouses, one of which is especially devoted to the raising of seedling Roses. Just now the seedling Rose-house is filled with plants well set with seed pods and with many seedlings which have not yet flowered. Of a quiet, unassuming manner, Mr. Easlea has endeared himself to a wide circle of friends, and he is greatly esteemed in the Southend and Westcliff district, which the old parish of Eastwood adjoins.

Lettuce and Crocus Trials at Wisley.—The Royal Horticultural Society will carry out a trial of autumn-sown Lettuces in their gardens at Wisley this season. A packet of seed of each variety to be tried should be sent to reach the Director, R.H.S. Gardens, Wisley, Ripley, Surrey (from whom the necessary entry forms may be obtained) on or before July 31, 1922. Only varieties suited for autumn sowing should be sent. The society is desirous also of planting all available species and varieties of Crocus for purposes of comparison, and the Director will be glad to receive examples for this purpose so far as possible by July 31, 1922.

Flowering Lilies.—Mr. A. Grove, 2, Albion Street, W.C.2, writes: "I shall be obliged if you will spare me a corner of your space to ask any reader who may have a flowering specimen of one or more of the following species of *Lilium*, kindly to communicate with me: *L. Bakerianum*, *L. Delavayi*, *L. formosum*, *L. myriophyllum* (not regale), *L. Stewartianum* and *L. taniense*."

Horticultural Club Outing.—On Friday, July 14, members of the Horticultural Club will visit the R.H.S. Gardens, at Wisley, and Pyriord Court, Woking, the residence of Viscount and Viscountess Elveden, on the occasion of the annual outing of the Club.

Horticultural College, Swanley.—The annual report of the Governors for 1921 states that the College has been full throughout the year and that forty-five new students were received in January. Miss F. K. Wilkinson has resumed temporarily the post of Principal rendered vacant by the resignation of Miss F. Micklethwait. Prof. V. H. Blackman, Sir Herbert B. Cohen and Miss Eva Smithers have been elected to the Governing Body. Considerable repairs to buildings have been carried out during the year; a new dairy has been erected; existing buildings have been converted into a well-equipped chemical laboratory and the large greenhouses have been restored to their pre-war condition. A small herd of hardy goats of English breed has been added to the live stock and the poultry department has been reorganised. Old students' day has been fixed for Saturday, July 15. During the afternoon there will be a tennis match between the old and present students and a dance in the evening.

Spring Foray of the British Mycological Society.—The spring foray was held at Norwich during Whitsun week-end. The members assembled at the Castle (Norwich Museum) on Friday evening, June 2, and were received by the Museum authorities and a few prominent members of the Norfolk and Norwich Naturalists' Society. On Saturday morning, train was taken to Wroxham, where the party embarked on Mr. E. O. Adcock's houseboat. A landing was made near the Devil's Hole, and the marshes were worked so far as Horning, interesting to mycologists as the birthplace of the late Dr. M. C. Cooke. Several interesting rusts were gathered, the aecial stage of *Puccinia Phragmites* being particularly abundant on *Rumex* spp., as was also the aecial stage of *Puccinia Pringsheimiana* (?) on *Ribes nigrum*. From Horning the journey was made up the Bure to South Walsham Broad by fishing boat and motor launch. Very little was found here, but a colony of large specimens of *Lycoperdon giganteum*, forming a series of rings, was a

source of delight. Two of the largest puff-balls were measured, and found to be 42 inches in girth, with a diameter of 14 inches, thus falling very far short of the American record for this fungus, which gives 64 inches as the longest diameter, by 54 inches in its shorter, though the height of the specimen was only 9½ inches. After the day's collecting was over, Mr. Adcock entertained the members to dinner at Horning. On Sunday morning the party was conducted round the Museum by Mr. Donald Payler, the Assistant Curator. An excursion was made by tram to Trowse in the afternoon, and the Woods of Crown Point estate explored. Owing to the drought, few Agarics were encountered, and search was mainly directed to microfungi. Mrs. Colman kindly entertained the party to tea, and afterwards conducted the members round the garden, where the rare *Uromyces Lilii* was found on *Lilium candidum*. The only previous records of this fungus for the country are Kew Gardens and Birmingham. Mr. Adcock's Tomato and Cucumber houses were visited in the evening, and afterwards the President, Mr. F. T. Brooks, gave a talk on rusts—a particularly appropriate subject in Norfolk. On Monday, train was taken to Whitlingham, and the woods on the borders of Thorpe St. Andrew and Sprowston were visited. Though fungi could not be said to be common, a fair number was found. A meeting was held at headquarters in the evening, and Mr. H. J. Howard (who was principally concerned in making the local arrangements) gave a short account of Mycetozoa, with particular reference to the rare Norfolk forms which he has succeeded in discovering. Votes of thanks were accorded to all who had assisted in making the foray such a splendid success. On Friday, June 16, a lecture was given at University College, Gower Street, W.C., by Professor A. H. R. Buller, of Winnipeg, on "The Organisation of the Hymenium for the Production and Liberation of Spores in Mushrooms and Toadstools." The following day a fungus foray was held in the neighbourhood of Weybridge for the students of London colleges. Mrs. A. A. Pearson kindly entertained the party to tea.

Appointments for the Ensuing Week.—Tuesday, July 4.—Royal Caledonian Horticultural Society's meeting; Royal Agricultural Society's horticultural exhibition (4 days); Bournemouth Gardeners' Association's meeting. Wednesday, July 5.—Colchester Rose and Horticultural Society's show; Cambridgeshire Horticultural Society's show (2 days); National Viola and Pansy Society's meeting and exhibition. Saturday, July 8.—Ringwood Society's meeting.

"The Gardeners' Chronicle" Seventy-five Years Ago.—*Profits of Grape-Growing.* In a vineyard at Newton there are now (June 28) 226 bunches of Grapes, some ripe, and in an adjoining greenhouse is a later crop, consisting of 170 bunches; and in all there have been 426 bunches. There are also Peaches and Nectarines, both on trellises and in pots under the vines. The prices of hothouse Grapes during last month in Covent Garden Market were from 5s. to 10s. per pound. Now, suppose these 426 bunches to weigh, on an average, 1½ lb. each—although some of the bunches measure sixteen inches in length—the result would be 639 lb., and if these 639 lb. were all sold in July and August at, on an average, 4s. per lb., they would realise 2,556s., or £127 16s. profit, for I allow the Peaches and Nectarines to pay for the coals, and the greenhouse plants to pay for the labour. The vineyard measures 36 feet by 16 feet, and the greenhouse 30 feet by 15 feet. This result will show the value of glasshouses when well managed. *R. H., gardener, Newton, near Chester. Gard. Chron., July 3, 1847.*

Publications Received.—*Seaside and Countryside in East Anglia*. Issued by the Great Eastern Railway Company, and edited by Percy Lindley 30, Fleet Street, E.C. Price 6d. *Report of the Fifteenth Meeting of the Australasian Association for the Advancement of Science.* Hobart meeting, held in Melbourne, January, 1921. Published by the Association at Elizabeth Street, Sydney, N.S.W.

TREES AND SHRUBS.

FLOWERING SHRUBS AT DRYNHAM.

FLOWERING shrubs, and especially rare and choice varieties, have flowered uncommonly well this season, no doubt as a result of the hot weather of last summer, which caused the wood to become unusually well ripened. In these gardens the shrubs were a gorgeous spectacle in the early season. The Snowdrop tree, *Halesia tetraptera*, was extraordinarily beautiful, as also were the early *Ceanothus*, notably *C. Veitchii* and *C. dentatus*. Lilacs of all varieties were very floriferous this spring. *Viburnum*s gave a wealth of blossom, especially *V. Carlesii* and *V. tomentosum*.

All the members of the *Pyrus* family and the various *Prunus*es presented gorgeous spectacles when in flower. *Azaleas* and *Rhododendrons* were never better. Of the latter, both the Himalayan and the garden varieties were a lovely sight, and I have never seen a finer display of the variety *Pink Pearl* than our numerous plants presented, but, owing

berries have been splendid, as also have *Spiraeas* of the shrubby section, while those which are coming into flower include *cantonensis* and the like. I have never seen our shrubs flowering so beautifully as they have been this year. *W. A. Cook, Drynham Gardens, Waltham-on-Thames.*

PLANTS NEW OR NOTEWORTHY.

CRATAEGO-MESPILUS ASNIERESII.

Of the three hybrid *Crataego-Mespilus* cultivated in our gardens *Asnieres's Thorn*, the subject of the illustration in Fig. 1, is the most ornamental as a specimen lawn tree.

It originated as a graft hybrid in the garden of M. Dardar, at Bronvaux, near Metz (see *Gard. Chron.*, p. 185, September 9, 1911), being first noticed in 1894. This gentleman had a Medlar (*Mespilus germanica*) grafted on the Hawthorn (*Crataegus monogyna*). Just below the point of union between the stock and scion two shoots had developed, showing intermediate



FIG. 1.—CRATAEGO-MESPILUS ASNIERESII.

to the hot sun and drying winds, their beauty was soon over.

Amongst the subjects in flower now are *Carpenenteria californica*, which is blooming with great freedom; *Styrax Obassia* and *S. japonica*, both of which are carrying thousands of their pure white flowers; and *Abutilon vitifolia*, which has produced its beautiful mauve flowers with great freedom, our largest specimens, about 20 feet high, being laden with them. *Magnolia parviflora* is carrying hundreds of its pretty blossoms and presents a beautiful picture. All the *Magnolias* were good earlier in the season. *Rhus Cotinus coccineus* is most effective planted amongst *Rhododendrons* and the general collection of shrubs. The many varieties of *Philadelphus* are outstanding features in the shrubberies here, especially *P. gracillimum*, whilst *Olearias* have been very beautiful, and *Cornus Nuttallii* has given a wealth of its attractive inflorescences. Our specimens of *Chionanthus virginica*, the Fringe Tree, is some 9 feet high, and is bearing an abundance of its large panicles of pure white flowers, which individually may be likened to strips of tissue paper. This charming shrub was introduced so long ago as 1756 from North-West America, but it is rarely seen in gardens. It does best in sandy soil. The various Bar-

characters between the Hawthorn and Medlar. There was also a marked difference in the individual characters of the leaves on the two shoots. Propagated by grafting, the one having only entire leaves was named *C. M. Dardari*, and the second, with both entire and lobed leaves on the same shoot, forms the subject of this note.

A deciduous tree of bushy habit, with age probably 20-25 feet high, *C. M. Asnieresii* produces quantities of white blossoms, ½ inch across, in corymbs of 6 to 10 or 12 flowers. With age they change to a rose tint. In some nursery catalogues the tree is listed as *Crataegus M. Jules d'Asnières*.

C. M. Dardari is of exceptional interest to the botanical student, as it produces on the same tree three and sometimes four distinct types of flowers and fruits. The large solitary flower of the Medlar (*Mespilus germanica*), typical *C. M. Dardari* with white flowers 1½ inches across, in corymbs of 6 to 8 or 10 flowers; sprays of *C. M. Asnieresii*, and the Common Hawthorn (*Crataegus monogyna*).

The third hybrid, *Crataego-Mespilus grandiflora* (syns. *Mespilus Smithii*, *De Candolle* and *Pyrus lobata*, *Nicholson*) is presumed to be a natural hybrid between the Hawthorn and Medlar. It is found wild in France. *A. O.*

The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Vanda teres and **V. Hookeriana**.—These two terete leaved Orchids are charming subjects when seen in good condition. In some cases they do not produce flowers so freely as could be wished, although, when grown under natural conditions, they produce flowers abundantly. *V. teres* is in bloom at the present time, and during the growing season, which follows immediately the flowering period is over, the plants revel in an abundance of sun-heat, light, and moisture. All terete-leaved Orchids are capable of withstanding a great amount of sun-heat, and should only be shaded during the brightest part of the day, and then only sufficiently to prevent scorching. The work of repotting, resurfacing, or re-basketing, whichever system is adopted, should receive attention soon after the flowers are over. It is a good practice to grow the plants on long teak rods, plunging the rods into the crocks of the pots or baskets in which the plants are grown. Two or three inches of clean, chopped, live Sphagnum-moss forms a suitable compost, and the rod-like stems will soon make new roots, which will quickly adhere to the teak rods, and readily re-establish themselves, as they make aerial roots freely. The plants should be syringed freely, and the temperature forced up by sun-heat on all favourable occasions, by shutting the house early, and exposing the plants to all the light possible. When the growing season is over, the temperature should be reduced to that of the Cattleya house, and the plants kept quite dry at the roots. *Vanda Hookeriana* succeeds grown on the same lines, although it does not flower at the same season. These plants should be induced to make their growths as quickly as possible during the hottest and brightest part of the year, and then resting them carefully during the long, dark days of winter.

THE KITCHEN GARDEN.

By JAMES E. HATHAWAY, Gardener to JOHN BRENNAND, Esq., Baldersby Park, Thirsk, Yorkshire.

Mulching.—Onions, Carrots and Beets should be mulched with spent Mushroom bed manure, and Artichokes, Peas, Cauliflowers and Beans with good rotten manure, which should be well soaked with water after it is applied.

Potato Disease.—Late blight is often very destructive to the Potato crop, and, as a preventive, the haulm should be sprayed with Bordeaux mixture when it is nearly fully grown. One spraying will as a rule suffice in dry seasons, but in warm, moist weather it is necessary to spray on two occasions (at about a fortnight's interval). To make Bordeaux mixture, dissolve 3 lb. of copper sulphate by placing it in a woven bag and suspending the bag in a wooden tub in 10 gallons of water. The copper salt should remain in the tub for a day. Put 2 lb. of quicklime in another tub, add water gradually until the lime crumbles to powder, then add more water until it forms like milk. Strain the milky liquid through a rough cloth when cold and pour into the copper solution, well stirring it at the same time. To ascertain the correct amount of lime water to be added, put some of the mixture in a white saucer and add a few drops of potassium ferrocyanide; when no red shows there is enough. Add 20 gallons of water. Bordeaux mixture should be a blue colour if properly made. It should be made fresh as required. The quantity given above will spray 25 rods of Potatoes.

Potatoes.—Varieties which are required for seed should be carefully looked over, and any rogues removed before the tops die down. Earthing up should now be completed.

THE FLOWER GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

The Shrubberies.—Such plants as Rhododendrons, Lilacs and Brooms should, after the flowering stage is finished, have all the faded blossoms removed, thus preventing the formation of seed pods, for if this is not done, and each is allowed to throw its whole energy into the perfecting and maturing of its seed, then the prospects of a good flower yield during next season will be considerably diminished. Another value that results from this work, is tidiness, as a mass of faded blossom is not a picturesque item in a shrubbery. Care must of course, be taken to preserve the seed of rare plants, if needed for purposes of propagation, and the fruits of others that form objects of great beauty in autumn, such as Crabs, Thorns, Snowberries, and Viburnums. Grafted plants frequently develop growths from the stock, and these, if not checked early, will rob the grafted part of nourishment, and will also have the tendency to grow up and choke, or at any rate, damage it. The grower should continue to prune the various shrubs judiciously after they have finished flowering, to promote a good shape, and to allow the air and sunlight to enter freely and ripen the wood. Newly-planted trees should be watered in dry weather; mulching will also greatly assist in this matter, whilst the careful pruning of old wood to new growths will greatly assist in the promotion of root action. Overhead syringings are also of great benefit to trees and shrubs in hot, dry weather. Staking and tying should be attended to from time to time.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir C. NALL-CAIN, Bart., The Node, Cudecote, Welwyn, Hertfordshire.

Mignonette.—This delightful, sweet-scented annual makes an excellent pot plant, and is always welcomed in the conservatory or dwelling-house. If seed is sown now the plants will be valuable in the autumn. The seed may be sown in pots in which the plants are intended to flower, provided careful attention is paid to watering the seedlings in their early stages of growth. Perhaps the most suitable compost for growing this annual is loam of medium quality mixed with plenty of lime rubble. The soil should be made fairly firm in the receptacle by the use of a small rammer. Five-inch or six-inch pots are useful sizes in which to grow Mignonette. After sowing the seeds, the seed-pans may be stood in a cold frame and shaded from bright sunshine. When the seedlings have grown sufficiently to permit of thinning them, reduce the number to five or six plants. After they have filled the receptacle with roots, give the latter liberal supplies of manure water.

Cyclamen.—One-year-old corms of Cyclamen make fine plants when grown on the second season. Those that flowered last spring and have been kept on the dry side for a few weeks should be retotted in fresh soil. Remove the old soil carefully from the roots and place the plants in receptacles of the same size as those in which they have been previously grown, using a rich, open compost as recommended in a previous calendar for seedling plants. Spray the plants overhead lightly during hot, bright weather, but guard against heavy sprayings, as this tends to sour the surface soil and will check the growth of the plant. Shade the plants from bright sunshine, and when they are seen to be growing freely remove the lights in the evening when rain is not expected; the plants benefit by the night dew.

Saintpaulia ionantha.—Leaf cuttings of this beautiful intermediate-house plant that were inserted as previously advised should be ready for transferring to 4½ inch receptacles, in which they will flower. They may also be grown in shallow pans, placing five plants in each pan. When grown in this way they make a fine display. Turfy loam and peat in equal parts, with plenty of sand and broken charcoal added, form a good compost for these plants.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

Mildew in Vineries.—This pest causes much mischief in vineries, and is often a source of great annoyance to those in charge, and especially amateur growers. In many cases attacks of Vine mildew may be traced to faulty methods of ventilation. Admitting air by the front ventilators during the early stages of growth is more or less dangerous, especially when this is resorted to as a means of lowering the temperature. It is much better to retain a high temperature for a few hours than to admit a volume of air at the front of the house. In some vineries, because of their position, air may be admitted freely through both the top and front ventilators without harm occurring to the vines; but in other positions fresh air, even in the smallest amount, cannot be admitted until July without running the risk of an attack of mildew following. I believe this is the experience of those in charge at Wisley Gardens after many years' trial. Mildew may be killed, but its effects are always left behind, and the berries may as well be cut at once if they are much disfigured. Mildew is generally more prevalent in late vineries; this is often due to the absence of fire-heat during a few days of dull or damp weather. As a means of prevention as well as cure, sulphur in some form or other is effective, and where the disease has occurred previously, sulphur should be used freely as a winter dressing for the vines. Dusting or painting the pipes should be done thoroughly to be effectual, and some traces of the operation are sure to remain. Cambell's Sulphur Vaporiser is safe and effective for destroying and checking mildew indoors; the directions given should be strictly adhered to to avoid setting fire to the boiling sulphur.

HARDY FRUIT GARDEN.

By H. MARHAM, Gardener to the EARL OF STRAFFORD, Wrotham Park, Barnet.

Pears.—On the whole Pear trees have set heavy crops of fruit, which will need thinning. Reduce the number according to the size of the variety, and the age and strength of the trees. Keep all the leading shoots neatly secured to the wires or trellises, and thin out ill-placed, young growths and others too thickly placed that are not wanted to form spurs. Trees bearing good crops must not be allowed to suffer from dryness at the roots, and especially cordon trees growing on warm borders. Watch for the slug-worm and other insect pests of the Pear, and spray the trees with nicotine insecticide as soon as their presence is detected.

Strawberries.—The time is close at hand when the layering and raising of a young stock of plants from runners must be undertaken. Owing to last year's drought and the hot, dry weather we have experienced recently, I fear the runners will not be of the strongest character nor too plentifully produced, but the best available should be rooted in pots to obtain a sufficient number of plants to meet the requirements of the establishment. Plants that were put out last autumn expressly for the production of runners and from which the flower trusses have been removed, will usually produce the earliest and strongest runners, and these should be layered when large enough in small pots filled with a rather rich soil pressed firmly in the receptacle. Do not fill the pots too full with soil, but allow ample room for watering. The first and strongest of the plants should be selected and layered, stopping the leading points of the runners and removing all the latter not needed for layering. With care and attention in watering an abundance of roots will form quickly, and the plants should be ready for planting in the beds early. In the meantime, prepare the land to be occupied by the plants. If of a light texture, incorporate a goodly amount of well-decayed manure thoroughly with it; for heavier soils use less manure. Strawberries require a firm and somewhat rich rooting medium.

TRIAL OF NEW ROSES AT BAGATELLE.

THE judges in the Rose competition held at Bagatelle (Bois de Boulogne, Paris) met on the 15th ult. Rose experts from Holland, England, America, Spain, Paris, Lyons and Orleans—these three towns being the chief ones in France so far as Rose-growing is concerned—assembled at 9 a.m. in front of the beds where the Roses were growing.

Madame Millerand, who honoured the occasion by her presence, was received by the Prefect of the Seine and Mme. Autrand. She made a long examination of the Roses exhibited by the French and foreign growers, and particularly congratulated the Dutch grower, M. Looymans, on his Rose *Elvira Aramayo*, which was awarded a Gold Medal on account of its rich "Indian red" colour of an extremely brilliant shade.

Two white Roses of great promise, *Regina de Alvear* and *Mme. Autrand*, were completely denuded of their flowers by the bad weather immediately preceding the judging day, and were disqualified, although they had flowered brilliantly previously.

A very fine Rose, yellow, tinted with pink, named *Toison d'Or*, was noted, and also *Madeleine Pacaud*, a lovely flower with extra large petals. *Jules Tabard*, abundantly flowered with flesh-pink blooms, also attracted the attention of the judges. Other notable new varieties were *Geisha*, a very fine perpetual flowering Rose from Holland, with brilliant pinkish-apricot flowers; *Independence Day*, a beautiful Rose of English origin, with large and numerous shrimp pink flowers; *Venus*, a large Rose with palest pink interior and deeper pink, lightly tinged with yellow, outside; and *Lady Elphinstone*, freely flowered, straw-yellow in colour, lightly tinged with pink.

The Roses have never before suffered so severely as at the present season from the weather, which has consisted of a succession of changes from cold to burning heat, with storms of heavy rain.

The judges will meet again in September to make the awards.

The following are descriptions forwarded to us of the Roses sent for exhibition to the Rosery at Bagatelle, Paris (Bois de Boulogne).

Portia (Bees Ltd.).—Small foliage, well shaped buds, rather long, with incurved petals; colour salmon pink; fragrance resembling that of the Pink. The stem is not always very strong.

Venus (Bees).—Long stem, but weak at the extremity. Large semi-double flower with very incurved petals, the interior very pale pink, exterior deeper flesh pink; the bud is almost red. Fragrant.

Dorothy Howard (Bees).—A Polyantha Rose of medium size, pale pink, vigorous in growth and with healthy foliage.

Puck (Bees).—Of vigorous growth, bright China pink; petals incurved. Recalls *Mme. Jules Grolez*.

Lady Elphinstone (Dobbie and Co.).—*Pernetiana* variety, very vigorous and floriferous. The abundant flowers are carried on strong stems. Colour, yellow.

Toison d'Or (Pernet-Ducher).—A very beautiful variety, yellow, tinged with pink; stems long and firm, foliage of medium size.

Reverend Williamson (Pernet-Ducher).—A large *Pernetiana* variety, semi-double, bright pink, with yellow tipped petals; the flowers are *Camellia* shaped.

Madeleine Pacaud (Chambard).—A pink, *Paeony*-flowered variety with large petals; stems firm. Flowers abundantly.

Souvenir de F. Roe (Chambard).—A vigorous Rose, the flowers of pinkish-yellow hue resembling those of *Mme. Edouard Herriot*, but more yellow in colour. Stems very firm.

Diana (Bees).—Large white flowers, the reverses of the petals lightly tinged with yellowish pink. Flowers abundantly.

Jules Tabard (Barbier).—A vigorous and abundantly flowering variety, flesh pink. Very fine, long buds, incurved petals; excellent shape. The foliage is medium, stems very firm; the flowers are faintly fragrant.

Regina de Alvear (Sauvageot).—Vigorous in growth, with large, dark green leaves. Flowers white, and of large size and round form. The stems are generally firm; the variety recalls *Clarisse Goodacre*.

Independence Day (Bees).—Free-flowering and vigorous in growth; foliage medium, dark green. A semi-double flower with large, shrimp pink petals.

Evelyn Thornton (Bees).—A polyantha variety, flowers of medium size. Bud straw-yellow, passing to white with age. It is the "G. de Felgonde" of the Polyantha group.

Ariel (Bees).—Reddish-yellow, semi-double. The stems fairly strong, flowers abundant, and growth vigorous.

liant Rose with large flowers of bright pink hue, incurved, and with yellow at the tips of the petals. The buds are very large.

General Smuts (Van Rosse).—A vivid pink variety, the buds excellently formed, and carried on firm stems.

No. 2,980 (Leenders).—This is apparently a fine Rose and extremely floriferous. The stem is firm, the petals pinkish-white, the pink being accentuated towards the centre.

G. H. J. (Laxton).—A dainty variety, carmine red in colour, with fine dark green foliage. The petals are ruffled in a pretty way.

Lady Maureen Stewart (Dickson).—A semi-double Rose with large petals of a brilliant red.



FIG. 2. CARNATION MAINE SUNSHINE; COLOUR SOFT PRIMROSE YELLOW.

Adonis (Bees).—A double Rose, white in colour, with a centre of pale yellow. Fine green foliage, and strong stems.

Madame Autrand (Leenders).—A fine white Rose, would probably force well. The buds are of very good elongated shape, resembling an urn.

Elvira Aramayo (Looymans).—A dwarf variety with a free-flowering habit. The flowers are cinnamon-red, through which yellow slightly shows. The colour is quite new, and striking in its singularity and brilliance. It is described by some as "Indian Red." (Gold Medal.)

Geisha (Van Rosse).—Very freely flowered and of vigorous growth; chiefly interesting by reason of its brilliant apricot blooms.

President Poincaré (Cassegrain).—A fine variety, double, of a clear pink hue. Agreeably scented.

Macbeth (Bees).—A H.T. variety with very fine red flowers. The stems are rather weak.

Mme. Edouard Herriot Panachée (Cassegrain).—This is the well-known *Mme. Edouard Herriot* with the petals marked by very irregular yellow streaks. The yellow of the markings passes to white as the flowers age.

Among the latest arrivals for the competition of 1923 are:—

President Chérioux (Pernet-Ducher).—A bril-

Hawmark Crimson (Dickson).—This dainty Rose bears flowers with large petals of a lovely dark, velvety red.

CARNATION MAINE SUNSHINE.

THE beautiful yellow Carnation illustrated in Fig. 2, named *Maine Sunshine*, has been shown on several occasions during the past twelve months at the Royal Horticultural Society's meetings and always attracted considerable attention as being one of the finest of the yellow-flowered, perpetual Carnations yet raised. We believe the variety originated in America, but have not the record of the raiser before us. At the trial of perpetual flowering Carnations held in the Wisley Gardens in the past winter, this variety attracted such favourable notice from the judges as to be considered worthy of the R.H.S. Award of Merit. The colour is soft Primrose yellow slightly deeper in the centre and the flower is of large size and perfect form. High praise is given this variety by Messrs. Allwood Bros., who state in their catalogue, "To such an extent do we realise the merits of this variety that this is the only pure yellow we are growing at our wholesale cut flower nursery at Clayton." The plant is very floriferous and the growth very healthy.

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MR. KINGDON WARD'S SIXTH EXPEDITION IN ASIA.*

No. 18.—THE LIMESTONE CLIFFS OF MU-LI.

THE limestone cliffs above the monastery were, during our brief periods spent at Mu-li, subjected to intensive exploration. They had the advantage of being on the spot, but I doubt whether the results were proportionate to the effort expended. However, they yielded several first-rate plants which we found nowhere else, so I must not malign them.

Throughout the season I kept before me the desirability of collecting, say, a thousand species from the Mu-li district, being convinced that more light will be thrown on the problems of distribution by making representative collections in selected spots rather than by collecting as many species, a plant here and a plant there, during the course of a long journey. At the same time I was eclectic, by no means prepared to gather everything I saw. Primulas, Rhododendrons, Meconopsis and all Alpines were taken without question; but in the wide field below about 12,000 feet I exercised a discretion which became more rigid as the season advanced. Indeed, I had to, when we worked at high pressure, with time and labour so valuable. Cosmopolitan weeds and too familiar plants were taboo. Such plants as grow everywhere, even those which spread over one continent, though a credit to their powers of distribution and adaptation (or possibly a slur on their capacities for variation) do not illuminate the relationships of the different parts of that continent, save in the most general terms. Even so, I had no reason to doubt that the Mu-li area was capable of yielding far more than a thousand species of plants, and that I could collect at least that number in the course of a season lasting six months.

A great limestone bastion, divided from the cliffs to north and south by deep ravines, rose behind the monastery. The ground sloped steeply up to the base of this precipice, broken here and there by smaller scarps, and was well wooded. By means of the two gullies it was possible to climb some way up the cliffs, which rose, tier on tier, to a considerable altitude. Our explorations, however, stopped at about 10,000 feet, no great height, but

sufficient to keep us busy from below, and lofty enough to harbour at least a dozen first-class plants. Perhaps the best was the *Suffruticosa* Primula, already referred to; but as we did not see it in flower, we were rather in the dark as regards its merits. The bright, violet-red flowered *Nivalis* Primula was fairly abundant; it grew indifferently in the open, or in deep shade, and was still in flower towards the end of July.

A small Soldanelloid Primula with purple flowers grew in the wet moss which clung to the cliffs within splash of a cascade. There are many varieties of this species, and after a while I got so involved with them that I had to give up trying to separate them in the field. Two very distinct forms—species, perhaps—were, however, always recognisable; for one had the under surface of the leaves brilliantly silvered with meal, the other had no meal. The former favoured open situations on the mountain top; the latter wet, shady cliffs at lower altitudes.

The curious Malvacea group of Primulas, with their big, leafy calyces, was represented



FIG. 3. TABLE MADE FROM THE WOOD OF THE *ARAUCARIA IMBRICATA* AT KEW, WHICH WAS ONE OF THE TREES BROUGHT HOME BY DR. ARCHIBALD MENZIES (SEE P. 7).

on these cliffs by two species found nowhere else by us. One was a splendid plant with large, purplish-pink flowers borne in a long spike, which tended to be one-sided. As many as three dozen flowers are carried on a scape eighteen inches high, which arches over in a graceful curve. This species grew along the wayside in masses, on shady banks; but the biggest plants were found in deep thickets and woods on the precipices.

A second much smaller species, with delicate, almost orbicular leaves and pinkish mauve flowers, grew in the woods. Neither species was fragrant; in this respect Nature has been niggardly to the otherwise charming *Malvacea* Primulas. To these two I may add a third, perhaps the best of the three, which, though found right away down in the bed of the Litang river, 2,000 feet below the monastery, belongs essentially to the limestone cliffs and slopes. This plant has small flowers, enveloped in the usual large, leafy calyces of a deep rose pink, darkening almost to crimson in the centre. Here again the tendency is to form an arching one-sided spike, or rather raceme; and the effect in well grown plants bearing two dozen flowers is delightful. This plant disdained shade and grew on the dry, rocky slopes, fully exposed to the sun; but these specimens were stunted, while amongst a tangle of shrubs and herbaceous growth, buried in alien vegetation, splendid specimens might be found blooming unseen.

The Campanulaceae was represented on the cliffs by several species of *Campanula*, *Adenophora* and *Codonopsis*. A twining plant of the last-named genus, with deep violet flowers as large as those of *C. convolvulacea* (and without the vile odour of that otherwise excellent plant) was one of our treasures. A large, violet-flowered *Campanula*, like a big Harebell, generally grew out of reach; but a small species with pale violet flowers and silvery foliage—the whole plant being enveloped in glistening silken hairs—was abundant on the driest, barest rock. It seemed to select situations where no water dripped and where no rain could possibly reach it; and there it formed its silvery cobwebs, tremulous with tiny pale bells.

The finest dwarf rock plant found, however, was a wee Larkspur, with comparatively large flowers of the most intense blue, such a blue as you may perceive by gazing deep down into the hot south seas with a tropical sun overhead. It was a magic blue. We found but two plants of it, unfortunately, but as it was only just coming into flower, more will doubtless be discovered later.

Another pretty plant with translucent, brick-red bell flowers dangling in a widespread raceme belongs to the *Boraginaceae*. Growing from a cliff edge leaning over freely, with the light showing through its glassy flowers, which contrast strangely with the grizzled stems and foliage, it is a joy. A small bushy *Rhododendron*, growing right on the limestone cliffs and sending its roots deeply into them, was seen nowhere else. Unfortunately, we did not find it in flower. The leafy calyx and leaves, the under surfaces of which were covered with rust-brown scales, served to identify it; but though fairly abundant, it set very little seed.

Fairly high up in a shady ravine facing north, amongst mixed forest, where Birches, Maples, Limes, Picea and *Pseudotsuga* all attained a considerable size, we found our first tree *Rhododendron*. I had reason to suspect its existence somewhere, having twice before noticed saplings in thick forest, with large leaves, but neither flowers nor fruit; and here it was at last in the flesh, or, rather, in the adult condition. The leaves are large, 18 inches long by 6 inches wide, their under surface covered with a soft, spongy, chocolate coloured felt. The capsules, too, are fairly large, long, slender and curved, and the flower trusses must be big, so many as two dozen to three dozen blooms in a truss. No doubt it is a fine sight in the early spring. Specimens seen suggest that it flowers when eight or ten years old under favourable conditions. Other plants on the Mu-li cliffs we had met with elsewhere—*Vaccinium modestum*, *Rhododendron racemosum*, *Androsace spinulifera*, species of *Clematis*, *Iris*, etc. But there was a *Martagon* Lily endemic there, remarkable more for its delicious fragrance than for its colouring, though it was showy enough, too.

A small Labiate with bright violet flowers, probably a species of *Ajuga*, flourished in deep shade of humus-clad slopes; quite a bright little plant.

Then there were the Gesnerads, four, perhaps five species of them, though they were by no means confined to these particular cliffs, but obtruded themselves wherever there was shade and limestone, between 9,000 and 11,000 feet. Three of them were *Didissandras*, two of them species of *Oreocharis*. Of the former, *D. lanuginosa*, with its pale violet edged flowers—more white than violet inside the throat—grew everywhere on the rocks, shade or no shade. Another plant with deep violet flowers in more compact heads may have been another species or simply a variety of *D. lanuginosa*, which is a widely spread plant. The two grew associated together. The third had flowers quite like those of *D. lanuginosa*, though in larger heads; but the leaves were utterly different, being larger, dark green and glabrous, instead of covered with woolly white hairs. It was altogether a bigger plant; moreover, it demanded shade, though not such deep shade as *Oreocharis*.

* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 23, August 20, September 3, October 8, October 29, 1921; January 7, January 21, March 11, March 25, April 8, April 22, May 6, May 20, June 3, and June 17, 1922.

Of these last named, one with bright gamboge flowers was probably *O. Forrestii*. It had almost a monopoly of the high cliffs on their sheltered sides, covering the vertical walls with its compact rosettes of rugose hairy leaves, and dropping its bright yellow flowers. The second species was a much larger plant, though the cream-coloured flowers were about the same size as the last named. It could not bear the light, and crept into the darkest nooks of limestone rocks buried in the forest. With the exception of a single *Chirita* with creamy white flowers, which, oddly enough, grew right down in the gorge of the Litang river, these were the only representatives of the Gesneriaceae met with—a contrast to the N.E. Frontier of Burma, with its many species of *Aeschynanthus*, *Chirita*, *Lysionotus*, etc. *P. Kingdon Ward*.

DR. ARCHIBALD MENZIES.

THE great interest now being taken in many of the trees, shrubs and other plants first brought to Britain by Dr. Archibald Menzies, of the Royal Navy, has created a desire to know more about this great British botanist and collector. Some idea of the environment that produced such a man has been given already in these pages (Dec. 24, 1921). I am now able, through the kindness of his grand-nephew, Mr. M. C. H. Menzies Geedes, C.E., Edinburgh, to procure photographs of the Doctor's old-fashioned gold watch and the show table (Fig. 3), the latter made from the beautiful wood of one of the trees of *Araucaria imbricata* (Monkey Puzzle) brought by him from Chili in 1795, and planted in the Royal Botanic Gardens at Kew, where it flourished till 1892, when it was cut down. The wood is a lovely cream colour, and something like satinwood; it takes on a splendid polish, and such wood would make very artistic, high-class drawing-room furniture.

It is remarkable that the Botanical Badges of Clan Menzies resemble in a striking way several of the new plants then discovered by Dr. Menzies in the Sandwich Islands, in California, in North-West America, Vancouver, and other places. Some of the places explored by him were at a great altitude, but the training of his boyhood in climbing Weem Rock at the back of Weem Village and Castle Menzies—where he was educated at the Weem Parish School and got his first botanical knowledge at the gardens of Castle Menzies, lying between the Rock and the Castle—inured him to the strain of climbing rocky hills. One of the greatest feats of his life was performed on the island of Hawaii, where he was the first man to climb to the top of Mauna Kea, 13,825 feet high; during the ascent and descent of this mountain he discovered many new plants and other objects of natural history. *David Menzies, Bt., Pleas Menzies Castle, by Larbert*.

THE WATER GARDEN IN SUMMER.

THE finest effects in ornamental gardening are obtained when the natural features of the landscape are worked into the scheme. Dense woodland on the outskirts gives a sense of seclusion to the garden; banks and depressions admit of variety in planting, whilst ponds and streams lend a special charm to their surroundings. Our illustration in Fig. 4, reproduced from a photograph taken in the gardens of Gen. Sir Arthur Paget, at Warren House, Kingston, Surrey, shows the quiet beauty of the water garden in summer, when Water Lilies of various hues unfold their blossoms on the surface and moisture-loving plants on the banks grow over and reflect their form in the water. But the greatest charms are those which no picture can portray—the peaceful atmosphere, the songs of the birds, and the hum of the insects, the pleasing perfumes of the plants and flowers and the cool, refreshing air. Such may be counted amongst the greatest delights which the garden can afford in summer.

HARDY FLOWER BORDER.

ALONSOA.

Of the few *Alonsoas* in cultivation certain numbers of annual species are excellent for beds or borders, where, if treated in the same way as other half-hardy annual plants, they will give a good effect with their bright flowers that are borne in axillary racemes. All those named may be treated as perennials if cultivated in a warm greenhouse, and a few have grown them under glass in winter and spring, and have planted them out in the same way as other bedding plants. Still, they are so easily raised from seeds that they are not worth troubling with as perennials except by those who wish to grow them from year to year.

Alonsoa acutifolia, also known as *myrtifolia*, is a pretty species, with narrow leaves and racemes of bright scarlet flowers on stems two feet or so in height. This plant is very effective in beds or when grouped in borders.

scarlet, difficult to describe precisely. The plant grows about fifteen inches high.

A. Warszewiczii is one of the best-known and most brilliant of the Mask Flowers. It grows about a foot-and-a-half high, and has toothed or incised leaves and fine vermilion-scarlet blooms with golden stamens. *S. A.*

HARDY FLOWERS FOR EXPOSED GARDENS BY THE SEA.

GARDENERS near the coast often have a difficulty in establishing certain herbaceous plants, but there are many hardy border flowers that do excellently well in seaside gardens. *Tritomas* are very suited for gardens in such situations; they grow into large clumps very quickly and flower profusely almost continuously throughout the season. The various *Eryngiums*, or Sea Hollies, are naturally at home on the coast, and they may be planted in seaside gardens with every confidence of success. *E. agavifolium* makes a truly hand-



FIG. 4.—THE WATER GARDEN IN SUMMER: LILY POOL IN THE JAPANESE GARDEN AT WARREN HOUSE, KINGSTON.

A. linearis is a neat plant, with narrow leaves, growing to about two feet high, and giving a profusion of light scarlet flowers.

A. linifolia is another narrow-leaved species, liable to be confused in name with the preceding. There are one or two forms of this plant, one of the prettiest being *A. linifolia gracilis*, which grows about a foot-and-a-half high. It is almost Heath-like in its foliage, and has small, showy, bright orange flowers, decorated with golden stamens. It is one of the prettiest species in cultivation.

I have some doubts as to the nomenclature of the plant sold as *A. miniata*, but the annual, or what should be treated as an annual, sold as *A. miniata* Scarlet Gem, is a very bright and pretty plant, growing fifteen or eighteen inches high and having flowers of a very effective and brilliant scarlet, with golden stamens. The plant, when well grown, is of a fine pyramidal shape.

A. Mutisii is only a synonym of *A. caulilata*, but the name of *A. Mutisii* seems to be the favourite one with seedsmen, who will, in all likelihood, be unable to supply it if asked for under the correct name. A pretty form, called Chamois Rose, has flowers of a kind of rosy

some subject and *E. Oliverianum* and *E. giganteum* are equally good for the purpose.

Other beautiful plants suitable for such gardens are *Romneya Coulteri*, *Clematis Davidiana*, *Gladiolus*, and *Campanulas* in variety. *Lilium candidum*, together with several other species of Lily, will grow to perfection near the coast. *Sparaxis pulcherrima* flowers freely here in the borders. Border Carnations are also very fine, and make healthy growth. Hardy Fuchsias are in the first rank as subjects for seaside planting. Geums are also excellent and flowers are produced from established plants here throughout the winter. *Montbretias* make large clumps, and those which are not divided for years, as well as those which are divided and planted in spring, all flower profusely, the flowers on the undivided clumps being equal to those on plants that are not disturbed, especially in the case of *M. eriosomiflora* and *M. Pottsi*. Other species are better for frequent division. All plants of the Leguminosae are very noticeable as growing in great luxuriance, both cultivated plants, and also the various indigenous subjects on the hills. *C. Rose, Lambay Island, Rush, Co. Dublin*.

COVERWOOD.

COVERWOOD, the country residence of M. E. Stevens, Esq., is beautifully situated on a spur of the North Downs, about seven miles south-east of Guildford. The present mansion was built in 1909 on the side of the hill among Pines and other forest trees, with Heather and Furze growing naturally all around. To have made a formal garden in a place of this description would have been an unpardonable sin, so beyond levelling sufficient space for the house, very little alteration has been made in the natural features of the place. Winding walks, with rustic steps, have been arranged on the hillside, which rises very sharply some 300 feet above the narrow valley, and faces north-west. A favourable place is thus secured for tender Japanese and Chinese shrubs; tall Oaks, Beeches and other forest trees give the necessary shelter in winter, and the soil is sandy peat.

Large beds of Ghent Azaleas in all their beautiful shades of colour were in flower at the time of my visit—May 30; these are judiciously grouped among other shrubs, and are visible from many points of the domain when in bloom. A large bed of Camellias had just finished flowering, and had evidently been a fine sight a short time before. Hardy Heaths in many kinds and varieties are encouraged as undergrowth among the taller shrubs, thus preventing the growth of weeds to some extent: *E. codonodes* and *E. Veitchii* were represented by many fine plants and full of flower. I also noticed a quantity of the Irish Heath—*Daboecia*, in variety.

Tall specimens of *Styrax virgata*, *Halesia tetraptera*, *Stuartia pentagyna* and *Azara microphylla* are to be found here, with *Magnolias* in many varieties. *Parrotia persica* and other interesting and beautiful trees and shrubs, the majority being large plants of ten feet and upwards in height, interspersed with choice Conifers, keep up a succession of interest throughout the greater portion of the year. Close to the mansion a large plot of *Genista hispanica*, some thirty feet or more in diameter, gave a beautiful patch of golden colour. The retaining walls here carried a wonderful display of *Wisteria* flowers, both the mauve and the white varieties; these plants have their branches trained horizontally about one foot apart and are kept close in to the wall: they have flowered very freely this season, and the wall was literally covered with their fragrant blossoms when I saw it.

A steep bank has been planted with *Cotoneaster microphylla* instead of Grass, thus saving much labour and ensuring a good effect in dry weather; some of the walls were draped with *Aubrietias* and other suitable plants, and even *Gentiana acaulis* was flourishing in this way in a shady place. Many kinds of *Berberis* are to be found here, including some of the best of those recently introduced. Many plants of *B. japonica* and *B. nepalensis* were in the best of health, while double Lilacs in great numbers, on their own roots, were flowering freely.

But the finest sight of all was found in the bog garden. A space of several acres has been partially cleared of timber, enough trees being left to provide the necessary shade. Small streams meander about in all directions, their banks being shaped to the best advantage and planted with seedling *Primulas*, chiefly *P. japonica* and *P. Bulleyana*, the former in all shades of colour, from white to dark crimson, with spikes in many instances two feet in length. These have grown and established themselves until the whole effect appears to be quite natural and a floral picture is formed such as one very seldom sees. Although the weather was very hot and dry in May, these *Primulas* were quite fresh and healthy. Many thousands have been raised from seed by Mr. T. W. Birkinshaw, who has charge of the gardens and farm, and takes a keen interest in the whole estate. A flourishing colony of *Primula rosea* had finished flowering, but *Astilbes* will make a fine display after the earlier flowers are over. Many fine plants of choice *Rhododendrons*, such as *Pink Pearl*, *Alice*, *Loder's White*, and many of the new Chinese kinds, were doing particularly well in

the drier portions of this garden. There are also large plots of *Delphiniums* and other herbaceous plants to keep up a display after the *Primula* picture has vanished. A few plants of *Lilium Henryi* and *L. canadense* were doing so well that it seems advisable to try various other kinds of this interesting family at Coverwood.

Improvements in the water arrangements are still in progress, and further developments may be looked for in the floral displays of this beautiful garden. *W. H. Divers, V.M.H., Westdean, Hook, near Surbiton.*

MESEMBRYANTHEMUM AND SOME NEW GENERA SEPARATED FROM IT.

(Continued from page 507.)

30. *C. parvipetalum*, N. E. Br. Growths 4½-6½ lines long, 4½-10 lines broad and 3½-7 lines thick, obconic, with a shallow v-shaped depression across the full breadth of the top (type K), rich dark purple on the sides, dull green on the top, tinted with rose around the orifice and marked with numerous separate dark green dots, all scattered or some of them arranged in a line transverse to the orifice. Calyx 5-lobed, with the tube very much compressed and up to 2-2½ lines broad. Corolla small and insignificant, 3-3½ lines in diameter, opening at about sunset,



FIG. 5. CONOPHYTUM LEVICULUM, N. E. BR. NATURAL SIZE; PHOTOGRAPHED AT 9.30 P.M.

closed during the day; tube 2-2½ lines long, much compressed; petals numerous, about 1½ line long, creamy-white or very pale yellowish, faintly tinged with pink at the tips. Stamens with the yellow anthers shortly exserted. Style very short; stigmas 5, about 1½ line long, rather stout, pale greenish. *M. parvipetalum*, N. E. Br., in *Journ. Linn. Soc. Bot.*, v. 45, p. 97 (1920).

South Africa. Locality and collector unknown. This is closely allied to *C. mundum*, but is easily recognised by the dots not being raised in the same manner into tubercles, and by its flattened corolla-tube and short petals.

31. *C. aggregatum*, N. E. Br. Growths 5-6 lines long and 2-5 lines in diameter, obconic, flattish at the top (type F), which in large growths is more or less distinctly obtusely 6-angled, and in smaller growths circular, with the centre often slightly depressed and usually with a faint ridge or keel transverse to the orifice, of a dull and somewhat bluish-green, rather inconspicuously marked on the top with minute dots, which are mostly confluent into irregular branched lines of a darker green or purplish colour. Flower unknown. *M. aggregatum*, Haw. *Obs. Mesemb.*, p. 131 and 419; N. E. Br., in *Journ. Linn. Soc. Bot.*, v. 45, p. 91, excluding description of the flower.

South Africa. Locality and collector unknown. By some error, which I cannot now at all account for, unless I was interrupted in my work, the description and note of the flowers of a plant I now find to be identical with *M. piluliforme* were entered under *M. aggregatum* and published in my former account of this species. I have not yet seen expanded flowers of *M. aggregatum*, but late in November, when

too cold for them to develop, buds have appeared, which were dark red.

EE.

Top of the growths more or less convex (flattish in 33 *C. leviculum* and 37 *C. signatum*), or convex on each side of the central notch, which does not spread open over the whole breadth of the top as in some of those under E. (Species 32-44.)

32. *C. catervum*, N. E. Br. Growths 10-15 mm. long and 3½-6 lines in diameter under cultivation, but under natural conditions about 3-4 lines in diameter, obconic, convex on the top (type E), which is nearly circular or broadly elliptic in outline, pale greyish-green or glaucous-green, with three radiating lines of confluent dark green dots on each side of the orifice, the two lateral lines usually forked, and with a line and some dots or scattered dots only at each end of the orifice. Flowers not seen.—*M. catervum*, N. E. Br., in *Journ. Linn. Soc. Bot.*, v. 45, p. 93.

Laingsburg Div. Near Grootfontein, Pole Evans, 4975.

33. *C. leviculum*, N. E. Br. (Fig. 5). Growths 5-7 lines long, and 3½-7 lines in their greater diameter, obconic, elliptic or nearly circular at the flattish top (type F), often purplish on the sides, greyish-green on the top with many irregular lines and small dots of dark chocolate-purple or dark green, and a thick line bordered with chocolate dots and lines around the orifice. Calyx 4-lobed. Corolla 5-8 lines in diameter, expanding about 4 or 5 p.m., closed during the day; tube not exceeding the calyx; petals 20-25, lax, whitish (very pale straw-coloured by day), sometimes tinged with pink at the tips, with a slight stutiny sheen. Stamens 12-20, the upper anthers exserted, light yellow. Style, about 1 line long; stigmas 4, about 1-1½ line long, plumose-filiform, pale greenish.—*M. leviculum*, N. E. Br., in *Journ. Linn. Soc. Bot.*, v. 45, p. 94 (1920).

South Africa. Locality and collector unknown.

34. *C. pictum*, N. E. Br. Growths 4-7½ lines long, 3-5 lines in their greater diameter, obconic, usually with a shallow notch across the centre of the oblong or elliptic top, so as to appear slightly obcordate in side view (type E), often purplish on the sides, dull green, marked with some dots and numerous simple and branching lines (which are not formed of confluent dots) of a chocolate or purple-brown colour on the top. Calyx 4-lobed. Corolla 3-7 lines in diameter, expanding about 4 or 5 p.m.; tube exceeding the calyx-lobes; petals 18-24, lax, whitish. Stamens 12-20, with the upper anthers exserted, yellow. Style, less than 1 line long; stigmas 3-4, about 1-1½ line long, plumose-filiform, yellowish. *M. pictum*, N. E. Br., in *Journ. Linn. Soc. Bot.*, v. 45, p. 97.

South Africa. Locality unknown, sent to Kew and to myself by Prof. P. MacOwan, in 1878.

This species differs from *C. leviculum* by being less flattened at the top, and the orifice is outlined rather indistinctly with dull green, instead of by a very conspicuous thick line as in *C. leviculum*.

35. *C. labyrinthicum*, N. E. Br. Growths 5-7 lines long, usually 3-4 lines broad, and 2-3 lines thick, obconic convex or elliptic or elliptic-oblong in outline, at the top (type E), greyish-green, marked in a labyrinth-like manner with rather crowded branching and disconnected lines (not formed of dots) of a rich dark brownish-crimson, or in sunless seasons dark green or brownish-green. Calyx 4-lobed. Corolla 4½-5 lines in diameter, night flowering, scentless; tube not longer than the calyx; petals 18, in a single series, lax, very pale straw-coloured or whitish. Stamens several, the longer shortly exserted; anthers light yellow.—*M. labyrinthicum*, N. E. Br., in *Journ. Linn. Soc. Bot.*, v. 45, p. 94 (1920).

Locality and collector unknown. N. E. Br.

(To be continued.)

THE BULB GARDEN.

IXIAS.

OUR *Ixias* have had a glorious time. They have revelled in the sun and heat. All day long they have been a splendid show, and visitors to the Tulips were duly taken to see the little group before they went home. I found a good many did not know what they were. I can understand the *Brodiaeas*, with which they were mixed, being something fresh, but I did think most people knew *Ixias*. All the same, I do not remember having seen them growing in the open anywhere but in Jersey and Guernsey. This, no doubt, accounts for their being a novelty to so many. Here, midway between Chester and Shrewsbury, I have never had them to bloom out-of-doors; but I get every bit as good results from our home-grown bulbs in pots as I do from those newly bought. The only one that does not do well is the beautiful cherry-red *crateroides*. It lives, but it does not flourish, like the others. However, the lovely soft rose of *Englishton* more than compensates us for this disappointment. We had a large collection last year, out of which we selected the following, as being the most distinct and pleasing: *viridiflora* (pale green, with a dark centre, late flowering); *Englishton* (soft rose); *Emperor of China* (rich yellow); *Invincible* (deep crimson); *Bridesmaid* (white with crimson eye); *Hogarth* (pale straw). Our treatment of the bulbs is very simple. They are potted in rich, light soil in five or six inch pots in October, and they are then placed in a cold, frost-proof frame, where they remain till March, when they are transferred to a cool greenhouse. After the flowers are over the plants are fed with weak liquid fertiliser and gradually dried off. The bulbs remain in a perfectly dry state in the pots all the summer under glass and get a good baking. *Joseph Jacob.*

CAMASSIA LEICHTLINII.

Few amateurs appear to be well acquainted with the *Camassias*, or *Quamashes*, although one occasionally comes across them in gardens where bulbs are a special feature. One of those least known is *Camassia Leichtlinii*, a good species, which is a native of British Columbia and Canada. The typical *C. Leichtlinii* has creamy-white flowers, but there is a variety called *C. L. atrovioleacea*, with deep purple blooms. What are understood to be hybrids of *C. esculenta* and *C. Leichtlinii* are also in commerce, and some of these are very pretty. They range from white, through light and dark blue to purple. *C. Leichtlinii* is quite hardy with me, and I have cultivated it now for a long series of years. It is rather taller than *C. esculenta*, and when in good soil may be as much as 3 feet or more high, but in a poor compost may be as little as 2 feet. It has a handsome spike, with numerous creamy-white flowers. *S. Arnott.*

ORCHID NOTES AND GLEANINGS.

DENDROBIUM SUPERBUM AND ITS ALLIES.

Dendrobium superbum was one of the earliest species of this group to be introduced, and one of the most beautiful and distinct of *Dendrobiums*. In collections of Orchids shown fifty or sixty years ago it frequently appeared as large specimens heavily laden with flowers three or four inches in diameter and coloured rosy-mauve, with deep purple base to the lip; but it is now becoming rare. All the varieties have the same general form of flower, and a not unpleasant odour resembling medicinal Rhubarb. The slender variety *anosmum* (Dayanum), while having a slight trace of the odour of the type, is delicately fragrant.

D. superbum is based on Reichenbach's description (*Walp. Ann.*, VI., p. 282, 1861), and it came as a shock to Orchidists of those times that their cherished plant with its time-honoured name of *D. macrophyllum* (Lindl. *Bot. Reg.*, 1839, and various other descriptions and figures of it) would have to go, as *D. macrophyllum*. A. Rich.—the plant usually known in gardens as *D. Veitchianum*—had priority. Lindley's

name, however, so long familiar to Orchidists—an illustration of a plant of it growing on a block having appeared in the *Gardeners' Chronicle*, 1845, illustrating an article by T. Appleby—is still commonly in use. The species is also figured in *Bot. Mag.*, t. 3970, as *D. macranthum*.

D. superbum was discovered by Cuming in the Philippine Islands in 1836, and flowered in Messrs. Loddiges' nursery at Hackney in 1839, the plant being the typical rosy-mauve form. *D. superbum* is widely distributed, its range embracing India, the Malay Archipelago and Borneo, each locality giving characteristic forms.

Dendrobium Parishii, imported by Messrs. H. Low and Co. from Moulmein, in 1863, although dwarf and stout in habit, has rosy-mauve flowers resembling *D. superbum*, but smaller in size. It has also the same kind of odour.

The large-growing typical forms of this group are distinctly warm-house subjects, requiring to be grown in suspended baskets to allow of the full development of their long, leafy stems, which have a tendency to elongate in proportion to the space available; those grown in pots or on the stages rarely attain the proportions of those suspended while growing. The leaves fade and fall at the resting season.



FIG. 6.—DENDROBIUM SUPERBUM HUTTONII.

As with many other rose and mauve Orchids, it is prolific in white forms, the beauty of which equals that of any white *Dendrobium* in cultivation.

D. superbum Huttonii (see Fig. 6), a large pure white flower with purple base to the lip, was imported by Messrs. J. Veitch and Sons in 1869. A very fine form of it was recently sent by W. Waters Butler, Esq., of Edgbaston, proving that it still flourishes.

D. superbum Burkii, with white flowers having the lip veined with rose, was imported by Messrs. J. Veitch and Sons in 1883.

D. superbum Dearei (R.H.S., April 11, 1882), probably the best albino, was brought to England by Col. Deare, who first flowered it.

All these received the First-Class Certificate of the Royal Horticultural Society, but there is no record of any honour given to the coloured type, shown probably before the present list was prepared.

HYBRIDS OF THE *D. SUPERBUM* SECTION.

D. porphyrogastrum, raised by Messrs. J. Veitch and Sons, between *D. Dalhousieanum* and *D. superbum Huttonii*, has racemes of rosy flowers with dark markings on the lip. It is a very distinct hybrid and quite intermediate in character.

D. Gemma (*superbum* × *aureum*) flowered with the late Mr. Chas. Winn in 1895, and the interesting *D. Nestor*, between *D. Parishii* and *D. superbum*, was flowered in the same garden at Edgbaston in 1892. *D. Adrasta* (*Pierardii* × *superbum*); *D. Mentor* (*primulinum* × *superbum*) and *D. rhodostoma* (*sanguinolentum* × *superbum*) are other hybrids.

Connecting the allied *D. Pierardii* we have the hybrid between it and *D. Parishii* known as *D. rhodopterygium*, which, with *D. polyplebium*, have been imported as natural hybrids. *J. O'B.*

A VISIT TO HOLLAND.

To horticulturists, a visit to Holland invariably proves interesting, because the Dutch people are clever gardeners, and horticulture is one of their chief industries. For choice, Spring is the best time to make a visit, and, if the trip is made when the bulbs are in flower, the visitor will find a feast of colour spread out for him, wherever he may go, throughout the bulb-growing district, which has Leyden for its centre. If beautiful arrangements of bulbous plants are anticipated, there will be disappointment. The Dutch growers cultivate bulbs as other folks may grow Wheat or Potatoes, by scores of acres, and it is their good fortune that the crops they cultivate produce flowers of many hues.

There are miles upon miles of bulb farms in Holland, and, when Hyacinths are in bloom, the railway journey from the Hague or Rotterdam to Amsterdam is a trip through fairyland, but a somewhat formal fairyland, as great areas of brilliant colour—all in blocks or "slabs"—are arranged on either side for a considerable part of the way. Sometimes the colour is broken up into patchwork, like the gorgeous colouring of some old-time quilt cover; at others, where some happy chance has graded the blue shades from the daintiest porcelain to the most intense blue-black, the scene is wonderful; but best of all is a large area of bright, clear blue, as though a bit of brilliant sky had come down to rest among the dykes and Poplars of the Netherlands.

Before the Hyacinths are at their best, the Daffodils take up the story and add all shades of yellow, from palest lemon to deepest gold. Blocks of King Alfred, several acres in extent, or of Van Waveren's Giant, or Golden Spur, or Emperor, are wonderful; but if a trip is taken by motor-car around Leyden, Haarlem, Hillegom, Lisse, Sassenheim, Noordwyk, Binnendyk, and other places where bulb-growing is the chief business, eyes will be tired at the close of day and turn gratefully from Hyacinths, Daffodils, and Tulips to green trees and pastures.

A visitor who has the *entrée* of the Dutch bulb farms in spring runs two risks—one is that of being made colour-blind by the surfeit of colour, and the other is that of giving offence to some of the good ladies whose hospitality is bountiful. The capacity of an ordinary person becomes strained after from six to a dozen calls have been made in one day, and at each house a table is prepared for his coming. Every bulb-grower appears to have at least one excellent motor-car, and his good wife a table continuously spread before her husband's friends and customers.

Familiarity does not breed contempt in Holland, as regards flowers, for in the Spring time those who live in the large towns and cities make a point of visiting the bulb districts on one or more occasions, and it is one of the sights of Holland to observe thousands of people travelling by cycle, motor, tram, or railway to the bulb district on a Sunday, and no less interesting to watch them returning in the afternoon or evening with wreaths of flowers over their shoulders, on the handlebars of cycles, and around the roofs, doors, and bonnets of motor-cars. Moreover, during this pageantry of blossom, the tramcars in most of the towns within the bulb-growing area are furnished daily with blooms set in vases fixed inside the cars, while almost every shopkeeper at the Hague, in Leyden and Haarlem, no matter what his wares, decorates his windows with Daffodils, Hyacinths, or Tulips. In short, the bulb-growing district is thoroughly well advertised in these and other ways by means of the flowers the bulbs produce.

But not all the Dutch horticulturists are bulb-growers. Many readers are acquainted with the Bookoop district, where conditions appear to be especially favourable to the growth and multiplication of Rhododendrons, Azaleas, Roses, and a great variety of other trees and shrubs. Unfortunately, circumstances prevented me from visiting this interesting place.

Fortunately, I was able to pay a long-

deferred visit to the little township of Aalsmeer, famous for its Lilac. Here, within about a score of years, a wonderful industry has been built up, until now, each winter and spring, sprays of forced Lilac are produced and distributed over a considerable part of Europe. Intensive cultivation plays its part, as the Lilac plants are given every attention out-of-doors for two years after forcing, before forcing is attempted again. In the glasshouses these prepared plants, chiefly of the *Mdme. Lemoine* variety, are set as thickly as their root masses permit. Little or no shading is given, and the French method of darkening the forcing houses does not obtain here. Nor are abundant heat and a saturated atmosphere provided; indeed, heating by means of hot-water pipes is rarely practised, but upright stoves are used, generally two inside each house, and the growers maintain that the fairly dry heat thus produced is the best for the forcing of Lilac. The proof is seen in long stems carrying two or three graceful heads of bloom which last so well that they are beautiful for a week or ten days after reaching Covent Garden, if put in water as soon as the long boxes are unpacked.

Many thousands of these especially grown Lilacs are forced each year in Aalsmeer, and the cultivators are not merely two or three people who conduct large businesses, but there are scores of growers, and most of them live and have their compact little establishments on one side or other of the canal which is virtually the main street of Aalsmeer. There is such an abundance of water in this district that almost every nursery is separated from its neighbour by a small canal. Communication across these canals is by means of a swing-bridge arrangement, and, if the bridge is "against you," there is no real difficulty, because a long rod with a hook at the end is sure to be found close by, and with it the visitor pulls the bridge round, replaces the pole, and walks over, not forgetting by a deft push with his foot to "shut the gate."

Under the guidance of Mr. Mensing, many of these nurseries were visited, and found to contain, besides Lilac, excellent cultures of Hydrangeas, Begonias, Cyclamen, Primulas, and Roses.

Surprising as are the quantities of forced Lilac, not less so is the manner of marketing the flowers. The market is a large building, well lighted and of light structure—about the size of the London Scottish Drill Hall at Buckingham Gate, where the R.H.S. meetings used to be held. Into this building the flowers are brought and laid out in bunches on movable four-wheeled stalls, each two-tiered, like a dinner waggon. These are arranged in regular rows down the market building, and each grower's contribution is booked, item by item, on a sheet especially designed for the purpose, and this "invoice," which accompanies the flowers, has columns wherein in due course are placed the sale price and the number of the purchaser.

But where are the buyers? To find them it is necessary to follow a porter who wheels one of these flower-laden waggons into a side building. Here, on a sharp-pitched gallery constructed on flower-pot-stand lines, but quite substantial, the buyers sit, each with a notebook and pencil. The only noise beyond an occasional observation in undertone is the voice of the one salesman who sells for all the growers, as the whole of the business connected with the marketing of the flowers is done on co-operative lines.

The method of sale is by Dutch auction. Facing the tiers of buyers is a huge dial with a large, ever-moving hand. Round the dial, near its circumference, are figures representing values and ranging from a very low price to a high one. Within this circle of figures is a large square, composed of small squares which correspond with the number of seats in the buyers' gallery. Each little square is numbered, and has its own tiny electric light. The porter displays a bunch of Lilac. The hand on the dial, commencing at a value the salesman considers full high, swings steadily along on the downward scale, when it sud-

denly halts, and at the same moment a tiny light appears on one of the little squares. The salesman, who watches the dial and has his back to the buyers, observes in a steady monotone that Number 10 has purchased the lot for, say, sixpence a spike, and, while he gives this information, his clerk makes the necessary entries, the porter places a numbered card on the lot and passes to the next. The secret of the whole business is that each buyer has an electric push-knob in the book-board in front of his seat, and, directly the hand on the dial is reaching the figure he deems it worth while to buy at, he presses the button, the hand stops, and the light appears in the square bearing the same number as his seat in the gallery. There is no noise, no bustle, and rarely any excitement beyond a little sigh when a buyer is lucky enough to purchase a good lot at a low rate, while his brethren are hoping the hand will drop another point. Moreover, the business is done quickly, and a dozen sales are effected in the time it has taken a reader to read this paragraph.

As soon as one waggon-load is sold, it is pushed back into the market hall, and thence the contents are taken into the packing sheds attached to the market, where the flowers are packed for transit to Amsterdam, Copenhagen, Brussels, Paris, London, or elsewhere. It is in these sheds that everybody hustles, as trains and boats will not wait beyond the appointed time, even for the beautiful Lilac from Aalsmeer. Sometimes, when supplies are heavy, the sale may continue beyond midday, and even on occasion to so late as 2 p.m., but generally it finishes in the forenoon.

It is a novel experience to watch a big sale of flowers by Dutch auction, to be allowed to press a button just to "see how it works," and to enjoy a market breakfast of new rolls, exquisite butter, delightful cheese, and hot milk (price 8d.). But for clearing huge quantities of flowers in a short time Aalsmeer cannot hold a candle to Covent Garden, although for peacefulness and orderliness Aalsmeer market wins every time. C. H. C.

FORESTRY.

THE OAK LEAF ROLLER MOTH.

SELDOM in a long experience of woodlands in the home counties have I noticed so widespread, persistent and severe attacks of the Oak leaf roller moth (*Tortrix viridana*) as during the present season. Having to deal with the trees on several estates from Kent to Berkshire, I must admit that only on a few occasions before have I noticed so great an amount of damage caused by the caterpillar of this moth as may now be seen, trees, whether isolated or in woods and plantations, sheltered or exposed, being attacked in the same wholesale manner.

In many parts the Oak trees are already entirely stripped of their leaves, and, unless for the greyish, spider-like webs with which the brownish twigs are thickly covered, wear quite a wintry appearance. From the first attack till the full-sized tree is completely stripped is only a question of ten or twelve days, though young Oaks may, and often are, entirely divested of their leaves in less than a week. So numerous are the caterpillars that when beneath an affected tree on a still, warm day, a persistent ticking sound, caused by the pests gnawing the leaves, may be distinctly heard. The Oak leaf roller moth is so well known, owing to the rolled-up appearance of attacked leaves and the method of suspension in mid-air of the tiny green caterpillar, that a description is unnecessary. On various occasions, particularly in the case of the trees in Epping Forest, the question whether the repeated loss of the leaves has an injurious effect on the health of these has arisen, but so far as can be seen this is not the case, at least to any appreciable extent. For the past thirty years the writer has had to do with the trees on a well-wooded estate in Kent where the attacks of the moth have occurred almost annually, but so far as can be seen

at present the trees have not suffered at all in health, and the second growth of leaves is equally robust and of as vivid a colour as were those originally produced. This is particularly emphasised in the case of several standard ornamental Oak trees growing on the lawn by the dwelling-house, which, owing to their being severely attacked many years ago, were at that time the subject of much concern, but to-day these trees are quite as healthy as was the case at least three decades ago.

Little can be done in the way of dealing with a plague of these caterpillars, especially when trees over a wide area are attacked, though in the case of single specimens spraying with an insecticide will assist in keeping the pest in bounds, but the expense of this preventive, added to the cost of application, renders treatment of an infested area quite out of the question. Sometimes the excessive number of the Oak leaf roller moth proves the means of its extinction, the foliage being devoured before the caterpillars are fully fed; while, as is usual at the season of attack, parasitic flies and ichneumons destroy them wholesale. By encouraging such birds as the starling, rook and sparrow, the numbers of caterpillars may be greatly reduced, and the occupants of a rookery will frequently in a few hours clear the pest from the trees over a considerable area of woodlands. On the Holwood estate, in Kent, I have frequently seen the trees in a young plantation of Oak almost black with starlings feeding on the caterpillar. Some observers are under the impression that the Oak leaf roller moth is most abundant where the trees grow closest together, and when we consider that both wind and rain destroy numbers of the insect, the fact of isolated trees, which are most exposed to storms, being comparatively free from attack is not to be wondered at. *A. D. Webster.*

CULTURAL MEMORANDA.

SUMMER WORK AMONGST FRUIT TREES.

The dry weather of the past weeks, following the drought of last summer, has greatly taxed all fruit trees, and no efforts should be spared to give the trees all the assistance possible. Those growing on poor or light soils will be greatly benefited by copious waterings where this is practicable, and the watering should be followed by good mulchings of well-decayed manure to help conserve the moisture. Young trees especially require attention in this respect, as much of their future success will depend on how they go through this second dry season.

It is unwise to allow young fruit trees to carry large crops of fruit, as this might cripple them for several seasons. Where the fruits have set freely, remove all the small and badly-placed specimens, and thin the remainder to a fair average crop.

Trees planted last autumn should not be allowed to fruit this season; rather let them make as much wood growth as possible, which is not likely to be much if the dry weather continues. Pay strict attention to the summer pruning of all trees in order to allow as much light and air as possible to reach the fruit, and also to mature the wood for next season. It is advisable to summer prune on two occasions, dealing with half the shoots at each time. Prune the shoots to three or four buds and pinch out the points of the leaders. Trees infested with aphids and other insect pests should be syringed in the late afternoons with Quassia extract, as much depends on keeping them clean. Quassia extract is quite harmless, but should not be used on trees where the fruit is approaching ripeness, as it is very bitter.

Fruit trees on walls, such as Peaches and Apricots, will be much benefited by a daily syringing with the garden engine to promote a healthy growth and keep red spider in check. Gather all the fruits as soon as they are ready, to relieve the trees and enable them to perfect their growth for next season.

Watering and feeding should be continued

after the fruit is gathered, more especially in the case of wall trees, as these rarely get sufficient water naturally. Attend to the trees again before the autumn, and remove any secondary growths that may have been made; also tie or nail all shoots needed for extension and filling blank spaces. Trees that fruit on wood of the previous year should have the growths tied securely, and as much of the basal wood as possible trained in. All weak shoots and breast wood—that is, those growing at right angles from the wall—should be cut out, and only sufficient of the other shoots left to furnish the tree and cover the wall.

Bush fruits, such as Gooseberries and Red and Black Currants, should be watered, if necessary, although these will withstand dry weather better than most other fruits. Attention, however, should be paid to keeping them clean, and when the fruit is gathered the new growths may be thinned out if the branches are too thick, and the leaders of Red and White Currants may be shortened. In the case of the Black Currant, some of the old wood may be cut out altogether to encourage as much young wood as possible to develop. Gooseberry bushes may be thinned, and the side shoots cut back to form spurs. If this is done they will require much less pruning in the winter. Raspberries need a moist, rich soil, and should be watered and mulched if necessary; some of the roots grow near the surface, therefore it is necessary to keep the ground moist near the surface. Cut out the old growths as soon as the fruits are gathered so that the young shoots may make strong canes.

Strawberries are benefited by constant hoeing in early spring, and as soon as hot weather arrives the plants should be mulched with long stable litter. Strawberries growing in light soils should be watered to assist the berries to swell to a large size; but on heavily manured, rich soils this may not be necessary if the plants were mulched early, as advised. Keep all runners picked off, if they are not required for making fresh beds, as these weaken the parent plant, especially in dry seasons such as we are now experiencing. Watering should be done thoroughly in all cases, as a little applied to the surface only encourages the roots to grow upwards, to become dried up by the sun and air. Pond or rain water that has been exposed to the warmth of the sun is best for use, if procurable. Cold water from a tap or well applied to trees in hot weather would probably do more harm than good, causing mildew and other diseases to appear. Where water is scarce the next best thing is to keep the surface of the ground well hoed, and mulched with manure to keep it as cool as possible.—*R. W. Thatcher, Carlton Park Gardens, Market Harboro'.*

FRUIT REGISTER.

APPLE ENCORE.

THE keeping qualities of Apple Encore should recommend the variety to be planted in most gardens. Here, at The Node, Welwyn, this Apple keeps in firm condition until the month of June, and is one of our latest Apples in use. Encore is a vigorous, upright grower, and was raised by the late Mr. Chas. Ross and introduced in 1908. It has received the First-Class Certificate of the Royal Horticultural Society. Very young trees are rather shy in bearing, but once well established they crop very freely. The tree, being a vigorous grower, often needs root-pruning to bring it into bearing in its early stages. *T. Pateman, The Node Gardens, Welwyn.*

APPLES—CODLIN.

MANY years ago, before Blenheim Pippin, or King of the Pippins, had a name, Codlin was a household word the length and breadth of the land.

Springrove Codlin is one of the best of all the Codlins. The fruit is of medium size, with greenish-yellow skin, tinged with orange on the side next to the sun. The flesh is soft,

greenish-yellow, sub-acid, with an agreeable aroma. This Apple is in season from July to September.

Dutch Codlin is a very large fruit of oblong shape, and has prominent angles. The eye is small and deep, the stalk short and thick. The skin is yellow, changing to orange colour when ripe, and the flesh is white.

The tree is a strong grower, and does well as a half standard.

English Codlin is an old and valuable variety, and one usually propagated from off-shoots; I have seen large branches pulled or wrenched off a bush tree, planted with a spade and left to grow, which they did quite happily.

Carlisle Codlin is a fruit of medium size, and of first quality. The skin is pale yellow; the flesh white, tender and juicy, with a brisk aroma, and the cooking qualities are first rate. It is in season from September to November.

Mank's Codlin is an Irish Apple of great merit, it being most productive season after season. The fruit is of medium size, oval, and most regular in shape of all the Codlin family. The skin is coloured pale yellow, with a deeper shade towards the sun. The flesh is yellowish-white, the juice sub-acid, with an aromatic flavour. The season is August to early November.

Nelson's Codlin is a king amongst the Codlins, its fruit being very large, handsome and useful. The fruit is of first quality, of a rich yellow colour, thickly interspersed with dark dots. The flesh is yellowish-white, delicate, tender, sugary, and useful for either dessert or culinary purposes. The season is August to November. *Pomona.*

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

The Late Mr. F. Clarke.—The notice on p. 328 records the death of one of our best gardeners, Mr. F. Clarke, late of Lowther Castle, who retired from Lord Lonsdale's service about seven years since. The very large flower gardens at Lowther were always kept in excellent order by him, but, being so far from London, were not seen by so many persons as others, and were seldom heard of. It has been my good fortune to see them, in company with Mr. Clarke, and to notice the keen interest he took in keeping them in good order and in carrying out the various alterations which were made from time to time.

Very large numbers of bedding-out plants were used to brighten up the large lawns, and the whole scene, situated among the Cumberland hills, was magnificent. Since my visit private gardens have suffered great losses in the way of floral adornment, especially in such fine gardens as those which my late friend managed so well for forty years. *W. H. Divers, Westdean, Hook, near Surbiton.*

Fungus, Fungous, Fungoid, or Fungal Diseases?—Which adjective is correct? To me it seems that, when the disease is produced by a true fungus, fungous and fungoid are wrong, and should be discarded, and that the choice lies between fungus and fungal. To speak of a fungus or a fungal disease in such a case seems quite correct, but a fungous or fungoid disease may mean a disease caused by something having the character or nature of, or resembling, a fungus without being one. In his *Glossary of Botanic Terms*, Mr. B. Daydon Jackson gives the following definitions: Fungal, relating to fungi; Fungous (or fungose), (1) spongy in texture, (2) relating to a fungus, (3) produced by a fungus; Fungoid, pertaining to a fungus; Fungoid Parasites, parasites which are fungi. Dr. Lindley used the term fungal (Fungal Alliance), and Mr. Hiley also uses it in the title of his book, *The Fungal Diseases of the Common Larch*. In, I think, all his works on forestry, the late Dr. John Nisbet used the term fungoid, and it is very commonly used by other writers. *A. D. Richardson, 34, St. Andrew Square, Edinburgh.*

SOCIETIES.

ROYAL HORTICULTURAL.

JUNE 27 AND 28.—The exhibition held on these dates at Vincent Square was an admirable one, and the display of hardy flowers, Begonias and Carnations provided glorious colouring, while a large number of novelties added considerable interest to the meeting. The Floral Committee had an arduous task in judging the forty-three groups exhibited and the fifty-nine flowers and plants submitted for awards.

Orchid Committee.

Present: Sir Jeremiah Colman, Bart. (in the chair), Prince Shimadzu, Messrs. Jas. O'Brien (hon. Secretary), Gurney Wilson, Arthur Dye, Fred K. Sander, H. T. Pitt, W. J. Kaye, Pantia Ralli, E. R. Ashton, J. Wilson Potter, Frederick J. Hanbury, S. W. Flory, Stuart H. Low, H. G. Alexander, and C. J. Lucas.

Messrs. STUART LOW AND CO., Jarvisbrook, Sussex, staged a fine group, for which a Silver-Gilt Flora Medal was awarded. The background was of fine plants of *Laelio-Cattleya Canhamiana*, varying from white with rose purple lip, to rose with claret lip. With these were good selections of *Cattleya Warszewiczii* and *C. Mendelii*. *C. Mendelii* Sunray is a very remarkable form and a distinct novelty; its large petals have a broad band of purple matching the maroon purple of the lip. New hybrids in this group were *Brasso-Laelio-Cattleya Ancona* (B. L. Jessopii $\times$ L. C. luminosa) with clear yellow flower; and *Odontodia Virgil* (Odm. Rolfeae $\times$ Oda. St. Fuscien), a showy flower with yellow ground heavily blotched and veined with dark red. The group was largely composed of species of *Dendrobium*, including the white and purple *D. superbum* Huttonii (see Fig. 6), *D. Parishii*, of good type, the blue *D. Victoria Regina*, and other *Dendrobies*, both species and hybrids. *Phalaenopsis amabilis*, *Vanda coarulescens*, *Eria amica*, *Masdevallia tridactylites*, *Trichopilia tortilis*, and various *Oncidium*s, with the fine bronzy scarlet *Oncidioda* Stuart Low, were also well shown.

Messrs. SANDERS, St. Albans, were awarded a Silver Flora Medal for a good and excellently well arranged group, in which elevated plants of the yellow *Cattleya citrina* between good forms of *Cattleya Mossiae*, *Laelio-Cattleyas*, and *Odontoglossums* were very effective. The returning interest in rare species was seen in a very interesting selection, including *Laelia Gouldiana*, the yellow and purple *Eulophia streptopetala*, *Epidendrum Parkinsonianum*, *Aerides virens*, and other *Aerides*; a selection of *Dendrobiums*, *Masdevallias* and allied species.

Messrs. CHARLESWORTH AND CO., Haywards Heath, showed some excellent specimens, the central plant being a grand example of *Coelogyne burfordensis* *pandurata* $\times$ *asperata* with seven spikes, each with from twelve to fifteen large, pale emerald green flowers with blackish marks on the lip, and for which a Cultural Commendation was given. Other fine Orchids were *Miltonia Charlesworthii* with four spikes; the superb *Sophro-Laelio-Cattleya* Prince Hirohito, for which a First-Class Certificate and Gold Medal has already been awarded; *Laelio-Cattleya* General Maude, a fine flower; and *Odontoglossum Ithone*.

Floral Committee.

Present: Messrs. H. B. May (in the chair), D. B. Crane, W. P. Thomson, W. B. Gingell, Arthur Turner, M. C. Allwood, C. R. Fielder, W. Howe, G. Harrow, John Heal, J. W. Barr, G. Reuthe, W. J. Bean, R. C. Notcutt, E. A. Bowles, Sydney Morris, H. V. Warrender, G. W. Loder, Jas. Hudson, W. B. Cranfield, C. Williams, J. F. McLeod, J. T. Bennett Poë, Chas. E. Pearson, R. W. Wallace, and H. J. Jones.

FIRST-CLASS CERTIFICATES.

Anemone glaucophylla.—A new, distinct and beautiful species, which, if hardy and a good grower, is sure of a welcome in gardens. The plant shown had deeply divided leaves, light

green, but with little trace of glaucous colouring. The inflorescences, about a yard high, carried one expanded flower and two buds. The flower was five inches in diameter, of light mauve colour, with a satiny sheen. Raised from seeds sent home by Forrest. Shown by Col. STEPHENSON CLARKE, Cuckfield.

Rhododendron discolor.—An exquisitely beautiful *Rhododendron*, with dark green leaves that are pale glaucous green on the underside. The widely expanded flowers have slightly recurving lobes, prettily waved. The throat is yellowish green, but the rest of the flower is white or blush and even pink in some forms. Slightly fragrant. Shown by the DIRECTOR, Royal Gardens, Kew.

AWARD OF MERIT.

Campanula rotundifolia Jenkinsii.—This charming *Campanula* was raised by the late Mr. E. J. Jenkins, who considered it to be one of the best plants he had raised. The narrow foliage scarcely corresponds to the specific name. The flowers, of the usual size and form, are freely borne on slender erect stems and are pure white. Shown by Mr. H. J. JONES, Lewisham.

Gaillardia Knight Errant. In this variety the two or three rows of ray florets are very broad and flat; light golden yellow with small reddish base. Shown by Mr. DOWNER.

Gaillardia Yeman. A bold and handsome variety, with three rows of broad ray florets. The colour is rich golden yellow, with blood crimson centre. Shown by Mr. G. R. DOWNER, Chichester.

Begonia Aurora.—A large, double-flowered variety of excellent, rounded form; the colour is yellow, edged with golden apricot.

Begonia Stella.—A glorious drooping variety and a grand plant for a hanging basket, in which form it was admirably shown. The double flowers are of a rich red hue.

Begonia Venus.—An elegant drooping variety with double white flowers, but the flowers are not heavy. A fine *Begonia* for a hanging basket.

Begonia Fanny.—Another drooping variety and a fine basket plant; colour, soft rich pink. These four *Begonias* were shown by Messrs. BLACKMORE AND LANGDON, Bath.

Dianthus Prichardii var. *Dunnietii*.—A lovely single Pink, with slightly fringed petals. The colour is deep scarlet crimson with a deep velvety crimson centre. Very handsome and free. Shown by Mr. MAURICE PRICHARD, Christchurch.

Carnation E. G. Quick.—This finely formed border variety is of deep slaty heliotrope colour. Shown by Mr. JAS. DOUGLAS, Great Bookham.

Rose Jacquelin.—A hybrid briar Rose, free-flowering, with neat dark foliage, and semi-double flowers of rich salmon-pink hue heavily shaded with gold; very effective. Faintly fragrant. Shown by Messrs. WM. PAUL AND SON, Waltham Cross.

Delphinium Mrs. F. T. Neighbour.—One of the prettiest *Delphiniums* of recent introduction, as its semi-double flowers open out well and are of a clear and beautiful sky-blue colour. Shown by Mr. FRED SMITH, Weybridge.

Philadelphus Coup d'Argent.—One of the most graceful and beautiful of *Philadelphuses*, the elegant branches, with narrowly lanceolate leaves, carrying numbers of flat, single, pure white flowers; fragrant. Shown by Sir W. LAWRENCE, Bt. (gr. Mr. J. Brown), Burford Lodge, Dorking.

Buddleia alternifolia.—This graceful, free-flowering hardy shrub is blooming in several gardens just now and shows some variation. In its best form it is a graceful shrub, about 12 feet high, with an abundance of slender arching growths, which at this season of the year are wreathed with small Lantana-like flowers of soft mauve colour, and sweetly scented. Many of the branches have blooms along two or three feet of their length. The narrow alternate leaves are green above and grey beneath. Sent home by Farrar as his No. 100, this *Buddleia* has now been on trial for some time. It is scarcely so bold and effective as *B. variabilis*, but as a shrub for cultivation near water it appears likely to win a place for itself. Shown by the Hon. VICARY GIBBS, Aldenham

House, Elstree; and by LIONEL DE ROTHSCHILD, Esq., Exbury, Southampton.

Esculus indica.—The Indian Horse Chestnut known also as *Pavia indica*, Wallich, and figured under this latter name in the *Bot. Mag.*, t. 5117, is a handsome tree. It has compound leaves composed of 5-7 long leaflets, shining green above. The erect spikes are a foot or more in length and about five inches wide; the flowers are white or pale pink, and the inner pair of the four petals have a yellow or rose-red blotch at the base. In *Trees and Shrubs Hardy in the British Isles*, Mr. W. J. Bean expresses the opinion that *Esculus indica* is one of the most magnificent of all temperate trees, and equalling the common Horse Chestnut in size and beauty. He refers to a specimen 70 feet high at Barton, Suffolk, introduced by Col. Bunbury in 1851, but we understand this fine specimen no longer exists. At Kew good seeds have been produced and seedlings raised therefrom. Shown by the DIRECTOR, Royal Gardens, Kew.

Cornus capitata.—An old species known in gardens as *Benthamia fragifera* and represented in Cornwall and the warmer parts of Ireland by large trees. The branch shown had flagged so badly that the beauty of the sulphur-coloured bracts was lost. Shown by C. J. LUCAS, Esq., Warnham Court, Horsham.

GROUPS.

Delphiniums were a great feature of the show, and these were represented by many tall, well-flowered spikes. In the large collection by Messrs. KELWAY AND SON there were James William Kelway, large dark purple blooms with a white eye; Smoke of War, Gaby Deslys, Geraldine Kelway and Sir Alfred Keogh (Silver Flora Medal). The collection by Messrs. R. H. BATH, LTD., was especially noteworthy for the clear colour and excellence of the pale blue sorts, such as Baldersage, Musis sacrum, The Knight and Ellen Terry, though many other sorts were also worthy of admiration (Silver Banksian Medal). The darker sorts were most prominent in an exhibit by Mr. W. WELLS, Junr., and of these Lord Curzon, Cossack and Mr. H. Kaye were particularly good (Silver Banksian Medal).

Messrs. G. G. WHITELEGG AND CO., LTD., had many *Delphiniums* of merit and various Irises (Bronze Banksian Medal). *Delphiniums* and *Gaillardias* were shown by Mr. G. R. DOWNER (Bronze Banksian Medal). Messrs. BUNYARD AND CO. had various *Delphiniums* with Iris Monnier, *I. ochroaurea* and others. (Silver Banksian Medal).

Many excellent spikes of *Delphiniums* were arranged by Messrs. BLACKMORE AND LANGDON, Robert Cox and Dusky Monarch, of dark blue colour, Queen of Bath, Queen Mary and Mrs. Townley Parker, light blue, Lorenzo de Medici and Mrs. Shirley, mauve shades, were very handsome (Silver Flora Medal).

General border flowers were present in great variety, and of a higher order of merit than might have been expected after the long drought. The CHALK HILL NURSERY CO. showed many useful varieties, and included a good specimen of *Edelweiss* and some of their large *Mimulus* (Bronze Banksian Medal). Messrs. LADHAMS, LTD., included a splendid plant of *Eurotia speciosa grandiflora* with an excellent collection, and, in the annex, had many desirable border Pinks (Silver Flora Medal). Messrs. WATERER, SON, AND CRISP included the brilliant scarlet *Verbena chamaedrifolia* and *Armeria Bees' Ruby* in their collection (Silver Flora Medal).

A pleasant little rock garden was made and appropriately planted by Messrs. WM. CUTBUSH AND SON (Silver Banksian Medal). Many dwarf *Campanulas* with other border flowers were shown by Messrs. R. TUCKER AND SON (Bronze Flora Medal). Mr. AMOS PERRY had a large batch of the semi-double *Coreopsis grandiflora* Perry's var. (Bronze Banksian Medal). Border flowers were also shown by Messrs. MAXWELL AND BEALE (Bronze Banksian Medal). Mr. CLARENCE ELLIOTT, the Misses HOPKINS, Mr. MAURICE PRICHARD (Silver Flora Medal), Mr. G. W. MILLER (Bronze Flora Medal), Mr. G.

REUTHE (Bronze Flora Medal), and Mr. DIXON also showed various hardy flowers.

A large and very meritorious collection of Sweet Peas was delightfully arranged by Messrs. SUTTON AND SONS. The tall stands of such sorts as Doris, Doris Usher, Hawmark Pink and Mrs. Tom Jones enabled their great decorative value to be easily appraised, while smaller, though quite large collections of Orange Perfection, Gladys, Adelaide, Picture and May Unwin were equally beautiful (Silver-Gilt Banksian Medal).

In a smaller, but particularly good selection of Sweet Peas Messrs. R. BOLTON AND SON displayed excellent vases of such sorts as Picture, Tangerine Improved, Comrade and Elsie Dene (Bronze Flora Medal).

Just inside the entrance Mr. H. J. JONES had a large collection of well-grown Hydrangeas and herbaceous Phloxes. All were growing in relatively small pots, and the Phloxes were particularly fine, whilst the Hydrangeas bore large, shapely heads of bloom. The following are the names of a few of the many good Phloxes on view: John Meakings, Mrs. Bevil Fortescue, Mrs. H. J. Jones, Florrie Freeman, Selma and Mia Ruys (Silver-Gilt Banksian Medal).

Messrs. HILLIER AND SONS made a pretty little water garden in a corner space by the stairs. There was a pool with excellent blooms of such Nymphaeas as Gladstoniana, atropurpurea, flammea and Escarboucle (Silver Banksian Medal).

An interesting collection of hardy shrubs was arranged by Mr. CHAS. TURNER. Amongst the many valuable species we noted Ochra multiflora and Neilla (Spiraea) Torreyi in fruit and Tilia asplenifolia and Ligustrum Iboia (Silver Banksian Medal). Some well-flowered bushes of Kalmia latifolia were shown by Mr. T. LEWIS (Bronze Banksian Medal). Messrs. CHEAL AND CO. showed English Irises and Dahlias, with hardy flowers (Bronze Flora Medal).

Dame ALICE GODMAN (gr. Mr. C. Savegar), South Lodge, Horsham, showed an interesting set of seedlings of Rhododendron discolor and sprays of Styrax Wilsonii. An excellent collection of named English Irises was staged by Messrs. BARR AND SON, who also showed many Delphiniums (Silver Banksian Medal).

Roses, mostly those of garden and decorative value, were fairly plentiful. Mr. W. PAUL included the dark crimson Walter C. Clark, of which he had some exceedingly fragrant blooms. Gloria, a new H.T. of full shape and deep pink colour, Mrs. Hy. Morse, Columbia and Paul's Scarlet Climber were also prominent varieties (Silver Flora Medal). Under the clock Messrs. F. CANT AND CO. showed Mrs. Alfred Wist, Golden Emblem, C. V. Haworth, Mrs. Rosabel Walker, Golden Ophelia, with other good sorts (Bronze Flora Medal). The Rev. J. H. PEMBERTON had a collection which included several good climbing varieties.

Stove and Greenhouse plants were more numerous than usual at this time of the year. At the end of the hall, next to Sutton's Sweet Peas, there was a collection of Crotons from A. P. BRANDT, Esq. (gr. Mr. J. W. Barks), Bletchingley, Surrey, which were admirable in their clear growth and excellent colouring. A great variety were shown, including Evansianus, Queen Victoria, Lady Zetland, and Juliet Russell (Silver-Gilt Flora Medal).

A goodly collection of Caladiums was arranged by Messrs. JOHN PEED AND SON, who also had many plants of a good strain of Streptocarpus and two batches of double-flowered Petunias. The latter were Holly Greenfield, rich pink, and Mrs. John Campbell, velvety blue (Silver Flora Medal).

An excellent collection of miscellaneous stove plants was attractively arranged by Messrs. L. and R. RUSSELL, LTD. The plants all illustrated splendid cultivation, and included such kinds as Dracaenas in great variety, Caladiums, Anthuriums, Medinilla magnifica, Nepenthes, Tabernaemontana and Cissus discolor (Silver Flora Medal). A long stretch of tabling was filled with an admirable collection of Streptocarpus by Messrs. R. and G. CUTHBERT. The plants were all of the large-flowered type, and bore

an unusual quantity of bloom, illustrating a very desirable strain (Silver-Gilt Banksian Medal).

Excellent tuberous-rooted Begonias were staged by Messrs. BASTIN AND SON. They were mostly of such double-flowered sorts as Lady Bell, for which they received an Award of Merit at the previous meeting, Mrs. Reg. Caulfield, Lady Diana Cooper and Mrs. W. Churchill. The pretty crested singles and graceful basket Begonias were also well represented (Silver Flora Medal).

The customary collections of greenhouse Carnations were contributed by Mr. C. ENGELMANN (Silver Banksian Medal), and Messrs. ALLWOOD BROS. (Silver Flora Medal), the latter adding quantities of their Dianthus Allwoodii. Mr. J. DOUGLAS showed a good collection of border Carnations, which included Sunshine, rich yellow; Saladin, mauve with scarlet stripes; Miss Elizabeth Shiffner, Linkman, White Clove and the deep crimson Sir Brunetto (Silver Banksian Medal).

Messrs. CARTER, PAGE AND CO. showed Irises, Violas and Dahlias (Silver Flora Medal).

Fruit and Vegetable Committee.

Present: Messrs. J. Cheal (in the chair), E. A. Bunyard, W. Poupart, H. S. Rivers, P. C. M. Veitch, Geo. F. Tinley, W. Jefferies, S. B. Dicks, J. Wilson, J. C. Allgrove, T. Pateman, E. Beckett, P. A. Tuckett, H. Markham, E. Merryweather, E. Neal, W. Bates, W. H. Divers, and the Rev. W. Wilks.

Mr. Alan N. Rawes, Fruit Experiment Officer at Wisley, has been appointed Secretary of this Committee, in succession to the late Mr. S. T. Wright.

AWARD OF MERIT.

Cherry Peggy Rivers.—This new early Cherry is stated to be a seedling from Bigarreau Gros Coeur and ripens at the same time as Governor Wood, which it greatly resembles, but the foliage is darker. The great value of the new variety is that the fruit does not split, as is frequently the case with Governor Wood, out-of-doors. Shown by Messrs. T. RIVERS AND SON.

GROUPS.

Messrs. T. RIVERS AND SON showed a corner group of Cherry trees in pots, all superb specimens and bearing large crops of luscious fruits. The varieties were Frogmore Bigarreau, Governor Wood, Early Rivers, and the new Peggy Rivers (Silver-Gilt Hogg Medal).

Varieties of Broad Beans, representing those for which Awards of Merit were recommended by the sub-committee on the 25th ult., were shown, from the WISLEY GARDENS. The trial comprised some eighty-three varieties, and the seed was sown on February 27. The following sorts were those recommended for Awards of Merit: Multiple, White Edge Early Large, Early White-Edged, Shirley Long Pod, Broad Windsor Selected, Giant White Windsor Improved, Exhibition, Champion Long Pod, Hangdown Selected, and Green Leviathan.

Messrs. SUTTON AND SONS showed new types of dwarf Broad Beans, a white seeded variety about one foot in height, and a green seeded sort, which only grows about nine inches tall. They were the progeny of Dwarf Gem crossed with Exhibition Long Pod.

Messrs. H. CHAPMAN, LTD., Rye, showed a very large podded form of Broad Bean, of a bushy habit of growth and very prolific cropping, of the Aquadulce or Seville type. The variety was recommended for trial at Wisley.

Mr. G. APPLETON, Northwick, showed a Rhubarb named Appleton Red. It is of the Paragon type and, like Paragon, is said never to run to seed.

STREATHAM ROSE AND SWEET PEA.

A SMALL but altogether successful exhibition was held in the Congregational Hall, Streatham, on the 24th ult., by the Streatham and District Rose and Sweet Pea Society.

In the open class for twenty-four Roses, distinct, the Championship was won by Messrs.

FRANK CANT AND CO., Colchester, who had excellent blooms of H. V. Machin, J. B. Clark, F. K. Druschki, and other first-rate varieties. There were six entrants, Mr. G. PRINCE, Oxford, winning second prize, and Messrs. PRIOR AND SONS, Colchester, third prize. For eighteen Tea and Noisette Roses, distinct, Mr. PRINCE won first prize, showing many excellent blooms, including Mme. Jules Gravereaux and Maman Cochet; second, Messrs. D. PRIOR AND SONS, and third Messrs. F. CANT AND CO. The Norman Rogers Challenge Cup for the best twelve blooms shown by amateurs was won by Mr. M. COXHEAD, and the Streatham Amateur Challenge Cup for six blooms, distinct, was won by Mr. A. E. COXHEAD, Ambleside Avenue, while Mr. T. J. GARRATT won first prize in another class for six blooms.

The Streatham Traders' Challenge Cup for six bunches of Sweet Peas, distinct, was won by Mr. W. MARTINEAU, The Chestnuts, Boxmoor, while in the open classes the premier award for twelve bunches was won with magnificent flowers by Mr. A. E. USHER, The Gardens, Ransdon, Blandford, Dorset. Mr. J. B. PROCTER, Ellison Road, Streatham, had the best vase of twenty-five sprays of Sweet Peas, and won in a very close competition among ten exhibitors. Mr. A. CURTIS, a local grower, won the cup for six bunches of Sweet Peas.

In local classes Mrs. DYER, Beulah Hill, won first prize for a decorative basket of flowers with a very charming arrangement of blue Delphiniums and pink Paeonies. Mrs. DYER also had the best bowl of Roses, while Mrs. A. KING had the best vase of garden flowers in one section, and Mr. TAYLOR, St. Mark's Road, had the best vase of garden flowers in the local section. In each of these two latter classes the competition was extremely keen, and the numerous exhibits made a fine contribution to the general display.

Messrs. B. R. CANT AND SONS, Messrs. CHAPLIN BROS., and Mr. PRINCE each put up excellent non-competitive displays of Roses that added greatly to the effect and interest of the exhibition.

ROYAL CALEDONIAN HORTICULTURAL.

JUNE 6.—The ordinary monthly meeting of this Society was held at 5, St. Andrew Square, Edinburgh, on this date, Mr. David King, President, in the chair.

Sir Herbert Maxwell, Bart., Monreith, read a paper entitled, "Cultural Notes on Rhododendrons." We were not yet in a position, he said, to gauge the full affluence of the Rhododendron family. The number of new species introduced from China by Henry, Wilson, Forrest, Farrer, and others, amounted to many hundreds, ranging from the humble creeping forms to R. giganteum, which attained a height of 80 feet. Some of these species were of high ornamental merit, but many were of little more than botanical interest. It had been found that, with the exception of the dwarf species which grew above the limit of forest growth (12,000 to 15,000 feet) in Western China, which take the place there of Heather in Western Europe, most species of Rhododendron from high altitudes flourish and flower freely in the milder districts in this country if they are protected against wind. As to hardiness, a safe test was found in R. arboreum. Where that species flourished, most of the new kinds have nothing to fear from the British winter, provided they have protection against wind. Winter cold was not, however, what they had most to fear in this country. Most of the Asiatic species came from high altitudes (5,000 to 15,000 feet), where the winter temperature brought them to complete rest for several months, whereas a typical British winter consisted of long spells of mild, wet weather, causing the buds of sensitive species to swell and push, to be blackened and killed by frost in March and April. In the mild climate of the west coast of Scotland, 100 feet above sea level, with Sir Herbert the beautiful Chinese species, R. oreodoxa, started into growth in February in 1921, and had all the young shoots destroyed in April, whereas at Dawyck,

in Peeblesshire, a cold district, 600 feet above the sea, the plants were kept dormant, and put forth new growth after the danger from frost was past. Sir Herbert also referred to the inability of *Rhododendrons* to thrive, or even live, in soil which contained more than a faint trace of lime, and of attempts which had been made to grow them on the chalk formation by excavating huge beds and filling them with peaty soil, where they only thrive until the water from the chalk filtered into the soil. It occasioned much surprise, therefore, when Messrs. Wilson and Forrest and other collectors reported the discovery of many species growing luxuriantly on limestone, but Mr. Forrest discovered that these plants had the under surface of their leaves, and in some cases the young growth, covered by the mycelium of the fungus which is usually found on the roots of the *Rhododendron* and other plants, and that this is killed when the roots are brought into contact with lime, and the *Rhododendron* dies of starvation when it is deprived of the services of its humble ally. The fungus, therefore, changes its habitat and becomes a mycophyllon instead of a mycorrhiza, the obvious inference being that, as it is unable to encounter the lime, it changes its location and repays the plant for its lodging there by free nitrogen drawn from the air instead of fixed nitrogen drawn from the soil.

In dealing with their cultivation, Sir Herbert confined his remarks to a few special points applying to natural species, leaving aside garden hybrids. All except those with very small leaves were, he said, naturally woodland species, and to ensure their vigorous development they should be partially screened from full sunlight. Open woodland glades afforded the ideal position for them, otherwise a north or north-west exposure was best, provided they had shelter from wind, but the small-leaved species from the Asiatic mountains did best in open exposures. In forming collections of some of the natural species, he emphasised the necessity for plenty of space, and said it would be well to act on the precept enunciated by the owner of perhaps the largest collection of *Rhododendrons* in Cornwall, who told him years ago to "place each plant in such a position that you will be able to ride round it thirty years later." With the more vigorous kinds, it was the only way to avoid disappointment, and as an illustration of this, he referred to a specimen of *R. campanulatum*, at Leny, in Perthshire, raised from seed in 1823, which was now 30 feet high and 150 feet in circumference. The larger Asiatic species should never be planted nearer to each other than 60 feet, and 100 feet was not too much. But the ground which they were intended to ultimately occupy could be planted with hybrid *Rhododendrons* and *Azaleas*, which flower when they are of small size, as well as other flowering shrubs, in order to temporarily furnish the ground.

The annual application of a liberal mulch of freshly-fallen leaves, 1 foot thick, in November, which should be allowed to decay *in situ*, was recommended in order to protect the root system against such agencies as drought, deficiency of nourishment, etc. Farmyard manure as a mulch was, Sir Herbert thought, if not mischievous, superfluous. Although *Rhododendrons* thrive in good peat, the Asiatic species were not acquainted with it until they were brought to this country. In their native homes they subsist on the leaf mould of the forest soil. Nevertheless, peat of the right sort was an admirable ingredient in a compost, and it possessed the great advantage over leaf-mould in that it did not harbour slugs and injurious insects. Peat dug from a moss flow, however, which is full of humic acid, should be exposed to sun and rain for six months, and well pulverised before use. The sand used should be sharp and rather coarse. Sea sand, which consisted largely of triturated shells, contained lime, and was unsuitable for *Rhododendrons*, but where it was chiefly composed of grains of quartz, it exerted no chemical action on them.

The exhibits were:—*Rhododendrons*, from Sir HERBERT MAXWELL, Bart.; *Rhododendrons*, from Mr. W. G. PRIE, Dalhousie Castle, Midlothian; Darwin Tulips, from the

MARCHIONESS OF TWEEDALE. Yester, Haddington (Silver Medal); Darwin Tulips, from Messrs. DOBBIE AND CO., Edinburgh (Silver Medal); *Aquilegas* and *Chimonanthus fragrans*, from Mr. JOHN DOWNIE, Edinburgh (Cultural Certificate); *Chieranthus Allionii*, from Messrs. J. GRIEVE AND SONS, Edinburgh.

TRADE NOTE.

A REMARKABLE catalogue of quite unusual form and size has reached us from Messrs. T. Bath and Co., Savoy Street, Strand. It is like a large newspaper, and consists of twenty pages crowded with illustrations of garden tools and requisites, garden seats, summer houses, tea houses, bungalows, poultry appliances, bee hives, and a host of other things connected with the equipment of the garden and the farm, in addition to household furniture, and other goods of varying interest and usefulness.

ANSWERS TO CORRESPONDENTS.

APPLE SHOOTS INFESTED WITH RED INSECTS: B. C. The shoots are infested with red spider which may be destroyed by spraying with a weak insecticide.

ASTERS DISEASED: J. H. J. Notts. The Asters are suffering from the Black Neck or Wilt Disease, caused by a fungus (*Phytophthora* sp.) present in the plant. All diseased plants should be lifted and burnt, and healthy plants sprayed with Bordeaux mixture.

LABURNUM WITH THREE TYPES OF FLOWERS: W. P. The flowering shoots from your Laburnum represent the type, Laburnum vulgare, yellow; *Cytisus purpureus*, and the multi-coloured form known as Adami. This is a case of a graft hybrid in which *Cytisus purpureus* grafted on the common Laburnum has resulted in the form known as Adami. It is one of the classical examples of a graft hybrid to which reference is made on p. 3 (see also *Gard. Chron.*, September 24, 1904).

NAMES OF PLANTS: F. O. Bignonia Tweediana (Brazil).—A. F. E. (1) *Aubrietia deltoidea* var.; (2) *A. d. violacea*; (3) *Camassia esculenta*; (4) *Aethionema iberideum*.—H. C. M. The tree is *Aesculus Pavia*, syn. *Pavia rubra* (Red Buckeye), and the blue flower *Saintpaulia ionantha*, a greenhouse plant.—Gardener, Herts. *Cercis Siliquastrum*. L. N. A. 1. *Robinia Pseud-acacia*; 2. *Spiraea brachybotrys*; 3. *Philadelphus coronarius*.—Enquirer. 1. Unable to identify; 2. *Raphiolepis ovata*; 3. *Lonicera involucrata*.—A. Wilson. *Crataegus orientalis*.—P. E. N. *Linaria purpurea*.—R. S. L. Probably *Arum Dracunculoides*, but we cannot determine the specimen in the absence of inflorescence.—H. F. W. *Xanthoxeras sorbifolia*. J. K. *Pancreatum calathinum*.

RUSCUS ACULEATUS FRUITING: J. J. S. The Butchers' Broom commonly fruits in the south of England, and sprays with the fruits on them are sometimes marketed in Covent Garden. We have noticed the plant fruiting freely in the neighbourhood of Oxshott, Surrey.

ST. BRIGID ANEMONE: E. W. The only Irish firm we know which specialises in St. Brigid Anemones is Messrs. Reamsbottom and Co., Alderborough Nursery, King's County; but we do not think they have a London address.

VIOLA CUTTINGS: R. H. H. It is advisable to take off some of the lower leaves and the stipules before inserting the cuttings in the soil, as they might set up decay. Sever the shoots just below the node with a sharp knife, and use plenty of sand and grit in the soil in which they are to be rooted.

Communications Received.—A B.—E. B.—M. E. M.—A. H.—H. S.—M. M.—F. I.—G. S.—W. J. C.—H. B. M.—W. N. H.—H. S.—Dr. P.

MARKETS.

COVENT GARDEN, Tuesday, June 27th, 1922.

Fruit: Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Apples,		Grapes	
—Australasian, 12 0-14 0		Muscat	3 0-6 0
—Sturmer Pippin 13 0-15 0		Lemons	
—Others	10 0-14 0	—Messina, ..	14 0-22 0
Apricots, Spanish,		—Murcia	18 0-28 0
Half sieve .. 10 0-12 0		—Naples, ...	18 0-22 0
Crates	10 0-14 0	Melons	
Bananas, singles 15 0-25 0		—Cantaloupe, ..	2 6-7 0
—doubles	20 0-25 0	—Denia	20 0-35 0
Cherries		Nectarines	
English, Rivers 12 0-14 0		—	12 0-30 0
—Governor Wood 7 0-10 0		Nuts	
—Bigarreau	8 0-12 0	—Brazil	44 0-46 0
Currents, Black,		Oranges,	
—French, ½ sve. 20 0-23 0		—Murcia 200 ..	22 0-28 0
Figs, per doz. .. 4 0-15 0		—, Blood	22 0-27 6
Gooseberries		—Navel	30 0-..
English		—South African 20 0-25 0	
Half sieve .. 6 0-9 0		—Valencia, ..	24 0-35 0
Grape Fruit .. 25 0-35 0		Peaches, per doz. 6 0-24 0	
South African,		Pineapples ..	2 0-5 0
Grape-Fruit .. 55 0-60 0		Strawberries	
Grapes,		—Southampton,	
—BlackHamburg 3 6-5 0		2 lb. chips ..	1 6-2 0
—Canon Hall .. 5 0-8 0		3 lb.	2 6-3 6
		—Kent pecks, ..	5 0-8 0

REMARKS.—The Strawberry season has had its usual effect on the demand for other fruits, and prices have fallen considerably. Ample stocks of Australasian Apples are on offer at easier rates. Bananas are quoted lower, and not in much demand. Oranges and Lemons are a slow trade. Apricots from Spain have sold freely at lower prices. Plums and Greengages from the same source are selling moderately freely. A fair quantity of English Cherries is arriving each day, the reduced values encouraging a good demand. Gooseberries have been a drag on the market, large quantities arriving from Holland, and prices are accordingly very low. French Black Currants have been in demand, and are selling freely. English hothouse fruits, such as Grapes, Peaches, Nectarines, Figs and Melons, are in good supply, and except in the case of Melons, good prices are being obtained for the choicer qualities of these fruits. Strawberries are moderately plentiful, supplies from both Hampshire and Kent selling for the most part at satisfactory prices. New Potatoes from all sources are plentiful and cheap. Forced Beans are lower in price. Mushrooms are plentiful, and Peas are in good request, but Cabbages and other greens are quoted at very low rates.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d. s. d.		s. d. s. d.
Adiantum		Hydrangeas,	
cuneatum,		—White, 48 per	
per doz. .. 10 0-18 0		doz.	15 0 24 0
—elegans	10 0-12 0	—Blue, 48 per	
Aralia Sieboldii 10 0-12 0		doz.	18 0 30 0
Aracarias .. 30 0-48 0		Marguerites,	
Asparagus plu-		per doz. ..	12 0-18 0
mosus	12 0-15 0	Nephrolepis, in	
—Sprengeri .. 12 0-18 0		variety	12 0-18 0
Aspidistra, green 48 0-72 0		—32's	24 0-36 0
Asplenium,		Palms, Kentia ..	24 0-30 0
per doz. .. 12 0-18 0		—60's	15 0-18 0
—32's	24 0-30 0	—Coccol	24 0-36 0
—nidus	12 0-15 0	Polyanthus, Roses	
Cacti, per tray,		48s. per doz. 12 0-18 0	
12's, 15's .. 5 0-6 0		Pteris, in variety 12 0-21 0	
Crassulac 48's .. 24 0-30 0		—large 60's ..	5 0-6 0
Crotons, per doz. 30 0-42 0		—small	4 0-4 6
Cyrtomium .. 10 0-15 0		—72's, per tray	
Fuchsias		of 15's	3 6-4 0
48 per doz. .. 12 0-18 0		Rambler Roses	
60	6 0-7 6	each	5 0-15 0
Heliotrope, 48		Stocks, white and	
per doz. .. 10 0-12 0		coloured	9 0 12 0
		Verbenas, 48's	
		—Miss Willmott 15 0-18 0	

REMARKS.—There is no great demand for any particular subject and, generally, the supplies exceed the demand, while there is a further reduction in the prices for all outdoor blooms. *Achillea*, *The Pearl*, and *Alstromeria* are now available. There has been an abundant supply of *Lilium longiflorum*, and a few blooms of *Lilium lancifolium* are available. Canterbury Bells, *Delphiniums*, *Gladioli*, *Gaillardias*, *Larkspurs*, white and coloured Stocks, are all being received in excellent condition. English *Irises* are arriving in good condition, also *Statice sinuata* and *rebuscus coccinea*. The quantities of foliage are also sufficient to meet all requirements. *Asparagus plumosus*, *A. Sprengeri*, *Adiantum* (Maidenhair Fern), and large consignments of *Smilax* are available. The last is arriving from Guernsey, and the price fluctuates, there being none from home growers.

GARDENING APPOINTMENTS.

Mr. J. Roberts, previously Gardener to C. H. LOMAX, Esq., Grove Park, Yoxford, Suffolk, as Gardener to Col. HAMRO, C.B.E., Coldham Hall, Bury St. Edmunds, Suffolk.

Mr. D. Milne, for the past thirteen months Foreman at Cromlix, Dunblane, as Gardener to E. BALFOUR, Esq., Balbirnie, Markinch, Fifeshire. Thanks for 2/6 for R.G.O.F. Box.—E.D.S.

Mr. Charles T. Farmer, for the past eleven years Gardener to Lord ASHTOWN, Woodlawn, Co. Galway, Ireland, as Gardener to Lord GLENARLTHOR, Fullerton House, Troon, Ayrshire.



THE Gardeners' Chronicle

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 62.1°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, July 5, 10 a.m. Bar. 29.9; temp. 61°. Weather—Fine.

On Planting in Times of Drought.

The sudden transition of winter to summer weather which occurred this year and the almost complete absence of rain made gardening operations difficult and laborious. Gardeners who are in charge of well-established gardens are generally so experienced and resourceful that, although the conditions this year have greatly tried their ingenuity and powers of work, they have been able to overcome in large measure the difficulties of the present season. Less experienced gardeners, however, have complained bitterly that they could not get their plants "out," and also that their seed beds have failed. A case of this kind came under our observation recently. A young and keen gardener was complaining bitterly that he could not plant out his Antirrhinums, Cauliflowers, Leeks, Celery and other garden and kitchen garden crops. He was devoting much of his time to watering, but the results were not in proportion to his efforts. The soil was bone dry at the surface although, being of a heavy kind, there was plenty of mois-

ture underneath. Two facts escaped his notice, or at all events his application. One, that by consolidating the soil it is possible to facilitate a rise of water from the deeper levels to the upper crust—a practice which, of course, is applied generally by farmers and gardeners when making a seed bed. The other, that where comparatively small breadths of ground have to be sown or planted the dry weather may be disregarded, provided that water and litter are available; the former to prepare the seed- or plant-bed, the latter to cover the transplanted plants or the sown seed. In the case under notice there were both plenty of water and hay—the latter from meadows adjoining the garden. When he had grasped these simple ideas the gardener set to work, and planted out his plants, watering before and after planting, and covering them with a light, loose layer of freshly made and nearly dry hay. The result was satisfactory. The plants in the warm soil soon took hold and grew sturdily through the mulch. Then the hay was drawn aside, and the ground was well hoed; but instead of hoeing to produce a fine tilth the surface, when it was no longer too moist, was gently but firmly consolidated so as to encourage the rise of water in the soil. When the plants had become thoroughly established the ground was hoed again to a fine tilth and the mulch of hay put back.

Although to every experienced gardener devices such as these are the common-places of cultivation, it is, nevertheless, worth while to point out to the less experienced that a garden is far less at the mercy of weather than is a farm where large breadths are cultivated. So much to heart has the lesson he learned been laid that the young gardener has now made up his arrears of planting, and even the rock walls which were waiting for their plants are now planted, and, until rain came, looked more like haystacks than wall gardens. Standing above the wall at one corner is a recently planted Rhododendron of considerable size turned out from a pot, and through its thatch of hay the young growths pushed sturdily despite the hot, dry weather.

Imperial Fruit Show, 1922.—The Imperial Fruit Show organised by the *Daily Mail*, to be held at the Crystal Palace from October 27 to November 4, will include classes for amateur as well as for commercial growers. Prizes to the value of £3,000 are offered for competition. The show has been divided into the following sections: Kent and Southern Counties; Eastern and Northern; West and Midlands; Ireland; Channel Islands; Great Britain; Overseas; and British Empire. In the sections for home-grown and Channel Islands fruit, there are classes for Apples, Pears, Tomatos, and Grapes. The Irish section comprises six classes—three for cooking and three for dessert Apples. Apples and Pears make up the classes in the Overseas section, while the British Empire section provides for two classes of Apples (in which home growers can compete), four classes for Oranges, and two classes for Grapes. Beside money prizes, forty-three gold medals, forty-three silver medals, forty-three bronze medals and twenty-six cups and other trophies are offered. All commercial entry forms must reach the Secretary, Imperial Fruit Show, 130, Fleet Street, London, E.C.4, on or before Monday, October 2, 1922. In the case of Canadian exhibits, entry forms and fees must be delivered or sent to the Imperial Exhibition Department, Fruit Branch, Department of Agriculture, Ottawa, and marked "Imperial Fruit Show," on or before September 25, 1922. In the case of South African exhibits, all entry forms and fees must reach the Chief Division of Horticulture, Department of Agriculture, Pretoria, on or before September 5, 1922. All

amateur entry forms much reach the Secretary, Imperial Fruit Show, 130, Fleet Street, E.C.4, on or before Saturday, October 14, 1922.

An Educational Garden at Reading.—Dr. Hurry's "Educational Garden" at Westfield, Reading, which contains numerous plants used in the preparation of medicines, foods, fibres and dyes, will be open to the public free of charge on July 12, 15 and 16, between the hours of 3 and 6 p.m. There is also a museum of Economic Botany in which are exhibited commercial products derived from the plants grown in the garden.

The North of England Horticultural Society's Show.—The hon. secretary informs us that the date of the show has been provisionally fixed for October 11, 12, and 13. The Harrogate Chamber of Trade have guaranteed the prize list of £100, and will be running a shopping week or carnival simultaneously with the exhibition. A champion cup, valued at £15 15s., is offered for the best exhibit of fruit, and is open to growers in England, Wales and Scotland.

Conveyance of Plants by Passenger Train.—We are very pleased to be able to report the success of the efforts made through the medium of the Chamber of Horticulture to secure better conditions for the conveyance of plants by passenger train. Our readers are aware a deputation of growers placed their case before the railway authorities on the occasion of a recent conference at the Railway Clearing House (see p. 2, and also p. 297, Vol. LXXI). The points put forward at the interview have been carefully considered by the various railway companies, who have agreed that plants, flowers and Orchids in less than truck loads, in soil, or in soil in pots, above one foot in height, when not packed in substantial crates or wooden boxes, so constructed as to admit of other traffic being loaded on top thereof, be charged as follows: Company's Risk—general parcels' scale, including collection and delivery within the usual limits at places where arrangements for these services are in operation. Owner's Risk—owner's risk scale of rates, including delivery within the usual limits at places where arrangements for this service are in operation. The railway authorities have further agreed to reinstate special rates for plants and flowers in soil, or in soil in pots, on the basis of the rates in operation in 1914, increased by 75 per cent. Where these special rates are required application must be made to the companies concerned. All these revised rates and conditions came into operation on July 1. Not only is this good news for the horticultural trade in general and for the cultivators of plants for market in particular, but it also affords considerable relief to those who wish to convey plants over considerable distances for exhibition purposes, including the Royal Horticultural Society's shows.

Health Certificates for Imported Plants.—The experience gained during the past season of the working of the Destructive Insects and Pests Order of 1921, which came into operation on October 1 last, has enabled the Ministry of Agriculture to review the regulations governing the entry of plants, etc., into England and Wales, and to frame new regulations in order to meet certain practical difficulties which have arisen. The whole matter has been considered in consultation with the Departments of Agriculture for Scotland and Ireland, and as a result the Destructive Insects and Pests Order of 1922 has been issued, which comes into operation on July 1. The new regulations maintain the principle that imported plants, etc., must be accompanied by a health certificate, but it will not be necessary for a copy of the certificate to be affixed to each package as heretofore. Two copies of the certificate must, however, be sent with the papers relating to the consignment. One of these should be sent by the importer to the consignee; the other will be retained by the Customs authorities. Experience has shown that the examination of uncertified consignments at the port of landing cannot usually be conveniently carried out, and, if any consignments should arrive without the prescribed health certificates, they

will not be held up at the port, but will be allowed to proceed to their destination, where they must be detained until the contents have been examined by an inspector of the Ministry and pronounced to be healthy, or until a notification has been received from the Ministry that the goods may be distributed. The importer is liable for the cost of any inspection in such cases, and care should be taken, therefore, when placing orders for plants abroad, to insist that a health certificate shall accompany the plants.

Glasgow International Flower Show.—We understand that excellent progress is being made with the arrangements for the great International Flower Show, to be held in the Kelvin Hall, Glasgow, on August 30 and 31, and September 1 and 2 next. Our readers will remember that the promoters of this exhibition are the Corporation of the City of Glasgow, and the Glasgow and West of Scotland Horticultural Society, a combination that is sufficient augury for its success. The Royal Horticultural Society will send a deputation consisting of the President, Lord Lambourne; the Secretary, Mr. W. R. Dykes; Col. F. R. S. Balfour, Mr. W. Cuthbertson, Mr. G. W. Loder and the Rev. W. Wilks. This deputation will make awards on behalf of the Royal Horticultural Society to meritorious exhibits. British nurserymen are taking a keen interest in the event, and already no fewer than thirty-two firms have applied for space for the purpose of staging non-competitive displays.

National Sweet Pea Society.—This Society's twenty-second annual exhibition will be held in the Winter Garden, Devonshire Park, Eastbourne, on the 12th and 13th inst., in conjunction with the exhibition of the Eastbourne Horticultural Society. Her Royal Highness, Princess Alice, Countess of Athlone, will open the exhibition at 2.30 p.m. on July 12. An official luncheon will be held in the Indian Pavilion at 1 p.m., and in the evening a dinner and reunion will be held, also in the Indian Pavilion, when Mrs. Macnamara, President of the National Sweet Pea Society, will preside. His Worship the Mayor of Eastbourne, Ald. H. W. Keary, and Sir Charles O'Brien Harding, President of the Eastbourne Horticultural Society, have expressed their intention of being present. After the dinner, Mrs. Macnamara will distribute the cups and trophies to the successful competitors. The National Sweet Pea Society's trials at the University College Gardens, Reading, have been judged by the Floral Committee and are now open to inspection by members, who should notify the Superintendent, Mr. Cobb, of their intention to view them. We understand that only one Award of Merit has been granted this season, to a bright salmon-coloured American variety, the name of which has not yet transpired.

Commercial Fruit Show in 1923.—Representations have been made to the Ministry of Agriculture by the Eastern Counties Commercial Fruit Growers' Association as to the desirability of holding a fruit show in 1923, in one of the large towns in the north of England, e.g., Manchester. Being always anxious to do everything possible to encourage movements likely to lead to the increased consumption of home-grown produce, the Ministry has accordingly arranged for a public conference to be held at 10, Whitehall Place, at 2 p.m., on Thursday, the 20th inst., when an opportunity will be given for a free and full discussion of the subject by those interested in the growing, marketing, and distributing of fruit. No special invitations for the conference will be issued.

Elstree Flower Show.—Mr. Edman Beckett informs us that on the occasion of the Elstree and District Flower Show, which will be held on Saturday, the 15th inst., in Aldenham Park, the gardens and grounds of Aldenham House will, by permission of the Hon. Vicary Gibbs, be open to visitors. Many horticulturists will doubtless take the opportunity of inspecting this famous establishment, and those travelling from London should book from St. Pancras Station, on the Midland Railway, to Radlett, where special conveyances will be

waiting to conduct them to the gates of Aldenham Park. Elstree Show is one of the most interesting of the small horticultural exhibitions. Sweet Peas, Roses, and hardy border flowers are prominent features of this show, and there is always a large display of vegetables from Aldenham House Gardens.

Wright Memorial Fund.—Mr. W. R. Dykes, secretary of the Royal Horticultural Society, writes:—"As there is some doubt as to the purpose of this fund, I have been asked to state that its object is to purchase an annuity for Mrs. Wright. It is hoped that a considerable sum will be raised in order that this may be possible."

Mr. James Melrose.—Horticulturists who have visited the Grand Yorkshire Gala over a period of many years, either as exhibitors or judges, have come to regard Mr. James Melrose, J.P., as the father of the great York show. On the rare occasions when Mr. Melrose has been absent, everyone officially connected with the show has regretted his inability to attend. But these occasions have been very rare, for, despite his years, which are more than ninety, he has wonderfully good health. At the exhibition held in Bootham Park, on June 14-16 last, Mr. Melrose carried out his



MR. JAMES MELROSE, J.P., PRESIDENT OF THE GRAND YORKSHIRE GALA.

duties as President, and presided over the luncheon given to judges and exhibitors, with a vigour which would have done credit to a man thirty years his junior. Mr. Melrose attended the meeting held in York over sixty years ago, when a few enthusiasts conceived the idea of starting a flower show in that city, and promptly acted upon it. From small beginnings the show has grown in extent and interest until now it is one of the finest annual horticultural events held in the British Isles, and through all its changes, its good seasons and its bad ones—the whole exhibition was blown down by a terrific gale some years ago.—Mr. Melrose has been associated with its fortunes, and his optimism, founded on long experience, has proved invaluable to the governing body on many occasions. Mr. Melrose is a great lover of plants and flowers, and his connection with an exhibition from its institution to its diamond jubilee is probably unique in the annals of horticulture.

Potato Trials at Reading.—A party of Potato experts paid a visit to Messrs. Sutton and Sons' trial grounds at Reading, on the 27th ult., for the purpose of inspecting the firm's extensive trials of Potatoes, which include about fifty specially selected seedlings not yet offered to the public. Of these seedlings numbers are

being tested at Ormskirk, and promise to be immune to Wart disease. The visitors were greatly interested in the varieties, and in the methods Messrs. Sutton and Sons adopt to secure true and clean seed Potatoes. Among those present were Mr. P. G. Dallinger, chief inspector of the Potato department of the Ministry of Agriculture; Mr. G. C. Gough, divisional inspector of the Ministry; and Mr. G. P. Berry, technical adviser in horticulture to the Ministry.

Gift of Orchids to Kew.—Sir George Holford, Westonbirt, has presented a valuable collection of Orchids to Kew to help make good the serious loss experienced last year, due to the use of water impregnated with salt, the sea water at high tides having contaminated the water supply of the garden. Sir George Holford has on previous occasions contributed generously to the Kew collections, and this last gift is estimated to be worth several thousand pounds.

National Potato Exhibition, 1922.—The annual exhibition will be held at the Artillery Drill Hall, Sheffield, in conjunction with the annual exhibition of the Sheffield Chrysanthemum Society, on Friday and Saturday, November 10th and 11th, 1922. Schedules may be obtained from Mr. W. H. Morter, Cannon Hill Park, Birmingham.

Legacy to a Gardener.—The Right Hon. Augusta Clementine Baroness Blythwood, of Dunally Lodge, Shepperton-on-Thames, and formerly of Blythwood House, Renfrew, who died on March 23rd, left a legacy of £300 to her gardener, Mr. H. Goldhawk, and one year's wages to her garden labourers of two years' service and not under notice. She also left legacies to her other servants.

A New Horticultural Bulletin.—The Chamber of Horticulture is to be congratulated on the first number of its *Bulletin*, which it will issue quarterly, a sign, as Sir Arthur Griffith-Boscawen, Minister of Agriculture, states, of the vigour with which the organisation is being conducted. Much of the literary matter refers to the work done by the Chamber, and deals with such subjects as the tax on British flowers imported into France; co-operative advertising; the rates for transit of pot plants by passenger train, and various Orders affecting the horticultural industry. Articles on "Experiments on Cultural Methods of Controlling Onion Fly," by Mr. A. Roebuck, and on "Commercial Carnation Culture," by Mr. C. Engelmann, will appeal especially to practical men, and there are interesting articles on "Science and Research in Horticulture," by Sir Daniel Hall, and on "Railway Inquiry and Trade Organisation," by Mr. H. W. Goodall, Secretary of the National Federation of Fruit and Potato Trades' Associations, Ltd. There is an excellent reproduction of the portrait presented to Mr. George Monro by the Chamber, with an account of the annual dinner at the Hotel Cecil on May 3 last, at which the presentation was made. Items on legal matters and statements made in Parliament on subjects affecting the horticultural industry will be interesting guides to the horticultural trader on many aspects of his business, whilst subjects that call for reform, such as reduction of taxation on industry, postal rates, and improved transport facilities, are included in the Parliamentary programme of the Chamber. A close perusal of the pages shows that the Chamber is watching the interests of horticulture very closely, and that it is deserving of a much fuller support than it receives from all sections of the horticultural industry.

Appointments at Kew.—We understand that the position of Assistant Curator at Kew, as hitherto existing, is to be discontinued and, instead, the foreman in charge of the several departments at the Royal Botanic Gardens will each become an Assistant Curator. Those who will enjoy this more dignified title are Mr. J. Coult, Decorative Department; Mr. Walter Irving, Herbaceous Department, Mr. A. Osborn, Arboretum Department, Mr. C. P. Raffill, Temperate Department, and Mr. T. W. Taylor, Tropical Department.

A Metropolitan Vegetable and Flower Show.

—A competitive exhibition of vegetables and flowers will be held under the patronage of the Worshipful Company of Gardeners and under the auspices of the Vacant Land Cultivation Society, the National Union of Allotment Holders, and the London Gardens' Guild at the Guildhall, on September 2. The show will be opened by Lord Leverhulme. There are thirty-six classes, and the prizes are mostly monetary; a silver cup is offered by the Worshipful Company of Gardeners to the society which obtains the highest number of points in the classes for a collection of vegetables and six varieties of Potatoes respectively. The freedom of the Worshipful Company of Gardeners is offered to the exhibitor who obtains the highest number of points for all the exhibits, including fruits and flowers. The Hon. Secretary is Mr. R. Sudell, 61, Penrose Street, S.E.17.

Appointments for the Ensuing Week.—Monday, July 10.

—United Horticultural Benefit and Provident Society's meeting; Bath Gardeners' Society's meeting. Tuesday, July 11.—Royal Horticultural Society's Committees meet; lecture by Commander G. Silver on "The uses of Cellulose in the Garden"; National Carnation and Picotee Society's show; Wolverhampton Floral Fête (3 days); Saltaire, Shipley and District Rose Society's show (2 days); National Rose Society's provincial show at Wakefield. Wednesday, July 12.—Ipswich and East of England Horticultural Society's show (prov.); East Anglian Horticultural Society's meeting; Sheffield Chrysanthemum Society's meeting; National Sweet Pea Society's annual show in the Winter Garden, Devonshire Park, Eastbourne (two days); Richmond Horticultural Society's show. Thursday, July 13.—Bristol and District Gardeners' Association's meeting; Woodford Horticultural Society's show; Manchester and North of England Orchid Society's meeting. Friday, July 14.—Paisley Florists' Society's meeting; North Lonsdale Rose Society's show. Saturday, July 15.—Elstree and District Horticultural Society's show at Aldenham Park.

"The Gardeners' Chronicle" Seventy-Five Years Ago.—Writing for the "Chronicle."

It has been wisely observed that "Knowledge is nothing but as it is communicated." By imparting to others we enrich ourselves. He who waits until truth receives its due homage from the world, may wait until the tide of human agency ebbs finally away for ever, and he who neglects present opportunities will inevitably be found a loiterer upon the shore of that vast ocean of truth which lies before him. They who seek the grounds of their responsibility as instructors of others, have only to resolve the question into one of moral obligation, and from it they will derive a motive and an impulse to exertion equal to their highest capacity; though with Newton in intellect, they rise to the investigation of distant worlds, or with Milton in inspiration, or with Handel in harmony, they soar into the third heavens of poetry and song. He who has once opened a fountain of truth can never close it again, and he who is living to himself is defeating the great end of his existence. The communication of knowledge constitutes one of the highest sources of human enjoyment, but they who revile it in the character and example of others, know nothing of its regenerating influence in their own. The preceding remarks are intended as an answer to the oft-recurring question: "Why do you give away your knowledge by writing in the *Chronicle*?" They who are accustomed to complain of other people's liberality, seldom question their own aright, and probably forget that, though some minds, like small streams, can afford to lose nothing, there are others which, like majestic rivers, can impart of their abundance, and remain unimpoverished.—W. Wood, Fishergate Nurseries, York.

Publications Received.—*Vines*: Useful Hints for Amateurs. By Douglas Wood, Homewood Hall, Sturry, Kent. *The Gardener*: A New Georgic. By A. T. Shearman, Beech Villa, West Cowes, Isle of Wight.

NOTICES OF BOOKS.**Indian Timbers.***

FOR a long time the standard work on Indian Timbers by Mr. J. S. Gamble has been out of print, and impossible to obtain even second-hand. We are grateful to the Secretary of State for India, who has recently published a reprint of the second edition of this valuable work, unaltered except for the addition of two short appendices, containing notes and descriptions of a few timbers which were sent to Mr. Gamble in late years.

This work is well known to all who are interested in the structure of wood, and in the

pocket lens, magnifying from 5 to 20 times. This will not serve, however, to distinguish accurately sections of Coniferous woods, which often require to be examined with a high power. We may here note a curious error in the *Manual*, pp. 695, 718, where it is said that resin canals are absent in the wood of the Indian species of Spruce, and present in the wood of the Indian Silver Fir. This is not the case, for in India, as elsewhere, resin canals occur in the normal wood of *Picea*, and do not occur in that of *Abies*. The sporadic occurrence of resin canals in the latter genus as a result of injury, need not mislead, as these are irregular in size and form and only appear in an odd ring.



FIG. 7.—ANEMONE GLAUCOPHYLLA: R.H.S. FIRST CLASS CERTIFICATE, JUNE 27, 1922 (SEE P. 12).

accurate distinction of the various species. It is impossible to get away from the necessity of making accurate investigations of useful timbers. During the war, woods entering into the construction of aeroplanes were submitted to rigorous scientific tests, as a matter of stern duty, for the substitution of an inferior species would have meant horrible accidents. In almost all branches of wood utilisation, scientific knowledge of timbers would be of financial benefit to the user.

Mr. Stone's little *Guide to the Identification of Useful Timbers*, can be consulted in Mr. Gamble's introductory remarks on structure are not detailed enough for the beginner. Mr. Gamble claims that he notices only characters which are capable of being observed with a

It is to be hoped that the publication of this book will help to stimulate an interest in Indian timbers, which are now being pushed much more than formerly on the London market. Some of the woods are remarkable for beauty, as will be remembered by those who visited the Empire Timber Exhibition at the Holland Park Skating Rink, in July, 1920. Furniture, panelling, parquet flooring, and a crowd of miscellaneous articles were shown, made of woods from India, which had been previously unknown, or at any rate little appreciated in the European timber trade. A. Henry.

"Country Life" Booklets.—Three booklets of garden interest in the "Country Life" Booklets series have been sent us by the publishers. They are entitled: *Border Carnations and Cloves*, by Mr. James Douglas; *Tomato Cultivation under Glass and Outdoors*, by Mr. R. V. Giffard Woolley; and *Pot Plants and How to Preserve Them*, by W. Truelove. The price of these useful little books is only 9d. each.

* *A Manual of Indian Timbers*. An account of the Growth, Distribution, and Uses of the Trees and Shrubs of India and Ceylon, with descriptions of their Wood-Structure. By J. S. Gamble. Reprint of Second edition, with some additions and corrections. Pp. XXVI. 868. 20 plates. (London, Sampson Low, Marston & Co., Ltd., 1922). £3 3s. net.

The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the
DUKE OF MAREBOROUGH, K.G., Blenheim Palace,
Woodstock, Oxon.

East Indian House.—Orchids which enjoy the temperature of the East Indian House include *Angraecum sesquipedale*, *A. Ellisii* and *A. arcuatum*. Although these plants are found in different parts of the world, they are all more or less natives of tropical regions, hence the necessity of growing them in the warmest house. Those that have started into growth and in need of attention as regards repotting should be attended to immediately new roots are observed. The plants all delight in a moist, tropical atmosphere whilst making their growth, but sun-light and fresh air should be admitted with discretion. These evergreen plants are not capable of withstanding strong sunshine, and if exposed to too much, will soon assume a sickly, spotted, and unhealthy appearance. Some need more shade than others, hence the necessity of closely observing the progress of each individual plant, especially those that are rare, as many of these subjects may not again be imported for some years. The whole of these epiphytall Orchids succeed well in live *Sphagnum*-mosses.

Coeloglyne pandurata.—Of all the beautiful members of the genus *Coeloglyne* there is none to compare with this fine species, and especially the best varieties of it. It usually flowers in May and June, from partially developed pseudo-bulbs, and its emerald green flowers have black markings which form a most striking contrast in colouring. From the time that growth begins, usually in December, or early in January, until the flowers have faded and the growth is matured, the plant should never be allowed to become dry. When the new pseudo-bulb is completed, the water supply should be decreased, as, should the supply be over liberal, the pseudo-bulbs may decay. It should be grown in the warmest house at all seasons, and does best in a shallow Orchid pan, filled with a clean, open, fibrous compost. This Orchid should be kept shaded during the summer, and should never be subjected to a low temperature. It delights in a moist, humid atmosphere whilst making its growth, and may be frequently sprayed or syringed as a preventive against red spider, which will attack the leaves, these being of a somewhat coriaceous nature. The best season to repan or repot the plant is when the young growth is about to develop roots. The roots being rather large, the compost should be used in a fairly rough state. The usual precautions of applying water to newly potted plants must be strictly adhered to with this plant, or failure may occur.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER CLAY,
M.P., Ford Manor, Lingfield, Surrey.

Melons.—Young plants should be available for use as vacancies in the pits and frames occur. Melon seed will germinate freely now, and the best results are obtained when the plants are put out early, say, when the first rough leaf is about two inches wide. Melon culture is easy after May, the main requirements of the plants being a good bottom-heat, sound, calcareous loam, mixed with old lime rubble as compost, and common-sense attention in airing and watering. With attention to these details the plants will grow without a check, and the foliage will not ripen before the fruits. For frame culture late in the season the compost should always be on the poor side, as it is much easier to feed the roots than suppress strong growth. The bottom-heat should be brisk and steady, especially when the fruits are finish-

ing, as declining bottom-heat and flooding the soil with water when the fruits are ripening results in the flavour of late Melons being inferior. The weather of the latter part of May and up to the present has been all that could be desired for Melons, but conditions may change, hence the importance of maintaining the necessary warmth by adding fresh manure on the outsides of the frame when necessary, and covering the glass at night with mats.

Early Vineries.—The vines in the earliest houses will now be clear of bunches, and should be copiously syringed rather late on fine evenings. A little soft soap and sulphur should be added to the water for syringing if spider or mildew has been troublesome. Inside borders, which have been allowed to get, rather dry, should be restored, without loss of time, to a thoroughly moist condition, but, before watering, the surface should be lightly pricked over to ensure an even distribution of the water. If the vines are young and vigorous, clear water only will suffice, but for older vines, which make weaker wood and but few laterals, use a liquid fertiliser. The mulching material should be allowed to remain in position; where this has not been used, fresh stable litter should be placed over the surface to prevent evaporation. If the covering still remains intact on outside borders, it may now be reduced in depth, but some inches should be allowed to remain, and water from the hose, provided the rains have not been sufficient, applied liberally to it. Ventilation on a liberal scale, both day and night, will now be necessary. Plenty of fresh air and the use of the syringe will play an important part in the ripening of the wood.

Succession Vineries.—Houses containing ripe Grapes should be kept cool and airy, and where black varieties are losing colour, slightly shaded for a few hours on bright days. White Grapes, on the contrary, cannot have too much light, provided they do not burn. The borders and floors may be liberally damped and the walls syringed frequently. A change to damp and dull weather when air cannot be admitted freely will necessitate a much drier treatment, otherwise the berries of such varieties as *Madresfield Court* may crack.

THE KITCHEN GARDEN.

By JAMES E. HATHAWAY, Gardener to JOHN BRENNAND,
Esq., Baldersby Park, Thirsk, Yorkshire.

Coleworts.—Make a sowing of *Roset's Colewort* to obtain plants for setting out later.

Broad Beans.—The plants should be tipped as soon as a goodly number of flowers have set. Black *Aphis* should be checked by syringing with *Quassia* extract before the insects have time to multiply.

French Beans.—Sowings should be made for late crops of French Beans within the next fortnight. If the ground is dry, soak the seed for a few hours before setting them in drills that should be well watered.

Peas.—Quick-growing early varieties should be sown now to supply late crops. The seed should be sown thinly, for if sown thickly the plants become crowded and are then susceptible to attacks of mildew. The seedlings should be protected from birds, which are often most troublesome at this season of the year.

Cucumbers.—A sowing of Cucumbers should be made now to keep up the supply of fruits well into the autumn. Plants in full bearing should be kept well thinned, as the growths quickly become crowded. Rich top dressings of old manure should be applied to the roots, and the atmosphere of the house or frame kept charged with moisture.

Parsley.—Make a sowing of Parsley now in drills, thinly, to form the winter supply. Where two or three light, portable frames are available, sow in drills the width of the frame, which may then be placed over the bed in the autumn.

HARDY FRUIT GARDEN.

By H. MARKHAM, Gardener to the EARL OF STRATFORD,
Wrotham Park, Barnet.

Figs.—Where the roots of Fig trees are much restricted water should be applied at intervals, especially if the trees are large and bearing heavy crops. The roots and growth will be greatly benefited by a good mulching of decayed cow manure, placed over the soil before soaking the borders with water. Attend to Fig trees trained on walls, and remove all superfluous growth, also weak and ill-placed shoots; some of the shoots may be stopped, but sufficient sturdy, young growths should be neatly secured their full length to the walls for filling the space and for fruiting next year. If the present crop is a heavy one some of the fruits may be pulled off, leaving the best and sufficient for a full crop. *Brown Turkey* is one of the best varieties for outdoor cultivation.

Strawberries.—Old, forced plants that were put out some time ago should be kept supplied with moisture and the surface of the beds mulched. If the soil is good and mulching material scarce, keep the surface soil loose by hoeing it at intervals; this will help to retain the moisture and assist the growth of the plants considerably. New stock should be obtained from the nurseryman at reasonable intervals; if any is required this season, the order should be forwarded at once, so that the plants may be dispatched as early as possible.

Morello Cherries.—Should the young shoots of Morello Cherries become infested with black aphid, syringe the foliage with *Quassia* extract or nicotine wash. As a rule, these trees are trained in fan shape, and the fruits are produced on young wood similar to that of the Peach, so that an ample number of healthy shoots should be neatly secured in the position most needed both for fruiting and filling the space. Train each shoot as straightly as possible, leaving ample room in the ties or shreds for the bark to swell. Endeavour to keep the whole of the trees from the bottom to the top rather thinly furnished with young fruiting wood. Some of the shoots that are not required may be shortened to within a few buds of the base, and these, when shortened more closely at the winter pruning, will furnish a good supply of fruits.

Raspberries.—The canes should be covered with netting to protect the fruits from birds. Before doing this, remove superfluous young canes, and secure to the trellises, so far as is possible, those that will be required to take the place of the present fruiting canes as soon as the crop has been gathered. Place a mulch, if necessary, along the rows, and water the roots copiously with liquid manure. This will greatly assist the plants to form large berries and lengthen the season as well as increase the strength of the young canes.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir C. NALL-CAIN, Bart.,
The Node, Codicote, Welwyn, Hertfordshire.

Propagating.—Plants used for furnishing, such as *Panicum*, *Selaginellas* in variety and *Tradescantia* may still be propagated. Cuttings of these plants will root very easily at this season, and young specimens are always useful for decorative purposes.

Stocks.—Autumn-flowering and winter-flowering Stocks may be sown now and again during the last week in August to prolong the season of flowering. A beautiful show of these flowers may be obtained during the autumn and spring. In fact, if suitable varieties are chosen they may be had in flower practically all the year round by sowing seed at intervals during the spring and summer. Some of the best varieties suited for pot cultivation are *Sutton's All-the-Year-Round*, *Beauty of Nice*, *Christmas Pink*, *Carter's Perpetual Royal Purple*, and *Queen Alexandra*. Stock seed germinates very quickly, and at this season of the year fire heat is not required for the raising of seedling Stocks. The seedpans

should be stood in a cold frame and the soil in them shaded from bright sunshine until germination takes place, when the seedlings should be gradually exposed to the light. When the seedlings are large enough to handle they may be pricked out singly into small 60 sized pots, or three may be placed in each receptacle and grown on intact. Stocks are very partial to lime, and a liberal quantity of old mortar rubble should be mixed with the soil in which they are grown.

Souvenir de la Malmaison Carnation.—By this date most of the Malmaison Carnations have passed out of flower, and preparations should be made for the layering of the plants to raise fresh stock. To obtain good plants it is necessary to take layers from young, healthy specimens and not from plants that have been grown on for two seasons. The plants may be layered in a cold frame, and a good depth of soil is necessary to admit of carrying out the work successfully.

THE FLOWER GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICAR GENERAL, Aldenham House, Hertfordshire.

The Rockery and Rock Edges.—Many of the plants in the rock garden have finished flowering, and the stronger growing subjects may need to be kept in bounds, or they may smother their smaller growing neighbours. Aubrietias, Violas and trailing Phloxes need special attention in this direction, and *Lithospermum prostratum* is another vigorous grower. Such plants should be well trimmed back after flowering, in order that new growth may develop from near the root stocks to replace the old growths, and not break from the ends of old shoots, which would mean a rambling and ragged plant of poor appearance. Further, this cutting back should result in a good quantity of fine, sturdy growths, suitable for propagating as cuttings, for from now onwards the propagator should be busy raising new stock. Care should be taken that alpine plants do not suffer from lack of moisture in summer, and it is an excellent plan to give the rockery and rock edges a good sprinkling with water each evening, after hot days, to ensure a cool root run for the plants.

Perpetual Flowering Carnations.—These, when they have finished their period under glass, should be stood out of doors to harden off, and at this season may be planted out in the open. Lift them carefully from the pots, disturbing the roots as little as possible, and plant in rich, light soil in rows. Place a neat stick to each plant, and secure the sticks themselves by tying them to a string run along the rows from stakes set well in at the ends of the rows. Tie the plants carefully, and loop in the growths with a strand of raffia; when this is finished, well soak the roots with water, after lightly hoeing the surface of the soil, and then mulch the ground with long, stable litter. If this work is done carefully and thoroughly, and the plants given good attention afterwards, they will yield a plentiful crop of flowers.

PLANTS NEW OR NOTEWORTHY.

AESCULUS INDICA.

ALTHOUGH the beautiful Indian Horse Chestnut was first introduced by Colonel H. Bunbury, from the North-West Himalayas, in 1851, very few flowering trees appear to exist in the British Isles. The original tree, some 70 feet in height, is probably still thriving at Barton, in Suffolk.

Cut specimens from a tree flowering in the Royal Botanic Gardens, Kew, were given an Award of Merit at the meeting of the Royal Horticultural Society on Tuesday, June 27. This it is to be hoped will induce planters to find a place in their pleasure grounds for a very beautiful tree. Flowering during the second half of June and early July, it is four or five weeks later than the common Horse-Chestnut. It has the familiar white flower with a red and yellow blotch, but on a longer, more slender (cylindrical) panicle (see Fig. 8), up to

12 to 15 inches long and 4 to 4½ inches wide at the base. The shining dark green leaves, mostly consisting of seven leaflets, give the trees the character of almost sub-tropical luxuriance.

RHODODENDRON DISCOLOR.

AMONG the many new species introduced from China during the past twenty-five years, many *Rhododendron* cultivators consider *R. discolor* (Fig. 10) to be one of the most valuable acquisitions. Not only is it a useful evergreen, and a beautiful flowering shrub, but being at its best during the second half of June, hybridists are finding the species valuable in the breeding of a race of free-blooming hybrids which will be at

it is desirable, perhaps necessary, to plant this species in the open woodland, or under similar conditions—but not in dense shade—where the plants will have ample shelter from the mid-day sun.

For the introduction of *R. discolor* to our gardens, we are indebted to Mr. E. H. Wilson, who first sent home seeds from Szechuan, in 1900, when collecting on behalf of Messrs. James Veitch and Sons, and, later, also from Western Hupeh. He describes it as a common *Rhododendron* of the woods growing up to an elevation of 7,500 feet. It forms a robust, strong-growing, evergreen bush up to 20 feet high. Normal leaves are 5 inches to 8 inches long, and 2 inches



FIG. 8.—INFLORESCENCE AND FOLIAGE OF *AESCULUS INDICA*.

their best about mid-summer. There is a wealth of flowers during May, and the first half of June, but, at least in the south, there is little of value after this date. True, there are *R. maximum* and *R. brachycarpum*, but breeders have found these of little value, though they are hoping for much from *R. auriculatum*, also from China. This species does not flower until August, but at Kew it lacks the free-flowering character which is such a valuable trait of *R. discolor*.

Flowering towards the end of June, and making its growth during July, the subject of this note is in marked contrast to the majority of the Himalayan *Rhododendrons*, which flower and start into growth early, consequently there is some difficulty in affording the plants shelter from spring frosts. Blooming and growing late, this trouble does not arise with *R. discolor*, but

to 3 inches wide, but robust young leaves on vigorous shoots are sometimes nearly 1 foot long, and 4 inches wide: oblong or narrowly oval, they taper almost equally at both ends, are dark green above and pale green beneath. The flowers vary very considerably in size, and in colour from white to pale pink, often with a mauve tint. The open, funnel-shaped flowers are 6-7 lobed, the largest 5-5½ inches across, and have a pleasing fragrance.

R. discolor belongs to the *R. Fortunei* group, but it is later flowering than that species, has longer leaves, those on *R. Fortunei* being heart-shaped at the base, and the calyx, though small, is more conspicuous than in *R. Fortunei*.

R. discolor received the First-Class Certificate of the Royal Horticultural Society on Tuesday, June 27, when flowers were exhibited from the Royal Botanic Gardens, Kew. A. O.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 5, Tavistock Street, Covent Garden, W.C.2

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturalists.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 5, Tavistock Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

GARDENERS' CALENDARS.

No. 1.—EVELYN, MILLER, ABERCROMBIE.

I HAVE never seen any article, book, or pamphlet which deals exclusively with this particular branch of gardening bibliography. It seems a strange omission, considering the great and prolonged popularity of these books, and also how our greatest and most famous practical gardeners have in a sort of orderly sequence given them to an appreciative world.

Take these four men—John Evelyn, Philip Miller, John Abercrombie, and Joseph Paxton; it would be difficult to select another four to excel them in what may be called a working knowledge of plants and gardens, yet each of them thought it worth his while to devote a certain part of a busy life to the writing of a Gardener's Calendar. How well they read the wants of their fellow-gardeners of less experience than themselves is to be seen in the number of editions or reprints that each separate work went through before it ceased to be. These were righteous books if any books ever have been. They were the efforts of the strong to see their weaker brethren over the stile of comparative ignorance. They are the divided cloaks of garden St. Martins given to horticulture to clothe the dry bones of the small knowledge which some of her devotees possessed. Hence it is a particularly beneficent work on the part of the proprietors of *The Gardeners' Chronicle* to continue to keep Paxton's *Calendar of Garden Operations* up to date in such simple fashion that even cottage gardeners, allotment holders, and amateur gardeners may have an easily understood and at the same time a reliable help at hand against the time of need.

We will never know if Evelyn evolved the idea of a *Kalendarium Hortense* (1664) (Fig. 9) out of his own brain and by a happy inspiration hit upon the very thing that was wanted (editions prove the need); or whether he got the hint from Thomas Tusser, who in his famous *Five Hundred Points in Husbandry* (1562) warns the good housewife when to sow her Peas or gather her Strawberry plants from the woodlands.

"Sow peason and beans on the wane of the moon;

Who soweth them sooner, he soweth too soon."

(February Husbandry.)

"Wife, into thy garden, and set me a plot, With strawberry roots, of the best to be got; Such growing abroad, among thorns in the wood.

Well chosen and picked, prove excellent good."

(September's Husbandry.)

Or whether the idea came from the *Royal Ordering of Gardens*, of Bacon, who in his famous essay *On Gardens* pointed out the beauties of the different seasons:—

"For December and January and the latter part of November you must take such things as are green all Winter: Holly, Ivy, Bayes, Juniper, Cypress-trees, Eugh, Pine-Apple-trees, Fir-trees, Rosemary, Lavender, Periwinkle, the White, the Purple and the Blew. . . . In May and June comes Pincks of all sorts, especially the blush Pinck, Roses of all kinds, except the Musk, which comes later, Hony-Suckles, Strawberies, Bugloss, Columbines, the French Marygold, etc., etc.," and so on through the months.

Whether the idea came from Tusser or Bacon, or whether it was wholly Evelyn's own, we will never know. However it arose, it

speaks volumes for the clear vision and far-sightedness of the man who in the midst of an exceptionally busy life made time to write this little book, which he himself cannot have regarded as the least of his many works, for on the title-page of his *Acetaria, A Discourse of Sallets*, published in 1699, he thought fit to describe himself, not as the author of his much larger work, *Sylva*, but as "Author of the *Kalendarium*." Another fact which proves his estimation of it is that he dedicated the work to his friend Cowley, the poet:—"To Abraham Cowley, Esq. Sir, This Hortulam Kalendar is yours." My copy is one of the eighth edition (1691), and immediately after the dedication there is

letter to Lady Sunderland, dated August 4, 1690, he states that the *Kalendarium*, on the reputation of his worthy friend Mr. Cowley, "has survived seven impressions."

I must at this point beg leave to make two asides. First, that it will always be a great feather in Cowley's cap that he was able to win the regard and affection of such a man as Evelyn. This one fact alone should silence critics who affect to see in all Cowley's references to the country and garden nothing but insincerity and make-believe. Secondly, that it is surely rather a big omission in the *Dictionary of National Biography*, under John Evelyn, to find no reference to what is surely one of the largest books that has never been



FIG. 9.—FRONTISPIECE TO EVELYN'S "KALENDARIVM HORTENSE."

printed "The Garden, to J. Evelyn, Esq.," which commences with words which are often quoted, "I never had any other Desire so strong and so like Covetousness, as that one which I have had always that I might be Master at last of a small House and large Garden," and the poem proper contains that most celebrated verse beginning:

"Methinks I see great Diocletian walk In the Salonian Garden's rural shade."

I am unable to say which edition of the *Kalendarium* first contained Evelyn's dedication of the work to Cowley and its counterpart, Cowley's poem, "The Garden," which in turn was dedicated to Evelyn, but they are not found in the first (1644), which was bound up with the *Sylva*, just in the same way as many years later Paxton's *Calendar* first saw the light of day in the pages of *The Gardeners' Chronicle* (1842), but I expect they are to be found in a very much earlier one than the eighth, from which I have quoted, as in a

written, the *Elysium Britannicum*, or, The plan of a Royal Garden, in which the *Acetaria* already mentioned and the *Kalendarium* were to figure as single chapters. What a book it would have been! In one chapter alone, gardens in Italy, Flanders, France, Germany, Turkey, America, and England (in all over a hundred and fifty) were to be described, not to mention "miraculous and extraordinary gardens found upon huge fishes' backs, men grown over with flowers, etc." Read, too, the title of another chapter, for the contents of which he sought the help of Dr. Browne (Sir Thomas Browne), of Norwich—"Chapter V. Of Crowns, Chaplets, Garlands, Festoons, Encarpa, Flower-Pots, Nosegays, Poesies, Deckings, and other Flowery Poms." Yes, it would have been a book, magnificent, illuminative, and one before which all others would fall down and do homage. The *Kalendarium* was to be one of this great company.

The next in chronological order of my four selected "giants" is Philip Miller, who lived

in the first half of the eighteenth century. One is tempted to make use of the very ancient phrase, "too well known to need any description," and at once pass on to say something about his kalendar, which is our point of contact with him in this article. Philip Miller was born in 1691 and died in 1771. He held the official position of gardener to the Apothecaries' Company at their garden at Chelsea, but it was through the publication of his great epoch-making work, *The Gardener's Dictionary*, of which a greater than he wrote, "*Non est Lexicon Hortulanorum sed Botanicorum*," that he became famous, a fame which grew with the years until in the end he was the acknowledged uncrowned king of the gardening world, "*Hortulanorum princeps*." Again, like Evelyn, this wonderful genius considered it well worth his while to write a kalendar. He had "exhibited in his *Gardeners' Dictionary*, under the heads of each respective month, a kalendar of the works necessary to be done in the Kitchen, Fruit and Flower-Gardens." This, his friends told him, would be much more useful if he would publish it separately in a small volume at a reasonable figure. He, accordingly, "set about the work," and, in order to make it as complete and useful as possible, he went over his garden notes, making additions and corrections wherever necessary, and for convenience of reference he disposed the months according to their order of time, and not in the alphabetical order he was obliged to observe in his *Dictionary*.

While he was busy preparing the book for publication, it came to his ears that it was the "ungenerous intention of some persons to publish something of this nature from his *Dictionary*." Not wishing to be forestalled, he accordingly hurried on with his work as fast as he could, with the result that what I believe was the first edition of his kalendar as an independent work appeared in 1732. It is perplexing to find that four authorities of repute each give a different date, viz., 1724, 1731, 1732, and 1734, for the first edition. This discrepancy is perhaps accounted for when it is remembered how this kalendar was born in the *Dictionary*, thus making it to some extent a question of choice which should be considered to be the first edition. Miller's Kalendar held its own for a long time, and that, too, during a period when kalendars were very much the vogue. During the eighteenth century it would be safe to say somewhere between twenty and thirty authors broke out into this form of garden literature. What one author says of himself, "that he is not discouraged by the number of similar books already extant," is obviously true of all; but, however many they may have been, all were, so to speak, swallowed up in the course of time by those of John Abercrombie, whose greater work, *Every Man His Own Gardener*, originally published in 1767,* was still popular when the nineteenth century was well over fifty years old, and whose smaller *Gardener's Pocket Journal*, which was first brought out in 1791, is said to have had a greater sale than any other horticultural work that had hitherto appeared Joseph Jacob.

GARDEN NOTES FROM S.W. SCOTLAND.

AMONG the multitude of Roses that glorify the month of June, I venture to mention two specially deserving notice. The first is a recent acquisition from China, *Rosa Fargesii*, which, if it be a distinct species, closely resembles *R. Moyesii* in every respect except the colour of the petals, which is a peculiarly luminous carmine. The other is the climbing variety of Nabonnand's old H.T. hybrid, *Papa Gontier*. The dwarf type of this Rose is only of moderate vigour; it is remarkable, therefore, that the climbing form has reached a height of 18 feet on a south wall, and at the moment of writing (June 26) is covered with large, cherry-

coloured blossoms. It is also a good autumn flower.

Among upwards of eighty species of *Allium* enumerated in the *Keir Hand List* of 1902, few have found general favour with amateurs owing to the all-pervading odour of Garlic, which renders the cut flowers objectionable to sensitive nostrils. Nevertheless, there are a few kinds which I should be very sorry to dismiss from the herbaceous border. Two of these are now flowering profusely, namely, *A. sub-hirsutum*, from Southern Europe, bearing a cloud of starry white blossom, and the North American *A. acuminatum*, carrying flat heads of rosy-lavender flowers. Both species grow to a height of about 18 inches and carry themselves well. My favourite in the genus is *A. sphaerocephalum*, with globular heads of dark crimson, borne quite erect on wiry stems, 2½ feet high; but that species does not flower here until August.

A new-comer here is flowering for the first



FIG. 10.—RHODODENDRON DISCOLOR (SEE P. 19).

time and proves to be a herb of much merit. This is *Mimulus Bertonianus*, with blossoms resembling those of *Incarvillea Delavayi*, of soft crimson colour, with a hairy yellow throat and rows of darkest crimson dots to guide insect visitors to the nectary. I know nothing about the origin of this species, nor where I obtained it; but it is infinitely superior both in colour and habit to the old *M. Lewisii*.

Another new-comer I received last year in a gift from a generous lady, *Perezia multiflora*, which, though a native of Brazil, came through 9° of frost in April unhurt. It is a Composite, bearing on very succulent branching stems, two feet high, quantities of lavender blossoms with yellow central florets. *Lilium columbianum*, the gift of another good friend, is flowering here for the first time. Of modest stature, it bears its Turk's-cap flowers of soft, yet vivid, orange-yellow, mottled with dark purple, on stems about 15 inches high. Herbert Maxwell. Monreith.

The Wall Garden at Keir, Perthshire.—An excellent example of gardening on a built wall is to be seen in General Stirling's garden at Keir. It reminds me of a very beautiful wall garden at Pollok, Glasgow, the property of General Stirling's brother, Sir John Stirling Maxwell, one which is well known to lovers of rock plants. Visitor.

ORCHID NOTES AND GLEANINGS.

ODONTIODA BERMELIE.

CLIVE COOKSON, Esq., Nether Warden, Hexham-on-Tyne (gr., Mr. W. J. Stables), sends a flower of this exceptionally fine *Odontioda*, originally raised by C. J. Phillips, Esq., at Sevenoaks, between *Odontioda Charlesworthii* and *Odontoglossum Her Majesty*, the grand unrecorded hybrid for which the raisers, Messrs. Charlesworth, gained a First-Class Certificate at the great International Show of 1912.

The flower sent us is of the size and form of *Odontoglossum crispum*; the sepals and petals are dark mahogany red, with a violet shade. The lip is very broad in the upper part, and has an undulated margin, the colour being rosy mauve. The crest and base of the lip has some light yellow lines.

LAELIO-CATTLEYA SOUTHFIELD GEM.

W. WATERS BUTLER, Esq., Southfield, Edgbaston, sends a flower of his charming new hybrid raised between *L.-C. Martinetti* (*C. Mossiae* × *L. tenebrosa*) and *L.-C. (Ganymede Southfield variety (C. Schröderae* × *L. Latona*). It is a very worthy addition to the favourite class which includes *L.-C. Thyone* and the still nearer *L.-C. Oriflamme* (*L.-C. Thyone* × *C. Rex*) of Messrs. Armstrong and Brown.

L.-C. Southfield Gem has flowers of fine form and substance; the sepals and petals are bright Buttercup yellow, without a shade of any other colour, and the crimped and slightly fringed lip violet crimson, changing to a lighter tint towards the margin, which is cream colour. The base of the lip is yellow, with several reddish violet lines. The parentage is complex, but each of the four species included in its ancestry is indicated in some degree in the hybrid.

SEED SOWING.

MANY seed pods are approaching maturity, and directly the seed is ripe, it should be sown in prepared pots, or around the base of an established plant of the same family.

The raising of seedling Orchids is most fascinating work, and wherever exceptional varieties of Orchids exist, their hybridisation should be attempted. B.

* Again, various authorities give different dates. How came this discrepancy? J. J.

INDOOR PLANTS.

PALMS.

No plants cultivated under glass are better adapted for purposes of decoration, whether in the mansion, the conservatory, or the ordinary living room of the humbler classes than Palms. Many of the hardier kinds are well suited for plunging out-of-doors in sheltered situations during the summer with good effect. They are, to all intents and purposes, the most useful of all foliage plants, by reason of their light and graceful habit and long lasting qualities. To recommend the extensive cultivation of so ornamental and generally useful a class of plant as Palms would, by those acquainted with their charming and valuable qualities, be deemed almost superfluous. Yet before the introduction of *Kentia Belmoreana*, *K. Forsteriana*, *Cocos Weddelliana*, and a few other choice kinds in the early 'seventies of the last century, they were scarcely to be found in this country save in a very few exceptionally large establishments or botanic gardens.

The most gigantic members of the race may be cultivated and enjoyed in any ordinary warm greenhouse or conservatory of moderate dimensions for nearly a life-time without fear of their outgrowing their position. Few other plants give so rich and tropical an affect as Palms. They are indispensable in house and ball-room decorations, while the beauty and grace of many species render them invaluable as table plants. Their utility in a small state is well known, particularly so in the case of the light and more elegant kinds. At the present time *Kentias*, *Cocos*, *Phoenix*, and others are grown by the tens of thousands for market on account of their well-known durability, usefulness, and light and graceful appearance. They endure the atmosphere of rooms in which coal-gas is consumed better than almost any other plant, and require much less attention, provided they are not allowed to get dry at the roots. Their cultivation generally is extremely easy, the matter of temperature being of the first consideration. The next point to be observed, besides occasionally repotting, and cleansing of the foliage, is to give them liberal supplies of water at all times, with a moist atmosphere, especially when in active growth during the summer.

Generally speaking, Palms may be divided into two classes, those of a light and graceful habit, which may be grown in small pots, or as specimens 20 to 30 feet high, and others of a hardier constitution, with more bushy, compact growth and dwarfer in habit. These last thrive well in a cooler atmosphere during the winter, and are most suitable for plunging out-of-doors in sheltered situations throughout the summer, where they give a tropical effect to their surroundings. The following include the most useful of the light, graceful kinds:—

KENTIA BELMOREANA.—This fine Palm is admirably adapted for exhibition purposes, or the ornamentation of the conservatory, mansion, or ball-room. It is very elegant and graceful in habit, and may be grown in thumb pots or in 2½-inch to 3-inch pots, 9 inches to 12 inches high. Such specimens are suitable for furnishing small vases. The plants may also be grown as large specimens, some 20 to 30 feet high.

KENTIA FORSTERIANA somewhat resembles *K. Belmoreana*, but is more robust in its habit of growth, and the leaves are broader in all their parts. This Palm requires similar treatment to *K. Belmoreana*.

COCOS WEDDELLIANA (see Fig. 11).—This is the most graceful Palm introduced, and the most useful for small drawing-room vases. It makes beautiful specimens 2 feet to 3 feet high when grown in pots 5 inches to 6 inches in diameter.

COCOS FLEXUOSA.—This is a particularly light and graceful Palm, invaluable for decoration when it becomes 8 feet to 15 feet high, but is not characteristic in a small state.

GEONOMA GRACILIS.—This is an elegant, dwarf-growing Palm of very graceful habit, somewhat resembling the beautiful *Cocos Weddelliana*. It

is a most useful plant for the dinner table, as well as general decorative purposes.

PHOENIX ROEBELINII.—The newer *Phoenix Roebelinii* is a very distinct and beautiful species remarkable for its light, compact, graceful, drooping habit, and is most valuable as a dinner-table plant, or as a specimen in an ordinary living-room.

PHOENIX RECLINATA is a good plant for living-rooms, being light and graceful in habit.

ARECA LUTESCENS is another useful Palm, very ornamental and effective.

SEAFORTHIA ELEGANS is a graceful Palm when grown into half specimen or specimen size.



FIG. 11.—COCOS WEDDELLIANA.

This Palm is not so much utilised as formerly, as the *Kentias* and *Cocos* are more lasting.

All these Palms, when in a small state, require a moist atmosphere, and a temperature from 65° to 70°. As they get larger and are required for use a temperature of 55° to 60°, with atmospheric moisture, is sufficient to harden them for general decorative purposes. They do not require large pots, as they stand better when grown in comparatively small receptacles, with plenty of roots that should not be allowed to get dry. Syringe the plants on two or three occasions daily in hot weather. A little liquid manure is beneficial to them when growing in a warm house.

They may be raised from imported seed sown in heat, in pans or well drained pots. As soon as the seedlings are 2 inches to 3 inches high they should be potted singly in thumb pots and placed in a warm temperature.

The best compost for Palms is a rich fibrous loam mixed with a little peat or leaf mould, well-rotted cow manure and silver sand.

The following do well in a low temperature of 40° to 45°, and are suitable for standing in corridors, halls, or cool rooms, where they will remain in good condition for a long time, if given proper attention in watering and kept clean. Many of them are almost hardy in sheltered situations, requiring only slight protection during severe weather. Amongst the best are *Chamaerops excelsa*, *C. Fortunei*, *Areca sapida*, *Corypha australis*, *Latania borbonica*, *Rhapis flabelliformis*, *Phoenix rupicola*, *P. canariensis*, and *P. dactylifera* (the Date Palm).

There are many other choice kinds suitable for collections, such as *Stevensonsonia grandifolia*, *Sabal*

Blackburniana, *Pritchardia grandis*, *P. pacifica*, *Licuala grandis*, *Latania aurea*, *Euterpe edulis*, *Thrinax elegans*, *Kentia canterburyana*, and *Versaffeltia splendida*, but there would be a difficulty in procuring some of them.

Cycads and *Zamias* are foliage plants intermediate in character between Ferns and Palms. They make fine subjects for the decoration of greenhouses and conservatories, and in the summer they are admirable for the adornment of terrace gardens and walks, to which they lend a charm unattainable with any other plant. Their gracefully recurved and deeply and regularly pinnate leaves also give them a good position amongst exhibition plants. They are easy of culture, requiring very little attention, and will succeed in an ordinary warm greenhouse or conservatory. They may be increased by suckers. Cycads should be grown in a rich, loamy soil; a free drainage is essential for these plants, which should not be overpotted. They will grow well in a winter temperature of 50° to 55° and a summer temperature of 60° to 70°. *John Heal.*

TREES AND SHRUBS.

A FINE BED OF ANDROMEDAS.

WHILST on a brief visit to Havering-atte-Bower recently, I was privileged to see a very fine bed of *Andromedas* growing in Havering Park, the beautiful estate, wherein is situated the home of Mrs. C. McIntosh. The plants were in full flower, producing a fine picture. The bed was planted about the years 1867 to 1870, and comprises a number of plants which now form a well furnished group at least 50 yards in circumference, the height of the plants being 9 feet in several cases. They have evidently discovered an ideal rooting medium, and those of us who know how difficult it is to even persuade some of the less fastidious members of the *Ericaceae* to grow where the rooting-medium is not peaty, will naturally feel rather envious of Mrs. McIntosh in her possession of such lovely examples of plants of the Heath family, making fine, vigorous growth.

Havering Park is situated at a fairly high point above the town of Romford, and the water supply is a serious proposition, and one which last season was very acute, yet, despite this handicap, one sees on every hand magnificent collections of *Rhododendrons*, and allied plants, of which the bed of *Andromedas* is probably the very finest gem, with their pretty racemes of Lily-of-the-Valley-like flowers. *E. Beckett.*

VERONICA BALFOURLIANA.

THE above shrubby species was introduced from New Zealand in the form of seeds to the Edinburgh Botanic Garden, where it was first flowered and from whence it was figured and described in the *Botanical Magazine*, t. 7,556, by the late Sir Joseph Hooker. No one seems to have gathered it since in New Zealand. Even Cheeseman had to quote the original description for his *Manual of the New Zealand Flora*, as he had never seen a specimen. Under certain conditions it will make a bush 3 ft. high, but indoors 18 in. to 2 ft. seems to be about its range. The species is closely allied to *V. Traversii*, but is dwarfer, with short leaves having a reddish-brown margin, and closer habit of growth. The flowers are purplish-blue, not white as in the last-named. The bark of the shoots is also of a dark purple, so that altogether it does not resemble *V. Traversii* very closely to a casual observer. In the group to which it belongs the racemes of flowers are said to be rarely branched, but quite a good percentage of the racemes have one to three side branches when the plant grows out of doors. I have branching racemes of *V. Traversii*, but they are quite uncommon. *V. Balfouriana* has withstood the frosts of several past winters unprotected. The hybrid *V. Guthrieana* sometimes does service for it, but that seldom exceeds 6 in. in height, and the flowers are larger and of a deeper blue. *J. F.*

HARDY FLOWER BORDER.

DIVIDING AND REPLANTING PYRETHRUMS, IRISES, AND PAEONIES.

It needs not to be said that hardy plants become too big to fulfil the object of having them in a garden—the object of producing a profusion of flowers of good quality—and before they become so crowded with growths it is important to divide and replant them. At this season the chief plants that demand attention in this way are *Pyrethrums*, *Irises* of the *Pogoniris* section, and herbaceous *Paeonies*. Though it is difficult to find time for work of this kind at present, it is not impossible where there is the will. The labour involved may be spread over more than one season by doing one kind in one year, another in a second, and yet another in a third, though work of this kind is more rapidly overtaken when it is all done at once or in detail. I grow single *Pyrethrums* only, and these

are ready first to operate on. The soil of sizable clumps is apt to become very hard and dry by the time flowering is over, unless a more than usually copious rainfall moistens it. Usually it may be necessary to soak the clumps for 24 hours previous to dividing them, when it is easily accomplished without damaging either foliage or roots. Each clump should be torn into halves by means of two forks working against each other. Then the soil can be washed from the roots, and the pieces separated by hand and into sizes according to the wish of the operator. They should be planted, according to the nature of the soil, from $\frac{1}{2}$ inch to 1 inch lower than the spring of the leaves, and a reasonable quantity of manure should be worked into the soil when planting. One soaking of water will generally be sufficient. In beds for cutting not less than 9 inches should be allowed for interspaces.

well as downward, so firming each tightly. The distance to plant should be not less than 1 foot apart. As to watering, that, of course, depends on the weather, but never more than a very slight application to each set is required, and that only till root action has become vigorous. A thick mulch of rotted manure should not be omitted, and renewed annually.

Later than these, *Paeonies* are ready to be divided. It may be found necessary to soak old plants in water similarly to *Pyrethrums*, and in any case it is worth while to wash most of the soil off the roots previous to breaking them up. Here, again, two forks should be employed, not only to halve them, but also to subdivide them into smaller pieces fit to plant. *Paeonies* are gross feeders, and the ground for a fresh plantation should be manured to a depth of 6 inches with rotted

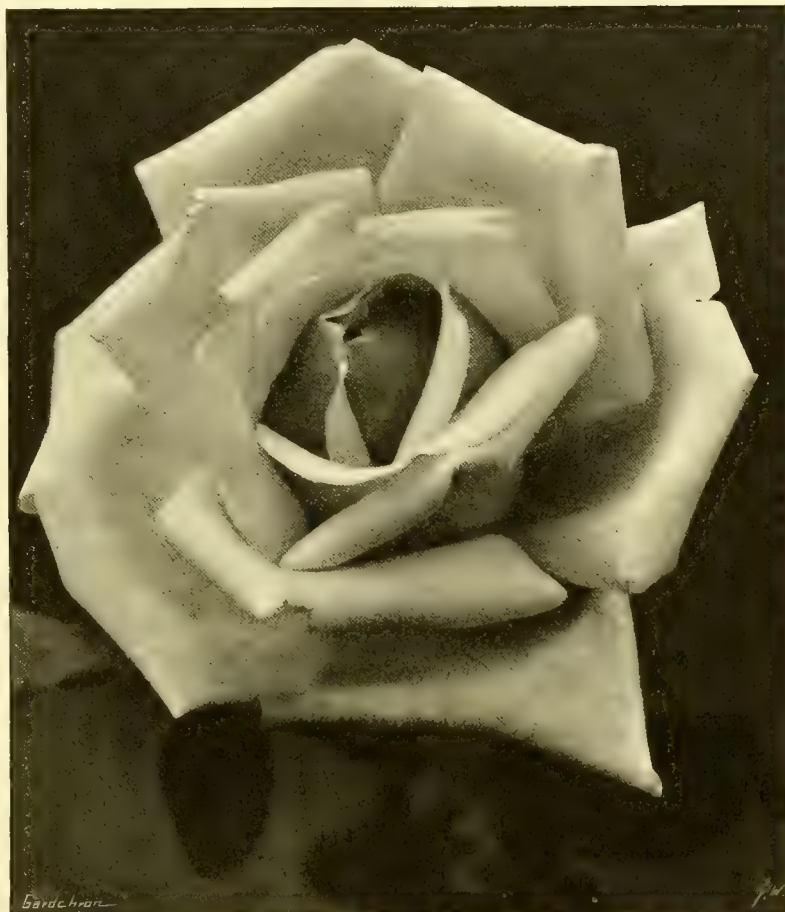


FIG. 12.—ROSE MRS. HENRY BOWLES: SEE AWARDS BY THE NATIONAL ROSE SOCIETY, p. 25.

In northern gardens, June planting of *Irises* is not possible, because they are, unless of the earlier sorts, still in flower, nor are their new roots formed till the next month, so that, at the earliest, division must not be attempted until July. I have established them successfully with all the old rhizomes and their roots removed, but probably most will incline to leave an inch or two of rhizome with its roots, which, however superfluous otherwise, at least helps to steady the young plant until new roots in sufficient number are produced to effect that object. Sometimes a quite short stick may be required for ensuring stability, especially when the blades are very strong. The soil, if at all loose, should be slightly firmed before planting, and, as the rhizomes run along the surface, planting should be only deep enough to give the pieces a grip of the soil. When set, all that is needed to firm them is a slight pressure with the tip of one's boot, the pressure being a little forward as

cow-dung, and in addition to that a thick layer applied to the surface and worked in while the operation is proceeded with. The stems of the leaves should be tied together to prevent breakage, and every care taken to save the roots, the washing of which will be found of great advantage to that end. Once planted, a stout stake is needed to which to tie the plants, and an abundant supply of water poured about each to moisten the ground all round and to a fair depth. A thick mulch of cow-dung should be applied to the plants each spring before growth pushes, an inch or two of soil being previously scraped off and returned on top to prevent birds from scratching and to hide the dung. I should have added that at least 3 feet should separate the plants when setting them out, and to preserve the flowering stems from growing crooked a ring of string supported on sticks should be run around the large plants before the stems are much in evidence. *R. P. Brotherston.*

MESEMBRYANTHEMUM AND SOME NEW GENERA SEPARATED FROM IT.

(Continued from page 8.)

36. *C. pusillum*, N. E. Br. Growths 4-7 lines long, $2\frac{1}{2}$ - $3\frac{1}{2}$ lines broad and 2-3 lines thick, obconic, varying from nearly circular to elliptic-oblong at the convex top (as type D, but much smaller), greyish-green, marked with irregular brownish-crimson (or in sunless seasons dark green) lines. Flowers not seen. *M. pusillum*, N. E. Br., in *Journ. Linn. Soc. Bot.*, v. 45, p. 99.

South Africa. Locality and collector unknown.

This is closely allied to *C. labyrinthum*, but seems to be distinct by its rather smaller growths, which have a greater tendency to be circular in outline, and are marked with fewer and less crowded lines.

37. *C. signatum*, N. E. Br. Growths 4-7 lines long, $3\frac{1}{2}$ -5 lines broad and $2\frac{1}{2}$ -4 lines thick, obconic, with the flattish or but slightly convex or faintly notched top often somewhat overhanging the sides (type G), and oblong or elliptic in outline, somewhat grey-green, marked in a labyrinth-like manner with rather crowded, irregular, dark brownish-purple lines, or in winter-time deep grass-green with the markings of a darker green. Flowers not seen. *M. signatum*, N. E. Br., in *Journ. Linn. Soc. Bot.*, v. 45, p. 100.

South Africa. Locality unknown, Pillans.

This is allied to *C. labyrinthum* and *C. pusillum*, but is distinguished at sight by the growths being more tapering to the base and the top flatter and often inclined to overhang the sides.

38. *C. minusculum*, N. E. Br. Growth 3-5 lines long, $3\frac{1}{2}$ lines broad and $2\frac{1}{2}$ - $3\frac{1}{2}$ lines thick, obovoid, elliptic in outline at the convex top, often slightly notched at the orifice (somewhat as type D, but much smaller), at first bright green, becoming dull green and often suffused with purple, very minutely and densely dotted with white, with the orifice surrounded at a little distance from it by a somewhat diamond-shaped dark green or dark purple ring, and outside of the ring are some irregular dark purple or dark green disconnected lines. Calyx 4-lobed. Corolla 8-15 lines in diameter, expanding in daytime irrespective of sunshine; tube 5-6 lines long, dull orange below, fading into yellow at the top; petals of two kinds, an outer series of 16-20, widely spreading linear-spathulate, obtuse, and 1- $1\frac{1}{2}$ line broad, bright magenta, shading into light yellow at the base, and an inner series of 5-6 small and very acute petals that are sometimes magenta and sometimes (on the same plant) orange-yellow tipped with purple. Stamens 6-8 included in the corolla-tube, yellow. Style $\frac{1}{2}$ line long; stigmas 4, less than $\frac{1}{2}$ line long, dark orange. *M. minusculum*, N. E. Br., in *Kew Bull.*, 1913, p. 118.

Clanwilliam Div., near Clanwilliam, Pillans.

This is one of the most beautiful species in this genus, the prettily marked growths and the richly coloured flowers, which are much larger than the growths, make it a very attractive plant.

39. *C. paucillum*, N. E. Br. (Fig. 13). Growths 5-7 lines long, $3\frac{1}{2}$ -6 lines broad and $3\frac{1}{4}$ -4 lines thick, obconic, convex, with a small transverse notch at the centre of the oblong or elliptic-oblong top (type E), varying from chalky-green or pale greyish-green to dull green, marked with separate dots and lines formed of confluent dots of purple-brown or dark green, usually a line extends from each side of the orifice over the top, and the other lines and dots are irregularly scattered on the other part, or there is a series of three lines radiating from each side of the orifice. Calyx 4-lobed. Corolla 4-7 lines in diameter, expanding in the evening, closed during the day, scentless, tube about as long as the calyx; petals 20-26, lax, whitish or very pale straw-coloured. Stamens 16-20, with the upper anthers shortly exserted, pale yellow. Style $\frac{1}{2}$ -1 line long; stigmas 4, shorter than the stamens, about 1- $1\frac{1}{2}$ line long, plumose-filiform, greenish. *M. paucillum*, N. E. Br., in *Journ. Linn. Soc. Bot.*, v. 45, p. 97 (1920).

South Africa. Locality unknown, Pillans.

40. *C. belulum*, N. E. Br. Growths 5-6 lines

long, $2\frac{1}{2}$ -4 lines broad and $2\frac{1}{2}$ - $3\frac{1}{2}$ lines thick, obconic, elliptic to nearly circular in outline at the convex top, glaucous-green, with a few short lines formed of connected dots and a few separate dots of a rather darker dull green, but not very conspicuous. Calyx 4-lobed, entirely dull reddish. Corolla about 7 lines in diameter, expanding in the evening; tube not exceeding the calyx; petals whitish. Stamens shortly exserted; anthers light yellow. Ovary dome-shaped on the top. Style less than $\frac{1}{2}$ line long; stigmas



FIG. 13.—*CONOPHYTUM PAUCILLUM* N. E. BR.
NATURAL SIZE: PHOTOGRAPHED AT 8 P.M.

4. nearly twice as long as the style, slightly thickened upwards.

Laingsburg Div., near Laingsburg, Pole Evans, 6916 A. N. E. Brown.

(To be continued.)

THE ROSE GARDEN.

THE ROSE TRIALS AT BAGATELLE.

THE annual meeting of jurors appointed to inspect and judge the new Roses at Bagatelle, Paris, met at 9 a.m. on the 15th ult. As usual, the jury was international in character, including five British, two Dutch, and one American, the remainder being prominent French Rose growers.

Unfortunately, owing to the heat of May the Roses were almost entirely over, only a few flowers were to be seen, indeed, there were so few that the Jury discussed the question of postponing judgment until September next. It was, however, decided to inspect the plants as they were and to deal with the question of awards after inspection.

After examining the fifty-two varieties under trial the French members suggested that a Gold Medal should be awarded to the best introduction by a raiser other than French, and the award to the best French novelty deferred until September next.

The variety selected for the Gold Medal was *Elvira Aramayo* (Messrs. Looymans and Son, Holland). This is brightly coloured, somewhat in the style of the *Queen Alexandra*; the bloom was almost over and did not seem to possess much substance, but judging from the growth it would appear to be free flowering.

The best of the French introductions as they appeared on the date of inspection was *Jules Tarbat* (Barbier and Co.), a *Pernetiana* Rose of vigorous growth and with good foliage; the bloom is large, full and well-formed; colour salmon-pink with coppery coral centre. This, as seen at Orleans, was superb. Next came *Jacotte*, a *Wichuraiana* hybrid of undoubted superiority as seen at Orleans, where it covered a pole quite eight feet in height and was a mass of bloom from base to summit. The colour is beautiful and novel, being an orange-yellow toning to deep copper, tinted coppery red. *Madeline Pacaud* (Chambard) is a medium-sized flower in the *Madame Léon Pain* style of colour; this was not of great merit as seen growing.

Geisha, an orange-yellow sport from *Madame Edouard Herriot*, resembles *Cambrai*. *Madame*

Edouard Herriot Panachee is a striped sport from *Madame E. Herriot*. Neither of these appealed to me. *Toison d'Or* (Pernet Ducher), apricot-yellow, shaded orange red, was only partly developed, so that it was impossible to form a correct opinion of its merit.

As already mentioned, most of the Roses were over, and the decision to make a second examination in September next was a wise one, and it is hoped the plants will be in such condition as to admit of forming an opinion of their worth. Unfortunately the soil at Bagatelle is not by any means suited to the successful growth of Roses, and consequently it is not possible under present conditions for Roses planted there to do themselves justice, especially in a dry season such as we have passed through. The staff had endeavoured by a good mulching of manure and frequent applications of water to counteract the weather, but with very little effect.—N.

ROSES AT DRYNHAM.

OUR Rose garden is exceedingly beautiful just now. We planted some four hundred new bushes last season, and they have all done exceedingly well in their first year. Our soil is very light, but we plant in good Kentish loam, with bone meal and soot as manure. Our fifteen hundred Rose bushes are all comparatively free from aphids this season. They were sprayed with nicotine insecticide on two occasions. It was quite different last season, when we had to spray on many occasions to keep the aphides under. I find spraying with clear water from 6 p.m. to 8 p.m. is of very great benefit to the plants. Pillar and Rambler varieties have been exceedingly fine this season, as also have *R. Moresii* and *R. Fargesii*, species which are not always particularly free in blooming. Amongst the very large number of Roses grown in these gardens, the following have done best:—*Cheerful*, W. C. Gaunt, Mon. Paul Lédé, Pharisäer, Cambria, Mathilda Liegarde, Daily Mail, White Maman Cochet, Ed. Bohane, Mme. Antoine Mari, Golden Ophelia, Mme. Abel Chatenay, Mme. Léon Pain, Lady Hillingdon, Hugh Dickson, Red Letter Day, Mélanie Soupert, Prince de Bulgarie, Rosa Moyesii, Persian, Frau Karl Druschki, Caroline Testout, Mme. Ravary, Lady Pirrie, Lyon, Mme. Jean Dupuy, Marie Van Houtte, Rêve d'Or, Irish Elegance, Flame of Fire, Comtesse du Cavla, and Mme. Eugène Resak. W. A. Cook, Drynham Gardens, Walton-on-Thames.

THE BULB GARDEN.

SCILLA CAMPANULATA AND S. NUTANS.

THE Spanish (*campanulata*) and the English (*nutans*) Wood Hyacinths are literally all over my garden. The Wood Hyacinths are allowed to seed as they like and to grow as they like. It is surprising how many shades of blue and pink (?) have turned up. If I wished I could also select many different types of habit. Not only do *Scilla nutans* and *S. campanulata* differ from one another, the first-named bearing its flowers in the form of a bishop's crozier and the last-named in candelabra fashion, but the seedlings of each one differ amongst themselves. Just before the war began I started to select a few of the best, but that has been quite given up, I regret to say; all the same it shows there are possibilities.

My present purpose in this note is two-fold (1) to say that Wood Hyacinths should be left undisturbed as much as possible. They become taller and finer in every respect with age; (2) to advocate their use with tall, May-flowering Tulips in bedding. Such combinations as these look fine: (a) Moonlight and a blue Wood Hyacinth; (b) *Euterpe* and a pink Wood Hyacinth; (c) Golden Bronze with a white; (d) *Edmée* or *Baronne de la Tonnaye* with a blue; and so on. Those to whom the idea is novel will be surprised at its effectiveness if they will give it a trial and choose their combinations with discretion. First-sized bulbs only should be used in order to get the best results. *Joseph Jacob*.

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Giant Larches.—I was much interested in the correspondence on pages 258, 294, and 337, vol. lxxi, relating to giant Larches at Dunkeld, Arncliffe, and Aberystwyth, that has arisen out of my note. I have received a communication from Dr. Henry giving some useful information upon Larches; he states that isolated Larches rarely reach over 100 ft. in height. The Dunkeld parent Larches are about 100 ft. high, while in the plantations at Dunkeld, the height runs to 125 ft. He also states it is difficult to give more than an approximation of the age of a tree, as the rate of growth will depend on the soil and other circumstances. He also observes that he had just received particulars of a Larch cut down at Kentock, near Cupar-Fife; it was 104 ft. high and 9 ft. 2 in. girth at 3 ft. from the ground, and the rings on the stump showed it to be 152 years old. Starting from the centre of the tree and taking one half of the stump, the number of rings are given in years, and the years in inches, thus we get, starting from the centre, 20 years, 2½ inches; 60 years, 3 inches; 35 years, 3 inches, 20 years, 2 inches; 21 years, 4 inches; bark 3 inches. Total number of inches from centre to the outside wood 14½ inches, this does not include the bark. Dr. Henry considers the Coombe House, Croydon, Larches may be about 130 years old, as they may have grown a little faster than the one at Kentock. This estimate appears to me to be as nearly correct as possible. Several of the specimens at Coombe House have no doubt finished their growth in height, as their tops are bare of growth and bend over in the shape of a whip; they are not dead, otherwise they would break off; they appear to be green and tough, yet without foliage for about four or five feet. In this neighbourhood Larches have suffered from disease, but I do not consider these giants have been affected in any way by it. We have lost several specimens lately, but this I attribute to the drainage system of Croydon, causing several specimens of various trees to die through dearth of water at their roots. *Mark Mills.*

Digitalis purpurea monstrosa.—Times out of mind a strain of seed of Foxglove has been obtainable, which gives a large terminal, regular flower of a purple colour. Seeds are now obtainable that give white flowers and several shades of rose. I have examined a white one that has neither shading nor spots of purple. The flowers have a slight shade of cream when young, otherwise the variety is a pure albino. The regular, terminal flower has twenty shallow lobes and sixteen stamens, so that it really consists of four flowers in union. There are eighteen to twenty lobes to the calyx, which is variously fissured, the deeper ones resembling the numerous bracts present. Two of the lobes are white. The regular flower of this old garden curiosity is, therefore, fasciated. It continues to interest people who have not seen it before. The top flower opens long before the raceme has completed its growth. *J. F.*

Gypsophila paniculata fl. pl.—At present there are two large plants of this variety here, and if the present stock in gardens originated from a single plant, it is remarkable how these should differ in foliage and in flowering. The foliage of one is glaucous, that of the other light green, so distinctly different that one might take them for separate forms. In flowering one is earlier than the other, the later of the two usually not being so regular in flowering as to be fully open when stopped by the cold of late autumn. Next to there having been two forms of double, would it be possible that the stocks—no doubt seedling singles—have influenced the plants to the extent these exhibit? Both are of great value as decorative plants, and long sprays—two or three feet in length—are employed here for vase furnishing, in conjunction with other seasonable border flowers. *R. P. Brotherston, Tynningham Gardens.*

SOCIETIES.

NATIONAL ROSE.

JUNE 29.—Fortunately, about ten days of cool weather preceded the date of the National Rose Society's show at Regent's Park, consequently flowers were in excellent condition on the show day. Had the earlier tropical weather continued the show would not have been a success, whereas, thanks to the altered conditions, it was one of the finest displays of Roses seen for many years. Competition was good, especially in the larger classes, and the flowers were of good size, form and colour. Rain fell at intervals during the day, but this did not appear to have any effect upon the attendance.

New Roses exhibited for medal or other awards were numerous, and the tent wherein these seedlings and sports were staged was, as usual,

exhibition, garden and bedding purposes. The colour is golden yellow, shaded with coppery red; very effective. Shown by Rev. J. H. PEMBERTON, Havering.

Lady Verrey.—A dwarf bedding or garden Rose.—It is a Hybrid Tea of clear, rich shell-pink colour, of beautiful form in the bud stage, while the open blooms are of medium size and a trifle thin. A very pretty Rose, but apparently lacking fragrance. Shown by Mr. ELISHA HICKS, Twyford.

Alice Amos.—This is a dwarf polyantha variety and apparently very free-flowering. The flowers are single, 1½ inch to 2 inches wide, rich reddish rose with whitish centre. The blooms remind one of those of American Pillar, but they are smaller and brighter. The raisers state that this variety flowers freely in the autumn. Foliage small, dull green, leathery. Shown by Messrs. D. PRIOR AND SONS



FIG. 14.—ROSE CAPTAIN KILBEE STUART.

thronged with visitors. The way in which the new Roses were criticised by the visitors was evidence of the keenness with which a host of amateurs are cultivating the Queen of Flowers.

Awards.

GOLD MEDALS.

Mrs. Henry Bowles.—A large, finely formed Hybrid Tea variety, with broad petals that make up a substantial bloom of exhibition style. The colour is rich pink, flushed with carmine. Foliage dark and shining. Slightly fragrant. Gained a Certificate of Merit in 1921 (See Fig. 12). Shown by Messrs. CHAPLIN BROTHERS, Waltham Cross.

Capt. Kilbee Stuart (see Fig. 14).—This velvety crimson scarlet variety has been shown on numerous occasions, and is already fairly well known to Rose enthusiasts. The large-petalled flowers are shapely and will reach exhibition size. Stems long and sturdy; foliage very dark and leathery. Richly fragrant. Shown and raised by Messrs. ALEX. DICKSON AND SONS, Newtownards.

CERTIFICATES OF MERIT.

Ruth.—This Hybrid Tea Rose is of globular form, and the variety is said to be useful for

J. G. Glassford.—For its wonderful fragrance this Rose deserves wide cultivation, but it has also the merit of good form and large size, while its cherry red colouring is most attractive, though some flowers indicated that in some kinds of weather the outer petals may fade to an unpleasant magenta. It is a perpetual-flowering Hybrid Tea Rose of much merit. Shown by Messrs. HUGH DICKSON, LTD., Belfast.

Bessie Chaplin.—A vigorous, large-flowered Hybrid Tea Rose, with very full blooms which often resemble in shape the fine old La France. The colour is silvery pink, but not so silvery as in the case of La France. Shown by Messrs. CHAPLIN BROS.

Lady Roundway.—A gorgeous Pernetiana Rose shown for the first time. If this should prove to be an easily grown and free-flowering bedding variety it cannot fail to become popular. The colour, rich golden orange, is arresting. Leaves dark and shining. Raised and shown by Messrs. B. R. CANT AND SONS.

Innocence.—A lovely single Rose of vigorous habit, and said to be perpetual-flowering. The blooms are 4½ inches in diameter and composed of broad, rounded petals, white, faintly tinted blush at the margins. The buds are of pretty

and pointed shape, cream yellow, and this colour persists until the blooms are fully expanded. Sweetly fragrant, with Tea Rose scent. Shown by MESSRS. CHAPLIN BROS., Waltham Cross.

SILVER MEDAL BLOOMS.

The customary Silver Medals were awarded to the following as being the best blooms of their respective types in the two sections:—

NURSERYMEN'S CLASSES:—H. P., Louise Crette, shown by MESSRS. G. and H. BURCH; H. T., Mrs. George Marriott, shown by MESSRS. ALEX. DICKSON AND SONS; T., Mrs. Campbell Hall, shown by Mr. GEORGE PRINCE.

AMATEURS' CLASSES:—H. P., Candeur Lyonnaise, shown by Mr. S. W. BURGESS; H. T., Mildred Grant, shown by Mr. A. R. REEVES; T., W. R. Smith, shown by Rev. F. R. BURNSIDE.

NURSERYMEN'S CLASSES.

The championship class for exhibition Roses was again a great triumph for MESSRS. ALEX. DICKSON AND SONS, who, for the second year in succession, won the coveted trophy with a superb collection. MESSRS. ALEX. DICKSON AND SONS also repeated their last year's success in the class for thirty-two distinct trebles, and in the whole of their 168 Roses there was not a single weak bloom. Mr. ELISHA J. HICKS is to be congratulated on winning the Group Championship for three successive years.

As stated above, the Nurserymen's Challenge Trophy, with a Gold Medal and money prize, was won by MESSRS. ALEX. DICKSON AND SONS with a superb collection. This was characterised by blooms of even size, freshness and rich colouring. The seventy-two distinct varieties included such sterling sorts as Mrs. G. Marriott (the Silver Medal H. T. Rose), Archie Gray, Mildred Grant, Marjorie Bulkeley, Snow Queen, Florence Pemberton, Dean Hole and Lady Inchiquin, though all were deserving of mention. MESSRS. HUGH DICKSON, LTD., were a very good second; their choicest blooms were Gorgeous, Mildred Grant, Alex. Emslie, Mrs. G. Marriott, Pink Pearl, E. Godfrey Brown and Mrs. J. Laing. MESSRS. D. PRIOR AND SON, who were third, had very fine examples of Gorgeous, Snow Queen, George Dickson and Florence Forrester.

Of the splendid first-prize collection of 32 distinct varieties, three blooms of each, by MESSRS. ALEX. DICKSON AND SONS, the very best were Mrs. G. Marriott, Edward Bohane, Mrs. Fred. Searle, Molly Bligh, Dean Hole and Lady Barham. MESSRS. B. R. CANT AND SONS were second, and their outstanding sets were of Gorgeous, Lemon Pillar, H. V. Machin, Hugh Dickson and Edith Cavell; MESSRS. D. PRIOR AND SON were third.

Competition was not quite so good in the class for 48 exhibition varieties, nor was the quality of the same high standard as in the former classes, but Mr. GEORGE PRINCE, who won the first prize, had very fine blooms of Edith Cavell, Golden Emblem, Mrs. E. Mawley, Margaret Dickson Hamill and Modesty. In the second prize exhibit of Mr. CHAS. GREGORY there were especially good blooms of George Dickson, Lyon Rose and William Shean. Mr. HENRY DREW was third.

In the extra class, for 24 distinct varieties, first prize was won by Mr. JOHN PIGG with a praiseworthy collection, which included White Maman Cochet, Col. Oswald Fitzgerald, Mrs. W. J. Grant, H. V. Machin and Golden Emblem. MESSRS. CHAPLIN BROS. were second with such sorts as J. B. Clarke, George Dickson and Florence Pemberton. Mr. HENRY DREW proved to be the winner in the class for 8 varieties, three blooms of each, and of his good sets, Golden Emblem, Gorgeous, Mrs. R. D. McClure and Margaret Dickson Hamill were the very best. Mr. CHAS. GREGORY was second, and MESSRS. G. and H. BURCH were third.

Tea and Noisette Roses showed signs of damage by the weather, and in some instances the colouring was only moderately good. The best 18 varieties were by Mr. GEORGE PRINCE, who had Auguste Comte, Mrs. H. Taylor, White Maman Cochet and Mrs. Campbell Hall. Mr. HENRY DREW, with such as W. R. Smith, Mr. Foley

Hobb and Lady Plymouth, was second; and MESSRS. D. PRIOR AND SON, who had very good examples of Madame Jules Gravereaux and Maman Cochet, were third.

The Kilbee Stuart Cup, for 12 blooms of new Roses distributed since January 1, 1918, resulted in an interesting competition, and was won by Mr. GEORGE PRINCE, who had good examples of J. G. Glassford, Mrs. Lamplough, Mrs. Darlington, Princess Victoria and Edith Cavell. MESSRS. HUGH DICKSON, LTD., showing Mrs. J. R. Allen, Marjorie Bulkeley, Alex. Emslie and Margaret M. Wylie, amongst their twelve, were second. The 12 best blooms of any single new Rose were of the silvery pink Marjorie Bulkeley, by MESSRS. HUGH DICKSON, LTD.; vivid blooms of The Queen Alexandra Rose, by Mr. ELISHA J. HICKS, were second; and the rich pink, Mrs. Henry Morse, by MESSRS. G. and H. BURCH, were third. Showing good blooms of Earl Beatty, a very fragrant bright crimson, much of Château de Clos Vougeot type, and the bright Waltham Crimson, MESSRS. CHAPLIN BROS. were awarded the first prize for two baskets of new Roses not yet in commerce.

The baskets of Decorative Roses were fully equal to those at any of the former shows. The best seven baskets of distinct varieties were shown by MESSRS. CHAPLIN BROS., who repeated their success of last year with superb arrangements of such varieties as Isobel, Col. Oswald Fitzgerald, Mrs. Henry Bowles, K. of K., and Golden Emblem. MESSRS. ALEX. DICKSON AND SONS were a good second with, amongst other varieties, Sunstar, K. of K., Lady Lichiquin, Betty Uprichard and Margaret Dickson Hamill. Mr. MATTOCK had the best three baskets, showing Mrs. Henry Morse, Los Angeles and Château de Clos Vougeot. Mr. CHAS. GREGORY was a good second with Golden Emblem, Christine and Emma Wright.

There were also classes for single baskets of any one variety of the several types. The best H.P. was Snow Queen, shown by MESSRS. CHAPLIN BROS., and MESSRS. D. PRIOR AND SON were second with the same variety. In the H.T. Class, Mr. G. PRINCE was first with Edith Cavell, and MESSRS. W. and J. BROWN were second with George Dickson. The best basket of T. Roses was that of Madame Jules Gravereaux, by MESSRS. D. PRIOR AND SON, while MESSRS. W. and J. BROWN, with Mrs. Foley Hobbs, were second.

GROUPS OF ROSES.

The congratulations of all rosarians will go to Mr. ELISHA J. HICKS, who, for the third successive year, has secured the Championship Trophy, Gold Medal and First Prize in the large group class. This most meritorious exhibit was of high quality decorative Roses arranged with the skill now expected from Mr. HICKS. The cross arches of such as Red Letter Day, associated with Blush Rambler and Joanna Bridge with Aviateur Bleriot were a distinct feature of these large collections, and he also showed excellent stands of Hoosier Beauty, Ethel James, Columbia, Ophelia, Lady Hillingdon, Mrs. Henry Sawyer, with many other valuable sorts. MESSRS. B. R. CANT AND SONS, who were a worthy second, set up their collection on more conventional lines, showing excellent large vases of Paul's Scarlet Climber, American Pillar, Emily Gray, Flame of Fire, Lady Pirrie, and Christine, amongst a great many varieties.

MESSRS. CHAPLIN BROS. won premier honour in the class for a group 20 ft. by 4 ft., amid very strong competition, and their arrangement was noteworthy for the glowing colours of the massed varieties. Mrs. Henry Bowles, George Dickson, Ophelia and Paul's Scarlet Climber are the names of only a few of the sorts so well shown. MESSRS. A. J. and C. ALLEN were a good second, and their outstanding sorts were Golden Emblem, Ophelia, Mrs. Henry Morse and K. of K.

The 36 vases of distinct varieties which won the A. C. Turner Cup for MESSRS. F. CANT AND CO. were of very high quality. They included Moonlight, Miss Ada Francis and Braiswick Charm of the Cluster Roses with The Queen

Alexandra Rose, Cambria, and Donald McDonald of the larger double varieties. Mr. MATTOCK was second, and his best blooms were of Constance, Mr. Curnock Sawday, Rayon d'Or and Mrs. Redford. MESSRS. J. JEFFRIES AND SON were third. MESSRS. W. and J. BROWN had the best 12 vases of the useful dwarf Polyantha Roses and included beautiful sprays of Etoile de Mai, Perle d'Or, Mrs. W. H. CUTBUSH, Léonie Lamesch and Baby Tausendschön. Mr. JOHN MATTOCK was second and in his fine collection, the vase of Rödhätte was very prominent. With an excellent collection MESSRS. CHAPLIN BROS. were first in the class for 18 vases of decorative Roses.

AMATEURS' CLASSES.

As in the nurserymen's section history repeated itself with the amateurs for the Champion Trophy, Gold Medal and First Prize were won for the second time in succession by Mr. H. L. WETTERN, Oxted. His was a particularly good board of 36 exhibition blooms and included superb flowers of Hugh Dickson, Avoca, George Dickson, Her Majesty, Freda, Mrs. W. J. Welch and Mrs. F. Denison. Dr. R. E. TURNBULL, Colchester, was second, but his blooms, though shapely and of good size, showed traces of the inclement weather. His best sorts were Mrs. Edward Mawley, Hugh Dickson, H. V. Machin and Lyon Rose. Mr. JOHN HART, Potter's Bar, had the best 24 exhibition varieties, and these also were a trifle weather stained, though otherwise, very good indeed. The outstanding sorts were Gorgeous, J. L. Mock, Joseph Welch and Mildred Grant. Dr. TURNBULL was second in this class, which he won last year, showing Rev. F. Page-Roberts, Mrs. G. Marriott and Lemon Pillar of good quality.

The class for 12 distinct blooms brought very good competition, and the first prize exhibit by Mr. J. E. RAYER, Worcester, was excellent; it included Mrs. G. Marriott, Candeur Lyonnaise, Madame Jules Gravereaux and Mrs. Theodore Roosevelt. Dr. T. E. PALLETT, Earls Colne, the second prizewinner, had good blooms of George Dickson, Mrs. Henry Morse and Lemon Pillar. Dr. PALLETT, took chief honours in the very strong class for 8 varieties, 3 blooms of each; his triplets of Mildred Grant, Mrs. G. Marriott and Mrs. W. J. Welch were excellent. Mr. G. SPEIGHT, Market Harborough, was second. In the class for growers of fewer than 1,000 plants, Mr. F. H. FIELDGATE, Colchester, staged 12 splendid blooms of such varieties as Lady Barham, Candeur Lyonnaise and Mrs. J. Laing. Mrs. HENRY BALFOUR, Oxford, was a very good second. Mr. FIELDGATE also won first prize with 8 splendid triplets of such sorts as Mrs. J. H. Welch and George Dickson. Mr. R. DE V. PRYOR, Hitchin, was the most successful exhibitor of 12 varieties in the section for growers of fewer than 500 plants, and Mr. F. G. HAYES took first prize in the similar class for 6 varieties, 3 blooms of each, while Mr. RAYER, with Snow Queen, won first prize for 6 blooms of any one variety.

The best 24 distinct blooms in the extra class for amateurs who grow their own Roses were Mr. G. SPEIGHT's, who had admirable blooms of Dean Hole, Lady Barham, George Dickson and E. Burnett.

The metropolitan classes illustrated the fact that, within the prescribed radius, practically all varieties may be grown successfully. The first winner of the Williamson Challenge Cup was Mr. JOHN ROFF, Wood Green.

Baskets of Roses were very popular with the Amateurs and the many excellent examples were very pleasing. The first prize-winners were Mr. G. SAWDAY, High Wycombe, with Hugh Dickson in the class for one variety, and Mr. G. MARRIOTT, who was first in the three remaining classes, where he had excellent baskets of Lyon Rose, Mrs. Foley Hobbs, and Los Angeles. Mr. MARRIOTT was first also in the class for an arrangement of Roses on a space 5 ft. by 3 ft., where he had beautiful vases of K. of K., Lady Pirrie, The Queen Alexandra Rose, Flame of Fire and Golden Emblem, and he had the best 12 varieties. Dr. M. LACROZE

was second with a generous display, though rather heavily arranged.

Tea and Noisette Roses on the chief stands were exceptionally good. The Rev. F. R. BURN-SIDE won the Trophy and Gold Medal with beautiful blooms of such as W. R. Smith, Madame C. Souper, Mrs. Foley Hobbs and Medea. Mr. W. E. MOORE, showing splendid blooms of Auguste Comte, Alex. Hill Gray and Mrs. Foley Hobbs, was first in the class for 9 Tea or Noisette varieties.

DECORATIVE CLASSES.

The decorations of cut Roses were all staged in one large, beautifully light tent, and there was ample space for the comfort of visitors. The main displays were of decorated tables, in four classes, the combined number of exhibits totalling thirty-four.

The nurserymen's classes included one for a dinner table decoration of cut Roses, lightly arranged with Rose foliage only. Six competed in this class, and the first prize was awarded to Mrs. MAY, Waltham Cross, for an elegant arrangement of Ophelia Roses in a large centre bowl and four smaller ones at the corners. The foliage employed was of Rose Willmottiae and R. rubrifolia; 2nd, Mrs. ARTHUR R. BIDE, "Highlands," Guildford Road, Farnham, who employed Emma Wright, a semi-double coppery-red variety; 3rd, Miss PEMBERTON, Havering-atte-Bower, with a new, semi-double, warm rosy-red variety named The Adjutant, which was most dainty and the equal to any for freshness, colour, simplicity and utility, as such a decoration would be possible for an actual dinner table arrangement.

The three classes for decorated tables of Roses in the amateurs' section attracted twenty-eight competitors. There were nine entries in the class for single-flowered Roses, which lend themselves admirably for dainty arrangement in bowls and vases. The first prize was awarded to Mrs. COURTNEY PAGE, Earldoms, Ridgeway, Enfield, for Irish Elegance, relieved with long sprays of Rosa Willmottiae in one large, centre bowl, and eight smaller ones; 2nd, Mrs. BARTON, Chappel, with Isabelle, but too much material for practical purposes; 3rd, Mrs. OAKLEY FISHER, Barrow, with Mrs. Foley Hobbs, a most dainty decoration of a tall vase in the centre, surrounded with eight tiny vases and one at either corner.

The class in which single Roses were excluded was well contested by eight exhibitors, the premier award going to Mrs. COURTNEY PAGE for a charming decoration of Madame Butterfly, the centre piece being a perfect bowl of Roses. The use of yellow vases was very daring and not to everybody's taste, but the result was the best of its kind in the show, for the yellow base of the blooms gave perfect harmony to the scheme; 2nd, Mrs. ALEX. ROBINSON, Bourne End, with Ophelia; 3rd, Mrs. OAKLEY FISHER, Harrow, with Golden Emblem.

In the class for a decorated table, the Roses to be grown by the exhibitor, there were eleven competitors, and the first prize was won by Mrs. BARTON, for Padre, Sunstar and Irish Elegance varieties, which harmonised in tone; 2nd, Mrs. COURTNEY PAGE; 3rd, Mrs. EDGAR BURNETT, Southampton.

The best low bowl of Roses was shown by Mrs. BARTON; the first prize for a bowl of mixed Roses was awarded to Mrs. OAKLEY FISHER, but as only Ophelia was employed, the exhibit did not seem to agree with the conditions of the schedule; Mrs. EDGAR BURNETT excelled in the class for a bowl of cut Roses arranged with Rose foliage only, with Irish Elegance. The best vase of Roses, Ophelia, was shown by Miss ETHEL JAMES, Abingdon. Mrs. STODGWICK, Ingatstone, had the best bowl of Roses in the class for lady amateurs who have never won a first prize in the decorative section of these shows, with Mrs. Tate variety.

NON-COMPETITIVE EXHIBITS.

The corridor was, as usual, filled with non-competitive exhibits. Messrs. ALLWOOD BROS. had a magnificent display of Carnations of all types, including a large number of their new

perpetual border varieties. Messrs. ANDREW IRELAND AND HITCHCOCK, Marks Tey, showed Sweet Peas of outstanding quality, the varieties including many novelties, such as Lord Lascelles, pale lavender; Gloriosa, scarlet; and Le Mahdi, aniline blue. Messrs. DOBBIE AND Co., had also a magnificent exhibit of Sweet Peas, in which we noticed the new varieties, Renown, cerise; George Shawyer, light salmon; and Dignity, pink on a cream ground.

Messrs. CARTER PAGE AND Co. provided a very pleasing group of English Irises, Dahlias, Pansies, and Antirrhinums. Messrs. R. H. BATH made a very striking display with tall spikes of Delphiniums. Messrs. STUART LOW AND Co. had an imposing exhibit of Roses and Carnations, whilst Messrs. J. CHEAL AND Sons showed a collection of their pretty Star Dahlias. Messrs. ISAAC HOUSE AND SON exhibited new Gaillardias and forms of Scabiosa caucasica. Messrs. MAXWELL AND BEALE and the Misses HOPKINS showed collections of alpinas.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

THE seventy-seventh anniversary festival dinner of the Gardeners' Royal Benevolent Institution, held in the Grocers' Hall, City, on Tuesday, June 27th, to which a brief reference was made in our last issue, was the occasion of many generous gifts, resulting, as we announced on page 2, in a total collection of £3,000, in aid of this excellent gardening charity.

The toast of the evening, "The Gardeners' Royal Benevolent Institution," was proposed by the chairman, Lord Lambourne, who stated that he always had deep sympathy with the Institution, which was one he desired to help with every assistance in his power, but he did not claim to possess the charm of manner of their treasurer, Sir Harry J. Veitch, who everyone regretted was not present with them that evening. He read a letter from Sir Harry expressing deep regret at his absence in consequence of illness, but his heart would be with them that evening and he wished them a full measure of success. Lord Lambourne expressed the hope that the cause which Sir Harry Veitch had so much at heart would not suffer on account of his absence. He then proceeded to give some particulars of the fund and stated that 250 old and infirm gardeners or gardeners' widows were receiving pensions, the oldest of whom was ninety-three years of age. They had a waiting list of thirty applicants. In 1921 the fund was enabled to benefit 335 persons, and the sum necessary to carry on this good work annually was £5,500, to which the assured income did not contribute more than £1,000. Lord Lambourne said: "We have all to tread the path of life which, when it begins, seems delightful, and both sides of it seem bordered with flowers. Then comes middle life with responsibilities and worries. We find amongst our flowers a Bramble, a Thistle or a weed. Afterwards comes old age, when we have before us the last hill to climb, and we look back and see others who have fallen by the way. The cry comes from these for help, and there is no greater delight in life than assisting those who have fallen. Some of us have had nothing but joy and flowers, while others have nothing but misery all the time." "I appeal," he said, "to-night, for those who need help, and you who respond will be rewarded by our Father in Heaven."

Col. Sir J. S. Young, C.V.O., responded. He stated that in his capacity as almoner of the Worshipful Company of Gardeners he had had to look closely into the merits of the Institution, with the result that there is at this moment awaiting signature a deed assuring in perpetuity the maintenance of one pensioner to the fund. He referred to the love of flowers by all classes, from the King downwards. They had seen recently that the Prince of Wales had had his path strewn with flowers and on the same day Queen Alexandra was appealing with Roses for help for the hospitals. Princess Mary had placed her bridal bouquet on the Cenotaph in recognition of the services of the glorious dead, and quite recently showers of flowers

came from all classes to solace the widow of one of our greatest soldiers who had lost his life by cruel tragedy. He appealed to his hearers for their benefactions in aid of the workers who plant and sow, in their old age.

The toast of the "Visitors" was proposed by Mr. H. J. Greenwood. To the visitors, he said, was due in large measure the success of the evening, and he hoped that they would be so impressed by their surroundings as to give generous support to the fund. He expressed his gratitude to the Master and Wardens of the Worshipful Company of Grocers for loaning them their beautiful hall for the dinner. In responding, Lt.-Col. R. K. Harvey, Master of the Worshipful Company of Grocers, stated: "I am a visitor in my own hall and I feel somewhat a stranger, but your applause makes me feel at home." On behalf of the visitors he expressed his thanks for the hospitality they had all enjoyed.

A vote of thanks proposed by Sir J. Colman, Bart., concluded the proceedings.

A programme of vocal and instrumental music was rendered by artistes under the direction of Mr. C. Davis-Brook, M.A., A.R.C.M.

The total amount raised, including the chairman's (Lord Lambourne's) personal donation, amounted to nearly £3,000.

Amongst the contributors were the following:—Sir Harry J. Veitch, V.M.H., £105; Messrs. Rothschild and Sons, £135; Messrs. Sutton and Sons, £105; Messrs. Hurst and Son, £100; Mr. Edward White, V.M.H., £50; Messrs. R. W. Wallace and Co., Ltd., £50; Messrs. Wood and Son, Ltd., £50; Mr. G. H. Richards, £42; Mr. W. E. Wallace, £32; Mr. A. MacKellar, V.M.H., £31 10s.; Sir Jeremiah Colman, V.M.H., £26 5s.; Mr. H. G. Alexander, £26; Mr. J. W. H. Barr, £25; Messrs. Waterer, Sons, and Crisp, Ltd., £21; Mr. Geo. Swift, £21; Major Churcher, £21; Mr. John Heal, V.M.H., £21; Mr. Whitpain Nutting, £20; Mr. J. B. Slade, £18 18s.; Mr. Chas. H. Curtis (including £5 5s. from the *Gardeners' Chronicle*, Ltd.), £17; Mr. P. C. M. Veitch, J.P., V.M.H., £16 16s.; Mr. Owen Thomas, V.M.H., £16 16s.; Messrs. Barr and Sons, £15 15s.; Mr. T. Finch, £14 14s.; and Mr. W. L. Corry, £13 13s.

The following contributed £10 10s. each:—Col. Sir John Smith Young, C.V.O., Mr. John W. Hope, C.B.E. (Master of the Fruiterers' Company), Messrs. W. J. Jefferies and Son, Mr. W. J. Jefferies, Mr. H. J. Jones, Mr. J. F. McLeod, Mr. S. M. Segar, Mr. M. Larsen, Mr. Ed. Harriss, Mr. Arthur Dye and Mr. Arthur Turner. Sums of £5 5s. each were received from Messrs. W. Cutbush and Son, Sir J. Agg-Gardner, Lord Treowen, Mr. J. M. Bridgeford, Mr. A. Howard, Mr. A. Dawkins, Mr. J. C. Allgrove, Mr. W. A. Bilney, V.M.H., Mr. Martin Mash, Mr. E. T. Willis, Mr. W. H. Page, Mr. A. J. Monro, Mr. Arthur Bedford and Mr. H. W. Nutting.

Major E. G. Monro's list of £760 included the following amounts:—Mr. James Sweet, V.M.H., £25, and £10 10s. each from Mr. A. Watkins, Messrs. A. Stevens, Ltd., Messrs. E. Stevens, Ltd., Mr. J. P. Rochford, Mr. Bernard Rochford, Major E. G. Monro and Messrs. Geo. Monro, Ltd.; £7 7s., Mr. Raymond Rochford and Mr. John Rochford; £5 5s. each from Messrs. Thos. Rochford and Sons, Messrs. Cobley, Kay and Co., Messrs. Lowe and Shawyer, Ltd., Mr. P. G. Small, Mr. H. O. Larsen, Mr. A. Baker, Mr. F. Ridley and Mrs. Ridley; and £500 from the brothers—Major E. G. Monro, Geo. Monro, and Bert J. Monro.

Mr. John Collingridge's list, amounting to £230, included the following: £10 10s. each from Mr. John Collingridge, Mr. A. Bird, Messrs. C. P. Kinnell and Co., Mr. Jas. Kinnell, Mr. W. Maxwell, Mr. Edward Laxton, Mr. A. Harris, and Mr. F. H. Mills; £5 5s. each from Messrs. W. T. Ware and Co., Ltd., Messrs. Slaymaker and Co., Mr. J. Butler, Mr. P. G. Small, Mr. A. Dimmock, Mr. C. Langman, Mr. J. Linford, Mr. D. Inghamells, Mr. Bruce L. Gibson, Mr. Geo. Prickett, Mr. J. Collingridge, jun., and Mrs. Butchart.

A handsome contribution was promised also from Mr. Reginald Cory.

Obituary.

William Icton.—We deeply regret to learn of the death of Mr. William Icton, of Putney, which took place on Saturday, July 1. Mr. Icton had been ailing for some considerable time, but was only seriously ill about a week. Amongst market growers, as well as among horticultural traders in general, Mr. Icton was well known, as he had been in business at Granard Nursery, Putney Park Lane, Putney, since 1868. As a cultivator, he will be best remembered for his long association with the retarding and forcing of the Lily-of-the-Valley for the London market, in which he was particularly successful. Mr. Icton was always a keen supporter of the horticultural charities, and for over thirty years was a member of the Committee of the Gardeners' Royal Benevolent Institution. He lost one son during the war, but his second son, Mr. Hubert Icton, conducts the business from which his father retired only so late as February last. To the widow and family we extend our deepest sympathy in the great loss they have sustained. The funeral took place at Putney Vale on Wednesday, the 5th inst.

William Lockhart.—Sincere regret will be felt in horticultural and fruit-growing circles on learning of the death of Mr. William Lockhart, head of the firm of William Lockhart and Co., wholesale fruit and flower merchants, Virginia Street, Aberdeen, which took place at his residence, Craigiebuckler Cottage, Aberdeen, on Sunday morning, July 1. Mr. Lockhart, who was only fifty-two years of age, was a native of Dumfriesshire, and started business in Aberdeen twenty-three years ago. During those years he built up an extensive fruit-selling business and became a well-known and highly-esteemed figure in the wholesale fruit trade of Aberdeen. Few were better known in the Glasgow market and in English fruit-growing centres, from whence he introduced fruits and flowers of all kinds, thus helping greatly to extend and establish the fruit trade in Aberdeen. His great hobby was Rose growing, and for specimens of his favourite flower he gained most of the leading honours at the Edinburgh, Glasgow, and Aberdeen shows. Mr. Lockhart held the office of president of the Aberdeen Horticultural Society. He is survived by his widow and only son, Dr. R. D. Lockhart, Lecturer in Anatomy at the University of Aberdeen.

NEW HORTICULTURAL INVENTIONS.

LATEST PATENT APPLICATIONS.

- 15,960.—Brook, F.—Hand-tool for making holes for planting, etc. June 8.
15,615.—Harrison, C. J.—Device for cutting and lifting sods. June 6.
15,746.—Okey, W.—Frames for protection or/and intensive cultivation of plants. June 6.
14,996.—Cornish, H. J.—Horticultural barrow. May 29.
15,325.—Probert, A. H.—Seed-sowers. May 31.
14,753.—Barnes, H. J.—Edging strips for gardens, paths, etc. May 25.

SPECIFICATIONS PUBLISHED LAST MONTH.

- 180,380.—Pugh, Ltd., C. H.—Power-driven lawn mowers.
180,139.—Rennie, J.—Device for trapping bees that through disease are incapable of flying.
180,180.—Browning, R. G.—Treatment of nitrates, particularly those used for fertiliser purposes.
179,746.—Ward, W.—Adjustable plant support.
179,446.—Savage, A. J.—Hand-tool for cultivating and scarifying land.

Messrs. Rayner and Co. will obtain printed copies of the published specifications, and forward on post free for the official price of 1s. each.

This list is specially compiled for the *Gardeners' Chronicle* by Messrs. Rayner and Co., registered patent agents, of 5, Chancery Lane, London, from whom all information relating to patents, trade-marks and designs can be obtained gratuitously.

ANSWERS TO CORRESPONDENTS.

AMERICAN GOOSEBERRY MILDEW: M. A. B. Your Gooseberries are suffering from a very bad attack of American Gooseberry mildew. You should notify the appearance of this disease to the nearest representative of the Ministry of Agriculture.

AMPELOPSIS VEITCHII DYING: W. G. Several fungi were present in the specimen you sent. All diseased parts of the plants should be removed and destroyed by burning.

APPLE AND PEAR TREES UNHEALTHY: E. E. B. There is no fungus present on the clusters of blossom you send. It is not unusual for the decaying flowers of both Apples and Pears to become matted together when they have not been fertilised. The mildew on the Apple foliage is the common Apple mildew. Spray the leaves next season early in the spring with lime sulphur; you will probably find that the foliage will grow out of this condition later. The woolly substance that resembles mealy bug is American blight, or woolly aphid.

BATH WATER FOR HARDY PERENNIALS: C. N. Water used for the bath, or for hand-washing in a lavatory basin, may be used with advantage for moistening the soil about the roots of herbaceous plants. The amount of soap used is not likely to have any untoward effect; indeed, it is more likely to have a beneficial effect upon the plants. Moreover, the use of such water during a dry period will relieve the demand for water for domestic uses. Have you tried *Nepeta Mussinii* as an edging plant?

DISEASED TULIP LEAVES: J. T. S. The Tulip leaves are affected with "fire," a common disease, due to *Botrytis parasitica*. It is advisable to remove all infected foliage and lift the bulbs early. On no account should the bulbs be left in the ground another year: by so doing the growth comes away quickly to be damaged by weather in the early spring, and the plants are then more readily affected with this fungus. By removing the foliage now the bulbs generally escape infection, but as a precautionary measure it is wise to soak them in a solution of liver of sulphur (1 oz. to 3 galls. of water) for a couple of hours. The bulbs should be planted on fresh ground during November.

FIG TREE UNHEALTHY: J. P. S. The unhealthy condition of your Fig tree is not due to organic disease caused by a fungus; the trouble must be looked for in some wrong cultural treatment.

INSECT ON CURRANT LEAVES: E. G. H. The insects on your currant leaves are larvae of the Lady Bird, which is beneficial and not harmful to plants.

NAMES OF PLANTS: X. Y. Z. A form of *Iris sibirica*.

SOUVENIR DE LA MALMAISON CARNATIONS DYING: T. There is the mycelium ("spawn") of some fungus (perhaps a *Fusarium*) in the plants. Dig up and burn the diseased specimens.

SWEET PEA INFLORESCENCE WITH NINE FLOWERS: A. T. The abnormal number of flowers on your Sweet Pea spike is due to fasciation; apparently two spikes have united together.

WHITE FLY: G. G. Try the specific recommended by Mr. Chilcott on page 326. See also *Gard. Chron.* December 10, 1921, p. 295.

Communications Received.—P. R. S.—A. B. H.—W. D.—A. E. W.—T. H.—S. F. & Co.—E. B.—G. W. R.

MARKETS.

COVENT GARDEN, Tuesday, July 4th, 1922.

Fruit and Vegetables

REMARKS.—A rather better demand for most fruits has ruled during the past week. Choice fruits such as Peaches, Nectarines, Grapes, Melons and Figs, have moved well, although in some instances values have slightly recoiled. Australasian Apples are a steady trade. Strawberries are not so heavy in supply, the main source now being Kent. After a relapse in price due to arrivals from Holland, home grown Gooseberries are quoted higher. Moderate supplies of Black Currants are coming to hand from Holland and France, with a few home grown. Oranges are a better trade. Bananas meet a poor inquiry, probably due to the competition of other fruits. Green vegetables are still comparatively cheap. French Beans show a slightly improved trade. Mushrooms are plentiful, and show considerable variation in values. Tomatoes are not so plentiful, the dull, cold weather checking supplies, and a large proportion arriving is very hard. Cucumbers have an improving tendency. A small quantity of Worcester and Devon Asparagus continues to be marketed, and realises comparatively high prices. New Potatoes are much easier in price.

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Achillea, The Pearl	per doz. bun. 3 0-4 0	Lapageria	per doz. 3 0-3 6
Alstromeria		Lilium	
per doz. bun. 6 0-9 0		lancifolium rubrum,	
Adiantum deco-		long, per bun. 7 0-7 8	
rum, doz. bun. 8 0-10 0		short, doz. blms 3 6-4 0	
—cuneatum,		Lilium	
per doz. bun. 6 0-8 0		longiflorum ..	4 6-6 0
Asparagus plu-		Lily of the Valley,	
mosus, per bun.		per doz. bun. 24 0-36 0	
long trails, 6's	4 0-5 0	Marguerites, yellow,	
med. sprays ..	2 6-3 6	per doz. bun. 3 0-4 0	
short ..	1 0-1 6	Orchids, per doz.,	
—Sprengeri, per bun.		—Cattleyas ..	12 0-18 0
long sprays ..	2 6-3 6	—Cypripediums 6 0-9 0	
med. " ..	1 3-1 6	Pelargonium,	
short ..	0 9-1 0	per doz. bunch,	
Carnations, per		—double scarlet 10 0-12 0	
doz. blooms ..	1 6-3 6	Pink, Her Majesty	
Cornflower, per		per doz. bun. 6 0-9 0	
doz. bundle	1 0-2 0	Richardias (Arums),	
Croton leaves,		per doz. ..	5 0-6 0
various, per bun.	2 6-4 0	Roses, per doz.	
Chrysanthemum		blooms—	
maxima, per		—Frau Karl	
doz. bun. 2 0-4 0		Druschki ..	1 3-1 6
Coreopsis, per		—General Jacquemont	
doz. bun. 1 6-2 0		per doz. ..	1 0-1 6
Delphiniums,		—Madame A.	
various, per		Chatenay ..	1 6-2 6
doz. spikes ..	1 6-3 0	—Melody ..	1 6-2 6
Gaillardia, per		—Niphetos ..	1 6- -
doz. bun. 3 0-3 6		—Ophelia ..	2 0-3 0
—Sultan, white		—Liberty ..	2 0-3 0
per doz. bun. 6 0-9 0		—Richmond ..	1 6-2 6
—mauve,		—Sunburst ..	1 3-2 6
per doz. bun. 6 0-8 0		—White Crawford 1 6-2 6	
Fern, French		Scabiosa caucasica,	
per doz. bun. 1 0-1 3		per doz. bun. 3 6-4 0	
Gardenias, per		Statice, per doz. bun.	
box ..	2 0-4 0	—mauve ..	9 0-12 0
Glaucolus Halley,		—white ..	8 0-12 0
per doz. spikes	5 0-6 9	—yellow ..	9 0-12 0
—Ackermani		Smlax, per	
p-r bunch ..	1 6-2 0	doz. trails ..	5 0-6 0
—The Bride,		Stephanotis, per	
per bun. 1 0-1 6		72 pips ..	2 6-3 0
Gypsophila		Stock, double	
per doz. bunch	6 0-8 0	White ..	6 0-10 0
Heather, white,		Sweet Peas,	
per doz. bun. 8 0-10 0		—Coloured ..	4 0-9 0
Iceland Poppies		—White, doz. bun. 4 0-9 0	
per doz. bun. 1 6-2 0		Violas, per doz.	
Iris, blue, per doz.	1 0-1 3	bun. ..	2 0-2 6
—mauve, per bun.	0 9-1 0		
—Spanish yellow, per bun.	1 6-2 0		

REMARKS.—Supplies have shortened considerably: the unfavourable weather has checked the supply of all outdoor blooms, prices for which are a little firmer this morning. Lilium longiflorum has suddenly advanced in price, owing to a shorter supply, but *L. lancifolium rubrum* is now more plentiful, and *L. lancifolium rubrum* is again available in the market, but is still dear owing to a limited supply. All best Roses show a tendency to rise in price; indoor blooms are again arriving in a better condition owing to the cooler weather. The principal sorts on sale are Madame Abel Chatenay, Liberty, Hoosier Beauty, Columba, Melody, Ophelia, Madame Butterfly, Molly Sharma, Crawford, Frau Karl Druschki, Sunburst, Richmond, Mrs. J. Laing and General McArthur. Carnations are abundant, and ordinary varieties are disposed of at a very low price, scarce, small consignments of these blooms are at the close of the market, although best blooms are still in good demand. Like many other subjects, Sweet Peas are becoming dearer for best blooms. The large salmon coloured Gladst. Prince of Wales and Halley, also Giant White Gladst. are amongst the most attractive lines just now. The Bride (white) is getting scarce, small consignments of these blooms are now being received from Holland, which is also sending us large quantities of Iris anglica; these flowers, being cut in the bud stage, arrive here in excellent condition. Good white flowers are in shorter supply. Achillea The Pearl and double white Stocks are selling more freely, and inquiries are already being made for Asters.



THE

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 62.9°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, July 12, 10 a.m. Bar. 30.3; temp. 64°. Weather—Fine.

Agricultural Research and the Farmer,

The Ministry of Agriculture has performed a service both opportune and of the utmost value to the community in preparing in readable form a summary of the investigations which are being carried out at the present time under its auspices by the several Agricultural and Horticultural Research Stations in England and Wales. The booklet* in which the summary is published has been compiled by Mr. V. E. Wilkins, B.Sc., of the Ministry of Agriculture, who is to be congratulated on the able way in which he has discharged a very difficult task. Although this account of contemporary agricultural research has been written mainly for the benefit of the layman, it will prove of great interest to cultivators generally, and it is to be hoped that everyone concerned with the work of growing crops will procure and peruse a copy of the work. There is none but will be the wiser from its study, and although, in accordance with the plan, much of the text is concerned with research in progress, with respect to which the final results cannot yet

be stated, nevertheless, the alert reader will discover that many hints of great practical value are to be gained from its pages. Take, for example, the story of fascinating interest of the progress which has been made in the manufacture of organic manure from straw. This work, which has been carried out at Rothamsted, has already demonstrated that suitably treated straw may be converted into manure of equal or all but equal value to farm-yard manure. Incidentally, this line of work has converted the experimenters to the view which horticulturists have never abandoned, namely, that no artificial, though they may effectually supplement farm-yard dung, can replace it. In the course of these researches it was found that the natural formation of farm-yard manure depends on two agencies, both bacterial in nature. Of these agencies, one consists in nitrogen fixing organisms which, operating in the medium of the manure heap, add to the amount of organic nitrogen in the straw by bringing atmospheric nitrogen into combination. These nitrogen fixers alone, however, do not suffice to rot the manure sufficiently to make it useful on the land. If they alone are present the "rotting" remains incomplete. The complete decomposition to the manure stage is effected in nature and may be effected artificially by another group of organisms which decompose the cellulose of which straw is largely composed. These organisms, however, require for their activity a supply of nitrogenous food. The investigators have found that this supply may be provided in the form of sulphate of ammonia. On the basis of these discoveries a large scale method of manure manufacture has been designed which, although it has not been used for a sufficient time to enable a confident statement to be made of its efficiency, bids fair to prove successful. The method, which any gardener who can obtain straw can try on a small scale, is as follows. When stacking, a certain amount of chalk is mixed with the straw, which is then sprinkled with water, little by little, till enough has been added almost to saturate it. Sulphate of ammonia dissolved in water is then added—apparently, however, only in small quantity. The stage of nitrogen absorption occupies about three weeks, after which time the manure can be left exposed to the air without risk of loss of its valuable nitrogen contents. Although in the present stage of these investigations the actual quantity of sulphate of ammonia cannot be stated, and although it is already proved that too much or too little is apt to interfere with the rotting process, nevertheless, we think that gardeners might take note of the facts with a view to applying them cautiously to the compost heap. Another method of compensating for the increasing difficulty of procuring adequate supplies of farm-yard manure which is touched on briefly in the report is the old method of green manuring. Experiments in this subject are being carried out at Rothamsted, Woburn and Wisley, and it is to be hoped that by the next issue of this publication, results will have been obtained which will enable gardeners to apply this method more generally and successfully than it is possible to do in the present state of knowledge. In this brief notice it is not possible to do more than refer to one or two of the many interesting lines of research which the booklet records. We shall hope, however, on a future occasion to draw the attention of our readers to other of the chief investigations which it records. Many who read its pages will wish that the stories told therein were more complete, but they should remember that the prime object of this record of research is to awaken

interest and that fuller detailed accounts are available in the *Journal of the Ministry of Agriculture* and in the several periodicals which are devoted to the publication of the results of agricultural and horticultural research. To have attempted to supply more details would, we think, have defeated the object of this work, namely, to provide cultivators with a readable and simple account of work in progress—an account of the stewardship of the Ministry. It is a good account and for it we are deeply grateful.

Report of the Hardy Fruit Crops.—Following our usual practice, we hope to publish in August statistical tables showing the condition of the hardy fruit crops in the United Kingdom. As many changes have occurred in the charge of gardens during the past few years, it is possible that some of those who previously contributed to our report may have changed their addresses, and we shall be pleased if these and any other readers especially concerned in fruit growing will make immediate application to the Editors for one of the forms.

R.H.S. Gardens Club Outing.—On Saturday, the 8th inst., the past and present members of the staff of the Royal Horticultural Society met at the establishment of Messrs. Carter and Co., Raynes Park, London, by the kind invitation of the firm. They were brought from the station by a large automobile provided by Messrs. J. Carter and Co., and received by Mr. F. A. Gardiner, their representative. The members were conducted in five parties through the trial grounds, under the guidance of as many employees. A fine putting green of two years' standing claimed attention, after which something like 1,115 trials of Peas were inspected. All sections of the Pea were included, from the first-class garden varieties to Lotus Tetragonolobus (Asparagus Pea), Cicer arietinum (Chick Pea), and the Mummy Pea. The trials of Broad Beans were also extensive and interesting. Carnations, annuals, Wheat, Oats and lawn grasses were all inspected more or less according to the bent of the visitors. Plots showed lawns for various purposes, and the various species, sown separately, gave ample opportunity for seeing what growth they could make. The offices, seed warehouses, both below and above the ground level, were all in turn inspected, the whole forming one very extensive, rectangular building, which is a prominent object from the London and South Western Railway. The machinery for cleaning seeds claimed the keen attention of most of the visitors. Tea was provided by the firm, and this was followed by the annual meeting and the election of officers, under the presidency of Mr. F. J. Chittenden.

Trial of Spring Cabbages.—The Holland Horticultural Committee is again arranging to carry out trials of Spring Cabbages at the Agricultural Institute, Kirton, Boston. These trials have been visited by growers from all parts of England during the past two years. Those who desire to send varieties for trial are asked to forward four ounces of seed of each variety to the Institute at Kirton.

Alsatian Potash.—The production of Alsatian potash during the year 1921 shows a considerable decrease as compared with 1920, as noted by the following figures: Crude salt—1913, 355,341 metric tons; 1918, 333,500 tons; 1919, 591,571 tons; 1920, 1,203,000 tons; 1921, 895,744 tons; pure potash (K₂O)—1913, 58,000 metric tons; 1918, 55,700 tons; 1919, 98,000 tons; 1920, 192,480 tons; 1921, 146,355 tons.

Elms at the Arnold Arboretum.—According to the *Bulletin of Popular Information*, vol. viii., No. 15, issued by the Arnold Arboretum, the arboretum contains sixty-six different Elms and includes all the known species with the exception of the four Himalayan Elms and the Mexican Elm, which are not in cultivation, and two species from the southern United States which are not hardy there. With few exceptions the

* *Agricultural Research and the Farmer.*—A Record of Recent Achievement, by V. E. Wilkins, B.Sc., London. Published by His Majesty's Stationery Office. 2/6 net.

important and interesting varieties and hybrids are represented in the collection. Many of the plants are still too small to produce fruit or to show the habit of mature trees, but as a whole the collection offers a good opportunity for the study of the leaves and branchlets of Elm trees.

The Royal Society of Arts.—Now that the Society's house in John Street, Adelphi, has become the permanent property of the Society, the Council are anxious to make it as convenient and attractive as possible for the Fellows. They desire to restore it, so far as is compatible with modern requirements, to the state in which it was left by its architects, the Brothers Adam. With this end in view they have appointed Mr. Arthur T. Bolton, F.R.I.B.A., Curator of the Soane Museum, to take charge of the renovations. It is hoped to make the library into a handsome and comfortable club room; the Great Hall will be entirely redecorated and provided with a new system of ventilation; and the entrance hall will be considerably enlarged and improved. The heating and lighting throughout the building will receive very careful attention, and every effort will be made to encourage Fellows who desire to use the Library and Reading Room.

Horticultural Exhibition in Berlin.—The German Horticultural Society is arranging a great centenary Horticultural Exhibition to be held in August and September, 1922, in the beautiful Bellevue Castle grounds in Berlin. There is to be a reception for foreign guests on the evening of Thursday, August 31, arranged by the Greater Berlin Group of the Association of German Florists, and a large portion of the exhibition will be devoted to the florists' art.

A New Rose Stock.—The Dutch firm of Messrs. Jac. Smits and Co., Naarden, are said to have raised a new stock suitable for Roses, between *Rosa canina* and *R. rugosa*. It is claimed that the new stock surpasses *rugosa* in that it is suitable for all soils and, moreover, makes so stout a stem that no stakes are required. *Rosa rugosa* is now largely employed by some nurserymen in this country for the propagation of standard Roses, but there are differences of opinion as to its value for the purpose.

Mr. William Watson, V.M.H.—An Appreciation by Sir Frederick W. Moore.—Where fixed laws and regulations exist with little or no elasticity there are bound to be cases of hardship. The retirement of William Watson from the position of Curator of the Royal Gardens, Kew, illustrates this, although the loss and hardship will be more severely felt by the garden than by the man who retires after 43 years' service. Mr. Watson has in every way "done his bit," and by his practical work and by his writings left a mark on horticulture which can never be effaced. On the occasion of my first official visit to Kew in 1879 I was introduced to Watson, who had just taken up the position held by Mr. R. Irwin Lynch, and from then up to the present date I have been privileged to be on terms of intimate friendship with him, a friendship which I prize and value and from which I have derived lasting benefits. During my horticultural career two men struck me as outstanding in the originality and soundness of their views on plants, on cultivation, and as possessing an almost prophetic instinct as to the merits or demerits of a new plant. One was the late Mr. Tom Smith, of Newry, the other was Mr. Wm. Watson. Each of them was also a most interesting conversationalist, possessing strong and original opinions on matters outside horticulture, and each fearlessly and frankly supported his views. I have spent many happy hours listening to them. In these "outside" matters Smith was the more practical, Watson the more idealistic, but none the less sincere; in fact this sincerity of conviction, and constant exposition and advocacy of what he considered to be right cannot have been helpful to his material welfare or peaceful existence. Still, knowing this, he persevered with undiminished ardour, and with a certain

defiant stubbornness said to be an inheritance of Lancastrians. The welfare and advancement of gardeners, the betterment of their position socially and financially, providing means and methods of interchange of views, and of mutual help and support, were the great objects of his solicitude for over a quarter of a century, and although some questioned his methods none questioned his sincerity. With these objects in view Watson, amongst other things, started a cricket club for the young gardeners at Kew, and a tennis club for the staff. He organised the Kew Guild, was honorary secretary of it, and edited its *Journal* for some ten years, and for many years was Chairman of the Kew Mutual Improvement Society. In 1904, with characteristic energy and thoroughness, he helped to found and start the British Gardeners' Association, acting as hon. secretary for some time, and although it soon became evident to him that many so-called friendships were being affected and that his action did not meet with very cordial approval in "official quarters," with that stubbornness before alluded to, and in this



MR. WILLIAM WATSON, V.M.H.

instance stimulated by sincere conviction, he tenaciously stuck to his guns. The success achieved by the Association was largely due to Watson. On the practical side of gardening there can be no question or doubt as to the eminent and authoritative position attained by Watson. His training was sound and practical. Born in Garston in March, 1858, he was taken from school at the age of 13 and apprenticed in the propagating department of Messrs. R. P. Ker and Sons, Nurserymen, Liverpool. On leaving them he went to Messrs. Davies and Sons, to Messrs. C. Pennell and Sons, and then to Messrs. Hugh Low and Co., of Clapton, where at the age of 19 he was made foreman over the hard-wooded department, at that time about the most important branch of that world-famed establishment. In July, 1879, he went from Clapton to Kew as principal foreman and propagator. In 1886 he was promoted to be Assistant Curator, and on July 1, 1901, on Nicholson's retirement, he became Curator, a position he has occupied from that date until May 31 last with credit to himself and benefit to Kew. Mr. Watson felt that a Botanical Garden should not merely be a home for collections of plants, but that it should cater for as wide a circle of the public as possible, illustrating, both indoor and outdoor, the best methods of cultivating and of grouping plants, so as to make the garden not only scientifically

instructive but bright and attractive. Many new plants which became of much commercial importance were first brought into prominence through bold groups exhibited at Kew. That Watson's efforts met with the approval of his superiors is best demonstrated by quoting the following from Sir Joseph Hooker, taken from the *Botanical Magazine*, Vol. 130, 1904:—"To William Watson, A.L.S., F.R.H.S., Curator, Royal Botanic Gardens, Kew. Dear Mr. Watson,—The dedication to you of the last volume of the *Botanical Magazine*, which I am privileged to conduct, gives me welcome opportunity of expressing my sense of the value of the services which you have rendered to this work during your Curatorship of the Royal Botanic Garden. This is due to the skill and knowledge which you have devoted to raising and flowering an unprecedentedly large proportion of the rare, interesting, and beautiful plants portrayed in the last twenty volumes of the *Magazine*, and to the valuable information which you have so often given me of the habits, history and mode of culture of these and of many other species whose portraits accompany them. In conclusion, let me congratulate you on the recognition you have so fairly earned as an authority on the culture of Cacti, Palms, Aloes, Agaves and other large groups of plants, in your study of which you have displayed as accurate a knowledge of their physiological characteristics as of their requirements under cultivation. Believe me, very sincerely yours, Jos. D. Hooker, The Camp, Sunningdale, December 1, 1904." Sir Joseph Hooker's successor, Sir W. Thiselton Dyer, continued to encourage these efforts, and Watson responded to these encouragements. Ably seconded by men such as W. J. Bean and W. Irving, Kew was developed into what we see it to-day, an institution unrivalled by any other botanic garden, and one of which the nation has every reason to be proud. Although so fully occupied by the official and practical work of his office, Watson found time for study and observation of many special groups of plants, and as a writer on horticultural subjects he made his mark as definitely and ineffaceably as he did on the practical side. The older gardeners remember the charming and attractive style of the articles on gardening matters written by the late Mr. F. W. Burbidge. Watson's style reminds me strongly of Burbidge's, and yet there is a distinct difference, Watson is terser and his facts more clearly stated; and there is no ambiguity or uncertainty. His views and conclusions are original, and are fearlessly stated, often with wit and humour, sometimes one might almost say defiantly. I find that many who know him, and others who do not, are unaware of the extent and variety of his writings. In the horticultural Press his name has been familiar to readers for many years. He wrote many of the articles which accompanied the coloured plates in *The Garden* when edited and owned by Mr. William Robinson. For a long period his letters and articles have appeared in the *Gardeners' Chronicle*. He succeeded the late Mr. F. W. Burbidge as horticultural editor of *The Field*, a position which he still holds. Further, he was general editor of the new edition of *Thompson's Gardener's Assistant*, 1900, a position which entailed an immense amount of thoughtful work. Amongst the books written by him are *Cactus Culture*, *Orchids for Amateurs*, *Rhododendrons and Climbing Plants*. This imperfect list justifies my statement above, that as a writer Watson has made his mark. To all these activities has to be added his experimental work in plant breeding; for instance, his *Streptocarpus* hybrids. I have written at length, but the space occupied is all too little to do justice to one of the most able and remarkable men we have had in the realm of gardening during the present generation. I gratefully acknowledge the valuable and practical advice and assistance I have had from him, and I will always treasure the memories of the pleasant times we had together in England, Ireland, and on the Continent, a continuance of which I look forward to.

Moles in the Garden.—Although moles feed entirely on earth worms and grubs, they are very destructive pests in gardens through displacing plants and burying seeds so deeply that they fail to germinate, besides spoiling lawns with their burrowing. Mole traps are not always a certain method of destroying them, as the traps require to be set by a very experienced mole catcher, but the following poisons are stated in *Garden Magazine*, U.S.A., to be effective methods of getting rid of these unwelcome visitors in gardens:—Unroasted Peanuts, first dipped in white of an egg and then liberally sprinkled with Paris green and allowed to dry, or raisins rolled in strychnine. The strychnine should not be handled, as it is a virulent poison, but the raisins may be manipulated with a stick. When the Peanuts and raisins are dry, they should be dropped at intervals of a few feet into the tunnels through openings made with a broom handle and the soil then pressed down again with the foot.

Tasmanian Apples.—An exhibit of Apples from the orchards of Mr. Frank Walker, Lalla, Launceston, Tasmania, has occupied a prominent place in Australia House during the past week or so. The fruits are of excellent quality and include some well-known sorts, such as Jonathan, Crofton, Sturmer Pippin and London Pippin, the first two of which are extensively imported into this country from America. There are other excellent varieties which are quite new to us, including Tasma, a very large, deep crimson variety with a big open eye of the Blenheim type. This is a splendid Apple for packing, and the fruits were as solid and fresh looking after their long journey as though they had just been gathered. Another very deeply coloured Apple named Hoover is also a very solid, heavy fruit. Statesman is a very pretty rosy-red Apple of medium size and yellow on the shaded side. Cleopatra is wholly of a pale yellow colour and a very attractive variety. The Apple-growing industry is extending in Tasmania, especially in the region of the River Tamar, and the Tasmanian growers are developing a market for their surplus crop in the home country.

Argenteuil Asparagus.—An Asparagus fête was held at Argenteuil on the 9th inst., to celebrate the one hundredth anniversary of the production of this crop in the district. The celebrations included the election of an Asparagus "Queen," who presided over the proceedings, and an immense bunch of Asparagus was borne in front of her triumphal car.

Appointments for the Ensuing Week.—Tuesday, July 18: Royal Scottish Arboricultural Society's exhibition of Forestry (3 days).—Wednesday, July 19: North Elmham Flower show; Liverpool Horticultural Society's show (2 days); Hereford and West of England Rose Society's show.—Thursday, July 20: Walsall Horticultural Society's show (3 days); Royal Scottish Arboricultural Society's meeting.—Friday, July 21: Eastbourne Horticultural Society's meeting; Birmingham Horticultural Society's show (2 days).—Saturday, July 22: Falkirk Rose show.

"The Gardeners' Chronicle" Seventy-five Years Ago.—*A New British Plant.*—A very curious discovery has lately been made by Miss Wilkins, of Westbury, of a new British plant belonging to the genus *Simethis* of Kunth. This lady, while botanising at Bournemouth, in Hampshire, met with a considerable quantity of it, amongst Heath and Furze, in a lonely spot more than two miles from Bourne. "When in perfection, the petals are quite expanded and of a snowy whiteness, so that an inexperienced observer might almost mistake it for an *Ornithogalum*; but the filaments are very different, being so woolly." It is evidently allied to the plants collected by Professor Kunth under the name of *Simethis bicolor*, hitherto observed in Portugal, the Pyrenees, Sardinia, and the Barbary coast, but whether it is identical with any of them, or a new species, the specimens that we have received do not enable us to determine. It should be compared with the *Anthericum ericetorum* of Bergeret. *Gard. Chron.* July 17, 1847.

THE ROSE GARDEN.

SEASONABLE WORK.

WATCH the plants carefully for pests, particularly for mildew on all classes of Roses, and red spider on climbers on walls, which spreads rapidly in hot, sunny weather. Red spider weaves a very fine web on the underside of the leaves, which very soon turn yellow and die. It is best combated out-of-doors by spraying, at a few days' interval, with either paraffin emulsion or liver of sulphur, and the attack against it should be commenced as soon as it is noticed, or it will rapidly cause considerable damage, especially if the climatic conditions are at all favourable to it.

The trees and bushes, being in full flower, require feeding from time to time, to attain the best results and prolong the season of bloom, and to this end applications of liquid manure should be given, alternating this stimulant occasionally with a dressing of a reliable artificial manure, which should be well watered into the

HARDY FLOWER BORDER.

SISYMBRIUM STRICTISSIMUM.

I DESIRE to direct the attention of readers to a fine border plant, but one which is seldom met in gardens. This is *Sisymbrium strictissimum*, a hardy, herbaceous plant from Central Europe. It flowers from the middle of June to about the middle of July, bearing large, handsome, erect, pyramidal or paniculate clusters of flowers.

The individual flowers are small, but very numerous and of a bright golden yellow colour. It is clear the species belongs to the Order Cruciferae, as the flowers are composed of a calyx with four separate, oblong, yellow sepals, and a corolla with four reflexed, tongue-shaped petals; but especially do the four long and two short stamens also indicate the family of the plant. The leaves are soft green above and pale green beneath, oblong and acuminate.

The flowering time of *Sisymbrium strictissimum* makes it a plant which can be associated



FIG. 15.—ROSE ALICE AMOS. NATIONAL ROSE SOCIETY'S CERTIFICATE OF MERIT, JUNE 29 (SEE P. 25).

soil. Keep the plants well supplied with clear water at the roots, especially in very dry weather, and remove faded blooms.

Rambler Roses should be pruned when their flowering period is over. All Ramblers flower best on strong, young growths made the previous season, and with that in view, remove the old wood, cutting it well back to the ground, only leaving one or two "eyes," from which new growth will spring. Any of the older wood that may be left, owing to sparsity of new growth, should be shortened to the point where a strong, healthy, young growth is making progress, but if there are sufficient already forming for next season, then it is better to shorten the old growths right back, so as to encourage the development of new shoots from the base. These instructions do not, of course, apply to Climbing Teas, Hybrid Teas, and Hybrid Perpetuals, which should be spring pruned.

Where Briars have been grown for the purpose, the propagation of new stock, by means of budding, should be commenced this month. Select buds that have not swollen up, on shoots that are almost ripe, a condition that may generally be assured by selecting shoots that have flowered about ten days previously. Remove the bud carefully, and after inserting it in the stock, tie it in position, firmly but not tightly, so as to prevent it slipping or moving. *B.*

with other early flowering subjects, such as dark and light blue Delphiniums; white, pink, and yellow Eremuri; white and silvery-pink Chinese Paeonies; blue Campanulas and the cream white *Spiraea Aruncus*, which flower about the same time and make fine groups. Its height allows *S. strictissimum* to be used in the back row of the flower border, but its elegant habit permits it to be placed with advantage in the middle row, even though the flowers rise above the surrounding plants—indeed, this adds charm to the grouping. Because of its somewhat uncommon and charming appearance, its bright and strong colour, and its ease of cultivation, I can heartily recommend this very handsome, free-flowering, and quite hardy plant to all lovers of flowers. *A. J. van Laren, Botanic Gardens, Amsterdam.*

CYNOGLOSSUM AMABILE.

CYNOGLOSSUM AMABILE, which has much finer flowers than *C. furcatum*, appears to be but little known, although the plant was described by Stapf and Drummond in the *Kew Bulletin* so long ago as 1906. I noticed some excellent plants of this pretty perennial at the meeting of the Royal Horticultural Society on June 17, but I do not remember ever having seen the plant in gardens. The inflorescence takes the form of a tall, lax spike, and the flowers are of Forget-Me-Not blue colour. *P. R.*

The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the
DUKE OF MARLBOROUGH, K.G., Blenheim Palace,
Woodstock, Oxon.

Oncidium.—Many of the cool-growing Oncidiums, such as *O. Forbesii*, *O. crispum*, *O. Gardneri*, *O. concolor*, and *O. Marshallianum* may require repotting, which should be done when the young growths are from 3 inches to 4 inches in height and about to develop fresh roots. The flowers of these species are produced on pendulous racemes, and when in bloom these Orchids are delightful objects. They may never be imported in quantity again, hence the necessity of taking care of those that are still in cultivation. They all succeed in shallow pans, and resent having a large amount of compost placed about their roots; therefore moderate-sized pans should be used, furnished with a good supply of drainage material. A similar compost to that used for *Odontoglossums* will suit their requirements, but slightly more half-decayed leaves may be added. *O. macranthum* and allied species that are developing their long flower spikes should be given water at the roots whenever they become dry, until the flowers open. The few hybrids raised in this section all succeed under the same conditions as their parents, and it is a pity that so little progress has been made in their culture as compared with most other groups. The inflorescences of all Oncidiums should be removed soon after all the flowers are fully developed, as they exhaust the energies of the plant.

Warm-House Oncidiums.—The warmer-growing Oncidiums, such as *O. luridum*, *O. Lanceanum*, *O. carthaginense*, and others of this section may also be afforded fresh rooting material as they reach the desired condition. It is useless to attempt the cultivation of any Orchids in a sour, decomposed compost, hence the advisability of repotting any plants in this condition at their proper season. These plants revel in a light position in the warmest house, and whilst the roots are growing actively they should have liberal supplies of moisture. The plants may be sprayed freely during bright days, but during their resting season water should be supplied sparingly, as the thick, fleshy leaves are capable of withstanding a reasonable amount of drought without injury. Oncidiums include some of the most beautiful and interesting of Orchids, although they are not seen in the same quantity as in pre-war days. Their flowers are most useful for all kinds of decoration.

THE FLOWER GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY
GIBBS, Aldenham House, Hertfordshire.

Seed Saving.—Many hardy plants have already formed their seed pods, and these should be carefully saved when ripe with a view to raising fresh plants. Seed which is small in size such as that of many Alpine and rock garden plants, should, for preference, be sown when it is ripe in pots of good sandy compost and germinated in cold frames, for the germination is more likely to prove satisfactory than if the seed is stored for a time. Raising seedlings of such subjects as *Phloxes*, *Delphiniums* and *Asters* forms a very pleasant diversion in a garden, as, where space permits for raising the plants in large batches, there is always the prospect of finding amongst the seedlings some which will prove a big advance on those already in cultivation.

Sweet Peas.—The spring drought has proved very trying to these plants, and for the most part growth has not been free. The roots should be given plenty of water, substituting this occasionally with weak liquid manure. Remove the first flowers in order to promote growth, and cut away all faded blossom to prevent the seed pods forming.

Spring Bedding Plants.—Where these have not yet been placed in their summer and winter quarters, they should be planted now, in order that they may get well established, and grow on healthily before the winter arrives, otherwise, in the colder and more boisterous months of autumn, with frosty spells later, they may not succeed.

Summer Bedding.—The beds should be examined carefully from time to time, in order that the plants may be effectively trained by tying, etc. Trailing subjects, such as *Violas*, should be pegged down as is considered desirable, and where carpet bedding is employed, the different plants should be firmly kept within their own bounds, and not permitted to grow into one another, otherwise the sharpness of the design will soon disappear, and only an uninteresting, blurred effect will be presented by the bed.

Wild Garden.—Many large estates have semi-cultivated or wild gardens, where the garden proper gradually merges into pasture land or wooded areas, and in which many charming flowering subjects are to be found, also individual specimens of choicer trees than in the ordinary woodland, and big, rough beds of various shrubs, etc. These areas should, at this period of the year, receive a certain measure of attention, where the time and labour can be applied to them, so as to keep order amongst the plants, curbing the too rampant growers, shaping somewhat those that require this attention, and generally making the whole of tidy appearance, whilst not destroying the rustic character which distinguishes it and renders it so pleasing in contrast to the more formal flower gardens and shrubberies. One point that needs attention in connection with this work is the clearing away of grass and strong growing weeds from around the smaller and weaker-growing plants set out in the wild garden, so that these do not get choked and destroyed by the weeds.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER CLAY,
M.P., Ford Manor, Lingfield, Surrey.

Pot Strawberries.—Strawberry runners are very scarce, and to have stout plants with ripe crowns fit for forcing in November, runners should be rooted at once and assisted to develop with all speed. Strawberry plants will grow in almost any free, rich soil, but the staple should be a heavy, calcareous loam, made pervious to the free passage of water by the addition of old lime rubble, bone dust, oyster shells and charcoal. As the compost should be made very firm, it cannot be used in too dry a state, and for this reason is the better for being mixed a month before it is required for use. If five inch pots are used, these may be filled to within half an inch of the rims, the runners placed in position and pegged firmly in the soil. Such crowns, thoroughly ripened, invariably produce fine trusses of bloom, and this mode of preparation costs a minimum of trouble, and is preferable to layering in small pots. Watering is an important detail, as the pots quickly become filled with roots. Weak liquid manure is of great benefit, from the time the plants are detached until they show signs of ripening. The best position for the plants during the summer is in the open away from any shade. If placed about six inches apart, the pots will, to a certain extent, shade each other. Later kinds require to be layered in six inch pots. The compost for these should be a little heavier, as the roots will penetrate the hardest compost when potted in a dry condition. The crocks used for drainage should be clean and well placed, as worms are sometimes troublesome, hence the advantage of sprinkling a little soot over the crocks, and also in the compost. Where service water is plentiful, it is very tempting to use it, but unless the water is soft and warm, the less it is used over the leaves the better.

THE KITCHEN GARDEN.

By JAMES E. HATHAWAY, Gardener to JOHN BRENNAN,
Esq., Baldersby Park, Thirsk, Yorkshire.

Globe Artichokes.—These plants are growing and cropping freely, and should be given plenty of liquid manure and heavy waterings. If the plants are allowed to get dry the heads grow small and tough. Mulch liberally between the rows with half-rotted manure.

Celery.—If Celery is required early, earthing up should be commenced, but the late crops should not be earthed up until the plants have nearly completed their growth, as the stems will bleach in about 7 or 8 weeks. First remove decaying leaves and side shoots, then well soak the roots with water, but do not place the earth in position until the plants are dry. This work is best done by two men and a boy, as no soil should be allowed to get into the centre of the plant. Only a little soil should be added at one time, and it is best to add more every fortnight. Take care not to cover the centres of the plants, or they may become crippled. Give the plants frequent dressings of soot and lime, and plenty of water.

Turnips.—Make sowings of Green Top or red varieties of Turnips. Thoroughly moisten the soil before sowing, and encourage the seedlings to develop as quickly as possible to get beyond the stage when the fly attacks them. A watch should also be kept for birds, as they will pull out the seeds as they begin to germinate. Another sowing should be made in a fortnight's time.

Broccoli.—The early kinds of Broccoli should be transplanted at once, and the main crop as soon as the early crops of Peas are over, or on the site of an old Strawberry bed. Leave this ground firm, as the plants grow sturdily in compact soil. Allow a space of two feet six inches between the rows and set the plants two feet apart in the rows, as the more they are open to the air the more hardy will they become.

Spinach.—Sow a batch of Prickly Spinach in well manured land.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir C. NALL-CAIN, Bart.,
The Node, Codicote, Welwyn, Hertfordshire.

Layering Carnations.—Before commencing to insert the layers, remove all weak growths and strip off all the lower leaves on the shoots. See that the roots are thoroughly moist before turning the plants out of their receptacles. Plenty of sand should be incorporated with the soil, and the layer made firm and secure by means of a small peg. Keep the soil in a moist condition and shade the plants from sunshine. If a frame is used it should be kept fairly close for a week or ten days, but after this time the lights may be removed in the evening, when the plants will benefit by the night dew. Replace the lights during the day, and use a shading if necessary. At this period of the year red spider often proves troublesome to Carnations; to keep this pest in check it is advisable during hot weather to syringe the plants twice daily. An occasional spraying with soot water or 1 oz. of common salt to two gallons of water will do much to keep this pest in check.

Primula malacoides.—Seed of this *Primula*, and its improved forms, should be sown to obtain plants for flowering in the winter and early spring. This dainty *Primula* is invaluable for greenhouse decoration and is easily grown, provided it is given very cool treatment. It will be found to thrive best in a very cool greenhouse near the roof-glass, where only sufficient fire heat is used to exclude frost. The seed may be sown either in pots or pans filled with a light, open compost, and will germinate very quickly in a cool plant house. Cover the seeds lightly and shade the seed pan from bright sunshine. Careful attention to watering at all stages of growth is necessary, otherwise the seedlings will damp readily; on the contrary, guard against excessive dryness at the root.

Euphorbia jacquinaeflora.—The earliest-rooted cuttings of this *Euphorbia* are growing freely and will soon be ready for their final potting. Where a good, open loam is available the compost for this potting may consist of three parts loam and one part peat, with sufficient sand added to render the compost porous. The plants will grow well in a light pit, where a night temperature of 60° is maintained, a little fire heat being necessary when the weather turns damp and cold. After potting secure each plant to a short stake. Keep the surroundings damp by syringing between the pots twice daily during very hot weather. Careful attention must be given to airing of the pit at all times to prevent cold draughts.

HARDY FRUIT GARDEN.

By H. MAREHAM, Gardener to the EARL OF STAFFORD, Wrotham Park, Barnet.

Plums.—Plum trees are making strong, healthy young shoots, and some of the varieties are bearing good crops of fruit. The pruning and regulating of the new growths should be done and all the leaders made secure before they are damaged by high winds. Do not fasten them too tightly, but allow ample room for the swelling of the bark. Retain young shoots at intervals, and secure them to the walls between the older branches for fruiting in a couple of years' time, as it is from these young growths that the best fruits are usually produced. Shorten all the foreright shoots to about the fifth leaf from the base and give the trees a thorough cleansing before the fruits get too forward. Where the crops are heavy some amount of thinning should be done to allow of full development of those left to ripen. The thinning of the fruits may be done at intervals and, if large enough, those removed may be used for farts. See that the roots are well supplied with water and liquid manure at intervals.

Grafts.—Examine recently grafted trees with care to ascertain if the union is perfectly completed, and if that is found to be satisfactory, remove the binding materials and make the grafts secure against wind. A good plan is to tie pieces of Bamboo canes to the stock and to fasten the grafts to the canes. As growth advances, remove all shoots which may have developed from the stock, but if any of the grafts have failed, retain a few of the best of the young shoots and bud them with suitable varieties.

Watering and Mulching.—The present is a good time to thoroughly soak the roots of all fruit trees in bearing with liquid manure. This stimulant will greatly assist the trees to build up strong, fruitful buds for next year's crop, and also assist the present crop to develop. Some Apple trees are bearing satisfactory crops, namely, Bramley's Seedling, Newton Wonder, and Old Winter Nonsuch, but many Apple trees in these gardens are without a single fruit.

ORCHID NOTES AND GLEANINGS.

DENDROBIUM LITUIFLORUM AND ALLIES.

DENDROBIUM LITUIFLORUM is one of the showiest and most beautiful of the genus, and it will be well now to call attention to its merits on account of its approaching scarcity and the strange fact that, notwithstanding the evident possibilities of its use in the hands of the hybridist, only two crosses of it, both of great beauty, have been made. But no cross has been effected with either of its near allies, which, although bearing smaller blooms than *D. lituiflorum*, might give exceptionally good results, as do many of the smaller species in other genera.

D. lituiflorum, Lindl. (*Gard. Chron.*, 1856, p. 372), widely distributed in Arracan, Assam, Burma, and other uplands in India, first became known by its flowering in 1856 in the collection of the late Robert Hanbury, at The Poles, Ware. It was also recorded by Reichen-

bach as *D. Hanburyanum*, and a dwarf form of it as *D. Freemanii* in gardens.

The type has slender stems one to two feet in length, and bearing on the upper part, in fascicles of generally two or three, showy blooms, each over two inches across, the sepals and petals being tinged with amethyst purple and the labellum having a tubular base with a broadly expanded trumpet-shaped lip, ruby purple on a white zone, the margin being rose purple. A pure white variety flowered with the late Sir Trevor Lawrence in 1881, and both forms have gained the R.H.S. First-Class Certificate. There is much variation in the form and size of the flowers of the varieties from different localities, but all are worthy subjects, as their showy flowers are delicately fragrant.

In habit it resembles *D. transparens*, and bears an abundance of similar flowers, which are white, tipped with amethyst purple, the lip having a yellow blotch at the base, often greenish yellow, which suggested the name for the variety once known as *D. mesochlorum*.

All the foregoing are spring-flowering, and have the Violet scent in some degree.

D. crystallinum, a native of Arracan, Burma, and other Indian uplands, although having specific differences, especially in its peculiarly elongated anther-case, with crystalline papillae on the surface, may well be classed in this section, as it has the same general appearance and needs similar cultural conditions. Its slender stems bear a profusion of white flowers tinged with magenta, and with yellow base to the lip.



FIG. 16.—MALE PLANT OF *MACROZAMIA PEROFFSKYANA* WITH CONE (SEE P. 35).

The hybrids of typical *D. lituiflorum* are *D. micans* (*Wardianum* × *lituiflorum*), for which Messrs. J. Veitch and Sons obtained a F.C.C., March 26, 1889; and *D. Cornigianum* (*lituiflorum* × *nobile*), raised in the United States of America and flowered in 1876.

D. transparens, known from Wallich's description for many years, was first sent to Messrs. J. Veitch and Sons in 1852 by their collector, Thomas Lobb, who found it plentiful in the lower Himalayan zone, the plants he collected being obtained in the Garrow Hills at 5,000 feet above sea-level. It is dwarfer than *D. lituiflorum*, and bears white flowers tinged with mauve, about an inch and a half across, the lip being streaked and tinged with purple.

D. marmoratum, Rehb. f. (*Gard. Chron.*, 1875, p. 492) is from a high altitude in Burma and like a dwarf variety of *D. transparens*.

D. amoenum, Lindl. (*Gen. et Sp. Orch.*, p. 78, 1831), was one of the earliest *Dendrobies* recorded, but was not known in gardens until 1874, when it flowered with Mr. Wm. Bull, of Chelsea, on plants collected by Major-General Berkeley from trees on a range of hills in a temperate region of the Himalayas.

With these may be included *D. Boxallii* and *D. gratiosissimum* Rehb. (*D. Bullenianum*, *Bot. Mag.*, t. 5652), both of which have always been rare, and the two hybrids, *D. Aeneas* (*crystallinum* × *moniliforme*), and *D. Statterianum*, Hort. (*crystallinum* × *Bensoniae*).

In the matter of culture these are all easy to grow, like many other *Dendrobiums*, if a moist, warm temperature is provided in the growing season, and a decided rest in a temperate house or dry fruit house is afforded after the leaves fade and fall. J. O'B.

LAELIO-CATTLEYA BENITA.

VARIETIES of this charming cross between *Cattleya Schröderae* alba and *Laelio-Cattleya Fascinator-Mossiae* alba, raised by Messrs. Charlesworth, Haywards Heath, have been flowering in several forms during the past month, the best selected, large, pure white forms of *L.-C. Benita* alba being of great purity and fine size and shape.

Although the cross was made between specially selected pure white forms, the small batch gave several examples with delicate pink tint on the labellum, but none reverted to the darker tint of the original type.

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MR. KINGDON WARD'S SIXTH EXPEDITION IN ASIA.*

No. 19.—ON THE RHODODENDRON MOORLAND.

ON our return from the Shun-lu, we spent five rainy days in Mu-li, and then, on July 4, set out to see what we could find east of the Litang River. From the monastery to the wooden bridge is a descent of about 2,000 feet. Besides the rose-red *Malvacea* *Primula* already referred to, there was a queer little *Aristolochia*, twining itself amongst the grass, and a cream coloured *Chirita* just coming into flower; the gorge of the Litang River was quite the last place in which I should have looked for a *Chirita*, or a *Begonia* either, yet we found one of the latter in a wet ravine.

Conspicuous right down here, wherever trickling water and shade were to be found together, was the crimson *Candelabra* bog *Primula* previously alluded to. It is quite common at about 7,000 feet altitude given the required conditions, and so far as other species of *Primula* are concerned, has the ground entirely to itself. This is certainly not usual with the *Candelabras*, nor, indeed, with any marsh *Primulas* which usually share the ground. However, later, we found this species much higher—at about 11,000 feet, in fact, and here it grew with *P. pseudosikkimensis* and a mauve flowered *Nivalis* *Primula*. Even here, though, it was inclined to withdraw the hem of its garment, so to speak, and keep to itself; it was greedy, too, and demanded most of the ground. Its chief merit, perhaps, lies in the fact that it is a late flowering species, beginning to open when many of the *Primulas* are already fading away.

After crossing the Litang River, we began the ascent of the opposite slope on a big slant, soon entering the Pine forest; then crossing a spur, we dropped down into a tributary valley, eventually camping a few hundred feet above Mu-li. The bottom of the valley was fairly well forested, and under the trees grew a pretty *Roscoea* with large, pale lemon flowers. There were two species of *Arisaema* growing hereabouts, which were of particular interest. One was a big plant with a tall, umbrella-like leaf composed of many leaflets arranged in a circle, but hanging down; and each leaflet was drawn out at the apex into a long drip-tip, very like that seen in *Ficus religiosa*, only longer. The second species was a much smaller plant, and in this the spadix was drawn out into a long whip or flagellum, trailing on the ground as in *A. speciosum*, from Sikkim. It is common to find the spathe so provided, but I had never

before seen the spadix contrived in this way. Here, then, we see the same structure in leaf, spathe and spadix, and the conclusion is almost irresistible that it is simply a drip-tip. It is, however, rather astonishing to find such elaborate precautions taken in a region like this, where the rainfall is not great; for that matter, it is puzzling to find so many species of *Arisaema*, and in such variety—a genus one associates more with the wetter, jungly regions bordering on Burma. There are at least a dozen species in the Mu-li district, probably more, found at all altitudes. However, in favour of the drip-tip theory—negative evidence, I admit—it may be pointed out that the species which grow down in the dry river gorges are not so provided either on leaves, spathe or spadix, and the spathe stands wide open.

Continuing up the valley next day, we presently ascended by a precipitous ridge to a grassy meadow, where *Primula* *Littoniana* was poking up its crimson spires, and changing to lilac below as the flowers opened. Leeches swarmed on the road here. They haunted the stones in the middle of the path, and, swinging round in circles, attached themselves to the ponies' fetlocks. This is quite a different species to the one commonly met with on the North East Frontier of Burma, and its tactics, too, are different, in accordance with the changed conditions. The latter sit on the leaves which line the narrow jungle paths, and either drop on the traveller from above, or attach themselves as he brushes through the dense vegetation. On the comparatively wide tracks in mountainous country this procedure would be aseless.

The meadows were yellow with a rather tall, handsome *Potentilla*—the same that I had seen on the grass-land plateau of Eastern Tibet in 1911. The forest, comprising *Abies*, Oak, and a few species of *Rhododendron*, none of them big, was draped with Lichen, and looked very uninviting. In time, we reached the last grassy slope leading to the summit ridge—grassy and not shrub-clad because facing south. A yellow *Cremanthodium* swarmed here, but though there were plenty of flowers there was little variety. We now turned northwards along the ridge, which was clothed with *Rhododendron*. A small rose-pink *Androsace* carpeted the ground in open places, and a remarkable species of *Cynoglossum*, with large, Prussian-blue flowers with purple eye, grew in the shade.

About this time it began to pour with rain, and by the time we got out of the forest on to the open moorland we were drenched and shivering. Making camp under such conditions was a sorry affair, but we found a dry knoll, the water streaming down the hill-sides all round us; however, dense mist prevented us from seeing much. What we did see was quite pleasing. *Rheum Alexandrae* was a wonderful sight up here, its tall, creamy pagodas rising in every direction. *Primulas* revelled in the bogs—mostly *P. secundiflora* and *P. pseudosikkimensis*; but there was also a charming *Nivalis*, its tall stems, whitened with meal, bearing fine heads of flowers, rose pink or lilac; it was, too, deliciously fragrant. Every marsh was crowded with a violet *Iris*, whose fat seed pods, of dusky purple, were as striking as the flowers themselves.

After a night of unremitting rain, we broke camp in dense mist and started again over the bleak moorland with its carpet of dwarf *Rhododendron*, comprising but four species. Frothing streams hurried down the slopes, spilling over and wandering in a dozen marshy rills, every one embroidered with flowers.

We came presently to a wide, shallow valley, where yak fed over the emerald green turf; and at a herder's tent drank sour yak milk. Then, climbing again, we returned to the moorland, the altitude here being between 14,000 feet and 15,000 feet. In the marshes an *Omphalogramma* *Primula* was in fruit—possibly *P. vincaeflora* again, and a *Cochlearia* in flower. Amongst the *Rhododendrons* grew masses of a purplish-violet *Aster* (perhaps *A. staticifolius*), an undershrub no higher than the *Rhododendrons* themselves, covered with blooms; and every bank was purple with the tiny *Soldanel-*

loid *Primula*, a most variable and baffling plant with its numerous microforms. The rain ceased for a time, and high, rocky ranges showed up in the east; on either side, the ridge along which we were travelling fell away into broad, shallow grass-land valleys which rapidly narrowed and became choked with forest. It was impossible to tell just which streams flowed to the Litang River and which to the Yalung, but we were more or less on the crest of the divide. Crossing a lofty pass, we now began to descend, and came down into a grassy valley, obviously at some previous time glaciated.

A conspicuous plant here on steep, stony, shrub-clad slopes was a tall Lily with rather small, pale purple flowers. In favourable situations it grows six feet high, bearing over a dozen blooms. An enormous *Rheum*, fully eight feet high, the bulky stem rising from a nest of huge *Rhubarb*-like leaves was also a conspicuous object; it requires shelter, keeping close amongst the shrubs, but does not mind the rude, stony slopes below the cliffs. We did not stay in this valley, but climbed out of it by a slanting path, and turning the shoulder of a great mountain, ascended to the moorland again, finally pitching camp in a meadow of *Rheum Alexandrae*. Before this, however, we had found one more treasure, another *Muscarioid* *Primula* with fine heads of deep violet, fragrant flowers. It grew on the sheltered slopes, amongst low scrub and broken rock, a plant here and a plant there, or occasionally in small colonies. But it was not common, and extensive search (interrupted by the popping up of two fat hares, which were chased to no purpose) did not reveal more than thirty or forty plants. Nearly all the *Muscarioids* are worth growing for their sweet fragrance and quaint form, as well as for their rich colouring, which is more often than not deep violet; and this plant was no exception. Later, we found a little plant of this section which was certainly queer and of botanical interest, but of no more horticultural merit than *P. Watsonii*. Of the non-violet flowered species, *P. Littoniana* is amazing both for its long spikes and scarlet bracts; while a lilac, or almost white flowered species I found—possibly *P. conica*—is as pleasing as any.

I came across a rather gross species in shady woods edging a torrent; it was already fruiting, and appeared to have purplish or mauve flowers, in moderately long spikes, and might be an acquisition. Yet another species, with violet flowers and very short leaves arranged in a tight rosette, was peculiar for the lax arrangement of the flowers in the spike. It grew on a rocky south-facing slope, covered with a dense thicket of shrubs—rather a strange situation for such a find; but then, it was a strange plant. This was the seventh *Muscarioid* of our collection, but we found less than a dozen plants of it. On the whole, we had every reason to be satisfied with our *Muscarioids*. F. Kingdon Ward.

PLANTS FROM THE ANTIPODES.

SIR H. MAXWELL and Mr. Lynch have raised a very complex subject, on another branch of which I should like to say a few words. The reason why some plants natives of the Antipodes will not acclimatise themselves, whilst others will do so when brought to the changed seasons of this country, is very difficult, if not impossible, to account for, and I think we are obliged to fall back on what the late Professor Huxley called "a verbal anodyne to blind us to our own ignorance," and to say that it is due to constitution, using the word for plants in exactly the same sense as we use it for human beings.

Let us consider a few cases from South America, where alone in the Antipodes I have been able to observe the natural conditions under which plants grow. First let me state that I never heard of any difficulty in acclimatizing plants from the Northern Hemisphere either in South America, South Africa, or Australasia; on the contrary, many of them

* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 23, August 20, September 3, October 8, October 29, 1921; January 7, January 21, March 11, March 25, April 8, April 23, May 6, May 20, June 3, June 17, and July 1, 1922.

PLANTS NEW OR NOTEWORTHY.

STYRAX HEMSLEYANUM.

THIS Chinese *Styrax* is proving a valuable addition to our list of choice trees and shrubs. It was discovered by Prof. Augustine Henry in 1888, but for its introduction to our gardens we are indebted to Mr. E. H. Wilson, who collected seeds in Szechuan in 1900. These were raised in the Coombe Wood Nursery of Messrs. J. Veitch and Sons, where the first plant flowered in 1909, and from which the figure published in the *Bot. Mag.*, tab. 8,339, was made. Mr. Wilson also records this *Styrax* as growing in Hupeh.

A deciduous tree or large bush 20 to 30 feet in height, it is said to have whitish bark in a wild state. Mr. W. J. Bean records a vigorous young tree 10 to 12 feet in height in 1914 at Caerhays, Cornwall. The striking obovate leaves are $3\frac{1}{2}$ to 5 inches long and 3 to $3\frac{1}{2}$ inches wide. The pure white flowers are produced

trunk is 3 ft. high and 1 ft. in diameter at the base. It is growing in the Palm House here among many allied genera and species in conditions common to tropical plants generally.

There is a figure of *Macrozamia Peroffskyana* in Regel's *Gartenflora*, t. 660, showing a female cone and the whole plant on a much reduced scale. At page 227 of the same volume (1870) the plant is described, and the author hazards the opinion that "it is the finest and most imposing Cycad cultivated in European gardens."

Regel describes it as *Lepidozamia Peroffskyana*; by other authorities it has been called *Encephalartos Denisoni*, *Macrozamia Denisonii*, *Catakidozamia Macleayi*, and *Zamia Macleayi*, under which last name it was obtained from Messrs. Sander. Professor Chamberlain, in his delightful book, *The Living Cycads*, does not mention the specific name *Peroffskyana*, but he refers to *Macrozamia Denisoni*, which he saw growing on Tambourine



FIG. 17.—STYRAX HEMSLEYANA.

8 to 20 together in June, on branched axillary or terminal panicles 3 to 6 inches long (see Fig. 17). The individual blossoms are about 1 inch across and pleasingly fragrant.

Seeds ripen in this country and provide the best means of increase, but if these are not available, some of the lower branches may be layered. In common with other species of *Styrax*, *S. Hemsleyanum* thrives best in a sheltered position, either against a wall or with protection from surrounding shrubs. The plants thrive in a well-drained loamy soil to which, when planting, it is desirable to add leaf-mould and peat if available. *A. O.*

MACROZAMIA PEROFFSKYANA.

A MALE plant of this handsome Cycad has recently flowered at Glasnevin, and, as may be seen from the illustration (Fig. 16), the cone is of ample proportions. I did not measure it accurately, but it was roughly eighteen inches high and nearly half as much in diameter.

The plant was purchased from Messrs. Sander, of St. Albans, in June, 1904, and has grown well in the interval. The leaves now have a spread of $10\frac{1}{2}$ feet and individual leaves measure up to 7 feet in length. The

Mountain, west of Brisbane. *J. W. Besant, Glasnevin.*

CATALPA FARGESII.

ONE of the most recent *Catalpas* to bloom in this country is *C. Fargesii*. It had not flowered anywhere in cultivation till 1914 at least, although introduced to France late in last century. The flowers are of good size for the genus, but not produced in anything like the numbers borne by the older introduction, *C. bignonioides*. They are densely spotted all over the outer and inner face with purple, on a white ground, but the appearance is pink to the naked eye a little way off. There are also two yellow patches in the throat, though these are not conspicuous. The leaves are small as *Catalpas* go, being only 3-4 in. long, exclusive of the stalk, with a long point. A marked botanical distinction is that the leaves, young shoots and calyx are covered with branched or stellate hairs, as in many of the *Malvaceae*. There is also an oval brown patch on either side of the base of the midrib beneath, and these patches are thickly covered with glands. They are not mentioned in descriptions, and one would like to know what purpose they serve. The tree flowered recently at Aldenham House, Elstree. *J. F.*

seem as much at home as the natives which they often supersede. Take the case of trees: some, such as the *Araucaria* and Chilean Beech, grow here and produce fertile seed as well as in Chile; others, such as *Fitzroya* or *Saxegoth*, though they grow under less favoured conditions in Chile, either die or remain stunted in this country. Among herbaceous plants *Mutisia decurrens*, so well described by Mr. Coutts in your issue of June 3 (p. 286) is a good illustration. I have seen this plant thriving at the two places he refers to where it grows best in this country, namely, Killerton, in South Devon, and at Edinburgh under very dissimilar conditions, and I have entirely failed to grow it myself either indoors or out, as I believe Mr. Coutts has failed at Kew.

Of the many beautiful alpine *Mutisias* which I have seen in the Andes of Chile not one has ever been grown in England, and the same is true, I think, of the Andean *Gentians*, as it certainly is of the remarkable terrestrial Orchids which I took so much pains to collect and bring home. No gardener that I know of, past or present, has been able to keep them alive more than two or three years, and yet their natural conditions are far more like ours than those of the South African *Disa grandiflora*. But there are plants from the Andes which it seems impossible to kill if the drainage is good, such as *Tropaeolum polyphyllum* or *Calceolaria polyrhiza*, both of which bid fair to become weeds in my garden. Among the bulbous plants it is just the same: *Habranthus pratensis* and *Triteleia uniflora* will grow almost anywhere, whilst *Tecophilaea cyanocrocus* will grow only in a few select spots, and many others equally beautiful, such as *Placea ornata*, will not grow at all. *Astroemerias*, which ought to grow in winter, have here completely changed their season and increase rapidly, whilst many plants which grow with them in Chile refuse to adapt themselves, and this is equally true of many Chilean shrubs, though no doubt temperature has much influence on their success or failure in Europe.

Among South African species equally striking illustrations are furnished by plants quite unlike in habit and structure. So far as I know, there is not a single Heath, shrub, or tree native of South Africa that will live outside at all, though many are cultivated with success under glass and live to a great age, quite unaffected, it seems, by the change of season. This is equally true of most herbaceous plants, though a few, such as *Kniphofias*, are quite hardy and happy, though they are naturally sub-evergreen. *Galtonia candicans* is equally indifferent to our coldest and wettest, as it is to our hottest and driest seasons. *Belladonna Lilies*, though they still try to grow through the winter, when their leaves are usually injured by frost, continue to thrive, increase, and produce ripe seed when they get such a chance as 1921 gave them. The *Barberton Daisy*, though reputed tender, is quite hardy at the foot of a wall here, and flowers continuously for three or four months, though it is almost a solitary instance among South African plants of that character. But for one such case as this it is easy to mention ten of plants from the same districts apparently similar in character and structure which have defied, and I believe always will defy, the skill of the most experienced growers.

Of Australasian plants I have neither time nor knowledge to speak, but I do hope that Major Dorrien-Smith, whose knowledge of them at home is exceptional, and whose garden at Scilly contains more than any garden in Europe, will give us the benefit of his opinions and experiences on this interesting and difficult subject. If any place can prove that Antipodean plants from all three continents do acclimatise and grow here it is his garden at Tresco, where if a botanist were dropped from the sky and saw the rocks covered with a dense growth of *Mesembryanthemums*, *Agapanthus*, and innumerable New Zealand and South American plants, he would never believe he was in Europe. *H. J. Elwes, Colesborne.*

TREES AND SHRUBS.

FREMONTIA CALIFORNICA, TORREY.

PERHAPS the most striking plant at the moment in this garden is *Fremontia californica*. The plant, 14 feet high, and planted in 1917, has flowered for three consecutive years, and is now a mass of golden blossom.

Mr. Bean states in *Trees and Shrubs Hardy in the British Isles*: "that the species has flowers 2 to 2½ ins. across, produced singly on short stalks. There are no petals, the bright golden calyx being the conspicuous part of the flower; it is at first widely cup-shaped, has five roundish divisions, and is densely downy outside and very hairy in the centre inside. Stamens united in a short column, dividing at the top into five radiating arms ½ in. long. Ovary conical, with a slender style." The description, "roundish divisions," corresponds with the drawing there given (p. 576), but scarcely with the flowers on the tree here; for a typical sepal here is long and pointed; moreover, at no stage of the opened flower do the sepals overlap, as in the drawing, so as to form a continuous calyx, but are, on the contrary, widely separate and divergent, as will be seen from the flowers I enclose. This suggests that there may be two forms of this flower.

The stigma is not differentiated from the style, which appears to end in a simple sharp tip; but under the magnifying glass this is seen to be separated into minuter points, which doubtless have the function of a stigma, since the plant produces seed.

After a flower has been open for a few days it is noticeable, in some cases, that the united bases of the stamens have split and allowed of the protrusion of a dense tuft of whitish "hair," which until this time has been hidden beneath them; this appears to surround the head of the ovary, and to be sticky and honey-catching. What can its function be in that position?

There is at Leonardslee a specimen of this plant trained against the wall; but, to my thinking, it is more effective when not so trained, but merely sheltered by a wall and allowed to grow naturally, with drooping branches.—*Aubyn Trevor-Battye, Ashford Chase, Hants.*

[We compared the flowers received from Mr. A. Trevor-Battye with the illustration in Mr. Bean's book and found that the fresh flowers were more stellate and the sepals divergent and more pointed than those illustrated. Perhaps there are two forms, as suggested by our correspondent, whose flowers we sent to Mr. Bean, with a request for his observations thereon. Mr. Bean's reply is given below.—*Ens.*]

There is evidently considerable variation in the flowers of *Fremontia californica*. In the *Bot. Mag.* figure (t. 5591) the flowers are of the same shape as in the figure in my book—that is to say, the lobes of the perianth slightly overlap. In Mr. Trevor-Battye's flowers they are well separated. I have been to the Herbarium and find some of the wild specimens approximate his in the perianth lobes being well apart none, however, quite so widely. The lobes are also more slenderly pointed. Mr. Trevor-Battye's plant seems to represent a distinct and handsome form.—*W. J. Bean.*

THE ALPINE GARDEN.

ROCK GARDENS AT THE MOUNT, IFIELD.

MR. AND MRS. OSWALD M. COURAGE have very charming gardens and grounds attached to their residence, The Mount, Ifield, Sussex, and both are keen horticulturists. The rock and water garden is extremely pleasing, and alpine is a great hobby of Mrs. Courage; the constructive formation of the rock garden was carried out under her supervision, and the arranging and planting done entirely by herself. There is no doubt but that rock gardens are most fascinating to those that have a real love of plants. Mrs. Courage has made a

study of alpine and their requirements as to soil and positions most suitable for the various species and varieties, and has become quite conversant with these interesting and popular plants. She is always pleased to show her garden to anyone interested in rock plants, and a visit is always most pleasant and instructive. The following plants, with many others, are doing splendidly:—*Acantholimon venustum*, *Geranium argenteum*, *Ramondia pyrenaica*, *Erodium guttatum*, *Campanula muralis*, *C. pumila*, *C. pumila* Miss Willmott, *Gnaphalium leontopodium*, *Erythraea diffusa*, *Lithospermum Heavenly Blue*, *L. intermedia*, *Dianthus alpinus*, *D. neglectus*, *Calamintha alpina*, *Veronica Bidwillii*, *Aethionema grandiflora*, *Androsace lanuginosa*, *A. Chumbyi*, *Gentiana verna*, *G. acaulis*, *Onosma taurica*, and *Saxifragas* in variety. These alpine are all tastefully arranged with suitable rock shrubs, and the environment lends to the beauty of the place, the whole forming a glorious colour scheme of natural beauty. *R. H. Holton*

PRIMULA JULIAE.

From early April and throughout the greater part of May *Primula Juliae* is a charming acquisition in the garden. This pleasing species, which is of Corsican origin, when planted in large masses on damp, shady slopes, cannot fail to attract attention. The striking colour of the flowers, which somewhat resembles *Fire King Aubrietia* (though somewhat richer), contrasts with the dark earth. Its culture is of the simplest when planted in leaf-mould and rich pond mud, and it is surprising how rapidly it grows into enormous clumps; here they spread over three feet and four feet. I find the best time to plant is during August and early September, and, like other *Primulas*, a light mulch of leaf-mould during the early winter proves beneficial to *P. Juliae*. To anyone who has been disappointed with *P. Juliae* through trying to grow it in a hot position on the rock garden, I would advise them to give it a trial as stated above. *R. H. Crookford, Weston Park Gardens, Stevenage.*

FLORISTS' FLOWERS.

SOUVENIR DE LA MALMAISON CARNATIONS.

IN spite of the improvement in Carnations of the perpetual flowering section, the old *Souvenir de la Malmaison* type has still the advantage where size and fragrance are concerned, and, as these qualities are coupled with a splendid habit, the plants serve many purposes when in bloom. A well-grown specimen, such as the one illustrated in Fig. 18, is a fine ornament in the plant houses, and will supply excellent flowers for use as cut blooms. In common with all indoor Carnations, the best results follow where a house can be set apart for them, because at certain times of the year they call for conditions which cannot be freely provided when there are other occupants to consider. Moreover, open-air treatment for long together is out of the question. The foliage, though apparently strong, is quickly affected by damp, and the protection of glass is essential for practically the year round to enable the leaves to retain their texture and resist disease. It is for this reason that spraying with liquids for the destruction of red spider should not be overdone, for at each application the foliage is softened, and, when this happens in late summer, no worse start for winter could be imagined. Unfortunately, the interior of many modern glasshouses is totally unsuited to easy plant-growing; instead, they are ideal places for the breeding of pests.

Unless the conditions are so near natural as a glass roof will permit, plants, and especially *Malmaisons*, fail to do the grower full credit. To obviate the necessity for combating red spider—for under fair treatment it is the only pest that is difficult to eradicate—

the benches should be made of slates, so that they may be covered with a moisture-retaining material, and there should be as much earthy floor space as possible, which, however, need not be bare of greenery of some kind. Under such conditions, and however hot the weather, there is always a sense of coolness felt on entering the house, and it is this alone that makes for healthy, clean growth.

At one time this season's display of *Malmaisons* promised to be over rather earlier than usual, but the recent dull weather has enabled the blooms of later plants to last longer than the first. It is, however, a mistake to shade unnecessarily for the sake of a few flowers. The sooner a return can be made to the ordinary treatment—shading is only necessary to break fierce sunshine—the stronger will be the new growths. Plants, however, which have had to be grouped under a heavy shade will be benefited by being stood in the open in fine weather for a few days, as this will stiffen the shoots and make for easier layering.

Where specimens in 8-inch or 10-inch pots are required, the best of those now in 5-inch or 6-inch receptacles should be potted shortly after the flowers are cut. See that the pots are clean and well crocked. *Malmaisons* do best in loams inclining to the heavy side, but made porous with the addition of broken bricks, mortar rubble, and wood ash. A suitable mixture, where yellow loam of this description is available, consists of four parts soil to one of leaf-mould, with sufficient of the ingredient just mentioned to ensure porosity, after firm ramming. Bone meal and a little Carnation fertiliser are also helpful. See that the roots are quite moist before turning them out of the pots, and, when potting, do not bury the stem any deeper than before. It should not be necessary to water the plants for a few days afterwards, but, until the roots have had time to establish themselves in the new soil, keep the house somewhat close and shaded, and damp freely the surroundings of the plants, gradually returning to the normal treatment of admitting as much air as possible, both day and night.

It is always necessary to discard a certain number of old plants annually, and increasing the stock by layering is an essential operation, to be completed, if possible, before August. Cold frames, in which a good layer of sandy soil has been placed, answer the purpose best. Select healthy plants, and, after turning them out of the pots, plunge them on their sides in order that the growths may be spread out evenly. A sharp knife is essential, and, when pegging down the layers, see that the cut is not closed, as it is from the tongue that the roots develop. It takes about six weeks for the layers to become well rooted, and in the meantime the frames should be kept rather close and shaded, and the soil moist. A week or so before potting them, sever the layers from the parent plants and increase the amount of ventilation. Pots 3 inches in diameter are large enough, and, after potting them, return the plants to the frame, keeping it close until they have fully recovered from the disturbance. If, through any cause, the root action does not warrant potting into 5-inch or 6-inch pots in October, defer the operation until the new year. During winter, very little progress, beyond a thickening of the stem is noticeable. Keep the roots on the dry side, and maintain a dry, airy atmosphere by employing just sufficient heat to dispel dampness, and to keep the temperature between 45° and 50°. Before the year has far advanced, the flower stems begin to grow, and, when growth is fully active, occasional applications of a concentrated fertiliser are beneficial.

There are many fine varieties in addition to the popular *Princess of Wales*. *Duchess of Westminster*, rose pink, is an early bloomer, and such as *H. J. Jones*, *Maggie Hodgson*, *Lady Mary Hope*, *Marchioness of Londonderry*, and *The Colonel* are worthy a place. Amongst perpetual *Malmaison* varieties, *Mrs. C. F. Raphael*, though not new, is one of the best. *Y. G.*

SOCIETIES.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

JUNE 1.—*Committee present:* The Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, B. J. Beckton, A. Burns, A. Coningsby, D. A. Cowan, J. C. Cowan, A. T. Cussons, J. Cypher, J. Evans, W. Giles, A. Hanmer, J. Howes, J. Jackson, A. Keeling, D. McLeod, E. W. Thompson, and H. Arthur, Secretary.

FIRST-CLASS CERTIFICATES.

Sophro-Laelio-Cattleya Meuse, West Point var. A flower of fine shape with sepals and petals deep mauve colour and lip deep purple; *Odontoglossum crispum Mariette*. A fine variety of the Dom type. *Brasso-Cattleya Albion* var. *Bianca* (B.-C. Thorntonii alba × C. Trianae alba). A well-shaped flower with white sepals and petals, also white lip with a blotch of magenta. *Laelio-Cattleya Teucria gloriosa* (L.-C. Martinetii × C. Mossiae). Flower large, sepals and petals very dark, and lip deep reddish purple. From S. GRATRUX, Esq.

Dendrobium Butterfly (chessingtonense × Ainsworthii). Flower yellow with black centre; and *Miltonia Horridgeana* (Bleuana Stevensii × Lyoth). Sepals white and petals white, suffused with rose, with a black mask. From Capt. W. HORRIDGE.

Miltonia Hycana var. *The Queen* (Bleuana Stevensii × G. W. Owen). A large, almost pure white flower with large, black mask. From P. SMITH, Esq.

Odontioda Joiceyii splendens (Odm. promerens × Oda. Coronation). A spike carrying fourteen large and well-shaped flowers with large, regular blotches of intense colour, the outer edges being deep pink, and the flat lip with deep blotch. From J. and A. McBEAN.

AWARDS OF MERIT.

Odontoglossum eximillius superbum and *Odontioda Hiawatha Edgemoor* var. From A. HANMER, Esq. *Odm. crispum West Point Amazon*. From Mrs. GRATRUX. *Odm. promerens xanthotes West Point* var. From S. GRATRUX, Esq.

GROUPS.

S. GRATRUX, Esq., West Point (gr. Mr. J. Howes), was awarded a Silver-Gilt Medal for a group of Orchids in variety. Capt. W. HORRIDGE, Bury (gr. Mr. A. Coningsby) was awarded a Silver Medal for a miscellaneous group. Messrs. J. CYPER and SONS were also awarded a Silver Medal for a group of Orchids.

THURSDAY, JUNE 22.—*Committee present:* A. T. Cussons, Esq. (in the chair), Messrs. A. Coningsby, D. A. Cowan, A. G. Ellwood, W. Giles, J. Howes, A. Keeling, D. McLeod, E. W. Thompson, and H. Arthur.

FIRST-CLASS CERTIFICATES.

Brasso-Laelio-Cattleya Jupiter var. *Rotunda*. Flower of large size and even colour; *Odontoglossum Doreen* var. *Royal Purple*, a variety with rich purple flowers; *Cypripedium Gowerianum Gratrixianum*; from S. GRATRUX, Esq. *Odontoglossum eximillius* var. *The Prince*, sepals and petals rich reddish brown with a white margin; *Odm. Penelope Edgemoor* var., a well formed flower having distinct heliotrope spots; from A. HANMER, Esq. *Odm. Gorizia giganteum*; from P. SMITH, Esq.

AWARDS OF MERIT.

Cattleya Brenda var. *Snowdon*; *Odm. Centaur* (Ernestii × Georgius Rex); *Cypripedium Enchantress* (Curtisii Sanderæ × Alma Geveart); *C. niveum* var. *Emerald* and *C. niveum* var. *Gratrixiae*; from S. GRATRUX, Esq. *Odontoglossum Faustina superba*, *O. Orosius magnifica* and *O. Doreen Edgemoor* var.; from A. HANMER, Esq.

GROUPS

S. GRATRUX, Esq., West Point (gr. Mr. J. Howes), staged a group in variety for which a Silver-gilt medal was awarded.

A. HANMER, Esq., Buxton (gr. Mr. G. Giles), was awarded a large Silver medal for a group of *Odontoglossums* and *Odontiodas* in variety.

WINDSOR, ETON AND DISTRICT ROSE AND HORTICULTURAL.

AUGUST 1.—The twenty-ninth annual show of the above society was held on the slopes of Windsor Castle on this date. Roses have long been a feature of the Windsor shows, and the present occasion was no exception to the rule. Following their great triumph at the N.R.S. show on the previous Thursday, Messrs. ALEX. DICKSON AND SONS added to their laurels by winning the King's Challenge Cup, and also the first prize for 12 varieties, 3 blooms of each, with superb collections. Of their 48 blooms in the premier class, Archie Gray, Capt. Kilbee Stuart, Marcella, Gorgeous, Edgar M. Burnett, Mrs. Henry Morse, Mrs. W. J. Grant, Candeur

of any H.P. or H.T. Rose, while Lady Ashtown, shown by Messrs. D. PRIOR AND SON, was a good second. Messrs. D. PRIOR AND SON were easily first with splendid blooms of Madame Jules Gravereaux in the class for 12 Tea or Noisette blooms, and they also secured premier honours with Snow Queen and George Dickson in the class for 12 blooms each of any crimson or white variety. The latter class was strongly contested, and Messrs. F. CANT AND Co. were a good second with their new Henry Vevard and Mrs. Cornwallis West.

The class for 12 bunches of decorative Roses was very attractive. Mr. GEORGE LILLEY was first with excellent vases of such varieties as Isabel, Margaret Dickson Hamill and Lady



FIG. 19.—BEGONIA VENUS. R.H.S. AWARD OF MERIT, JUNE 27 (SEE P. 12)

Lyonnaise, Lord Allenby, Lohengrin and Lady Inchiquin were perhaps the very best. Messrs. F. CANT AND Co. were a good second, and their outstanding sorts were Gorgeous, Golden Emblem, C. V. Haworth, Snow Queen, St. Helena, Mrs. W. J. Grant, Mrs. G. Marriott and Mrs. J. H. Welch. Messrs. B. R. CANT AND SONS, who were third, included good blooms of Colcestris, Lyon Rose, George Dickson and Mr. A. Hartmann.

The very best of the 12 excellent triplets shown by Messrs. ALEX. DICKSON AND SONS were Lord Allenby, Gorgeous, Mrs. G. Marriott, St. Helena and Mrs. Henry Morse. In the second prize collection of Messrs. F. CANT AND Co. there were good blooms of Gorgeous, Mrs. Theodore Roosevelt and Henry Vevard, a new fragrant crimson variety. Messrs. D. PRIOR AND SON were third, and they had excellent triplets of George Dickson and Madame Jules Gravereaux.

Augustus Hartmann, shown by Messrs. B. R. CANT AND SONS, proved to be the best variety in the class for 12 blooms

Pirrie, while Messrs. F. CANT AND Co. showing such brightly-coloured sorts as Red Cross, Red Star, K. of K. and W. C. Gaunt, were second.

AMATEURS' CLASSES.

Dr. T. E. PALLETT had a great day in the open amateurs' classes, for he won the "Windsor," the "Islet," and the "Lady Julia Follett" challenge cups, and was also first with the Tea and Noisette varieties, and in each instance with really admirable blooms, the quality of which may be realised by the fact that his bloom of George Dickson won the N.R.S. silver-gilt medal as being the best bloom in the show. Other of his remarkable blooms were Coronation, Lemon Pillar, Mrs. Henry Morse, Mrs. Campbell Hall, W. R. Smith and Mrs. Foley Hobbs. The best 12 blooms in the class for growers of fewer than 1,000 plants were shown by Mrs. HENRY BALFOUR, who had excellent specimens of George Dickson, Mrs. Foley Hobbs and H. V. Machin.

W. C. ROMAINE, Esq., the founder of the society, won premier honours in the local amateurs' classes, and there was great competition

for the "Pool" and the "Tea and Noisette" challenge cups, which were both won by F. A. GOVETT, Esq., who, with Candeur Lyonnaise (H.P.) and Maman Cochet (T.) won the N.R.S. bronze medals offered for the best blooms of these types in the local classes. With George Dickson Mr. W. C. ROMAINE won the H.T. bronze medal, and he won first prizes in the classes for 6 blooms each of any H.P. or H.T., and T. or N. Roses.

As in the open section, the decorative Roses were exceedingly meritorious, and the 6 bunches which won the first prize for Mrs. F. W. SAUNDERS were admirable. They included Una, American Pillar and Paul's Scarlet Climber. The R.H.S. Banksian Medal, for the best bunch of decorative Roses in the amateurs' classes, was won by Mr. H. J. STOKES with a charming vase of Irish Elegance.

The Prince of Wales Cup, offered for the best 18 bunches of Sweet Peas, is usually keenly competed for, but on the present occasion SIR RANDOLPH BAKER (gr., Mr. A. E. Usher) found no competitor, and was awarded the cup for a splendid collection of such sorts as Hebe, Hilda, Tangerine, Mrs. Tom Jones, Mrs. A. Hitchcock and La France. He was also awarded the first prize in the class for 12 bunches, where the outstanding sorts were Royal Purple and Great Scot. Mrs. F. CHARLTON, who used Rose Ethel James with great taste, won the first prize in the dinner-table competition, and, with Madame A. Chateau, was equally successful in the decorated basket class.

Vegetables generally were poorly represented, but there were several excellent collections. The society's prize and the special prize offered by Messrs. J. Carter and Co. were both won by Miss E. HENDERSON, who showed very good Peas, Broad Beans and Onions. The special prize offered by Messrs. Sutton and Sons was won by Mr. E. BALDWIN, who had excellent Selected Duke of Albany Peas, Best of All Tomatos and very white Cauliflower.

The trade exhibits were a great feature of the show, and were greatly appreciated by the public as well as by the executive. Mr. CHAS. TURNER had large collections of Roses and general flowering shrubs, including splendid Philadelphus in great variety, Spiraea Billardii, and Neilla Torreyi, with many excellent border flowers; while in another tent he had a fascinating group of well-grown Malmaison Carnations of such sorts as Old Blush, Princess of Wales and Lady Middleton. Mr. J. C. ALLCROVE included in an attractive collection of herbaceous flowers a fine group of stately Eremurus, many Delphiniums, Iris Monneri, Pentstemons and plenty of Roses. He also had fruiting canes of Pyne's Royal Raspberry and a collection of trained Gooseberries and Currants in pots. Mr. ELISHA J. HICKS exhibited Roses; Messrs. WATERER, SONS AND CRISP showed Roses and various border flowers; while Mr. BIDE staged a large number of good Sweet Peas of such sorts as Crimson Queen, Elegance and Tangerine.

A very pretty group of border plants and alpine, with Nymphaeas, in a little pool, was contributed by Messrs. BARR AND SON. Amongst their many Irises were Iris monspur, Monneri and spuria varieties. Messrs. J. PIPER AND SON arranged Roses, with Delphiniums and other border flowers.

THE OXFORD COMMEMORATION SHOW.

This society held its first show of the year in the Trinity College Gardens, on Tuesday, June 27. Although rain threatened in the morning, the afternoon was beautifully fine, and visitors were able to enjoy in the open a programme of music rendered by the band of the 2nd Life Guards.

In the class for stove and greenhouse plants, Messrs. J. CYPHER AND SONS, Cheltenham, won the first prize for a good collection of choice subjects.

The exhibits of Roses were exceptionally good. Mr. G. PRINCE, Longworth, was placed first with a well-displayed group of choice varieties.

Mr. HENRY DREW, Longworth, had also an effective group of Roses, and was awarded the second prize. In the open class for cut Roses Mr. PRINCE won premier honours. In another class for cut Roses Mr. H. BALFOUR, of Headington, was a first-prize winner. Messrs WEST AND SON won first prize for twelve bunches of Sweet Peas, outstanding varieties being Picture, Jean Ireland, Hugh Dickson, Royal Purple, Sunproof Crimson and R. F. Felton. Mr. MATTOCK was awarded the second prize in this class. A bank of hardy perennials, shown by Mr. J. JOHNSON, was awarded a first prize. The same exhibitor staged a very choice collection of Carnations, the pick of the stand being White Wonder, Laddie, and Scarlet Corolla. A very fine exhibit of Lilium Harrisii, staged by Messrs. WEST AND SON, was deservedly placed first, the blooms being particularly good. The Vegetable and Fruit Classes were not strongly contested, although some exceptionally fine produce was staged. Brig-General MILLER, Shotover Park (gr., Mr. A. Whiting), secured first prize for white Grapes, Peaches and Strawberries, and Mr. A. E. BRADSHAW was successful for Tomatos and Cucumbers. For a collection of vegetables, Mr. T. ALDER was placed first, and Mr. A. E. BRADSHAW second.

NON-COMPETITIVE EXHIBITS.

Mr. F. C. LEVETT won, for the second time, a challenge cup presented by Councillor L. Alden, Esq. (offered for the best non-competitive trade display). Mr. R. TUCKER had a good exhibit not for competition. In the centre of the vegetable tent Mrs. MORRELL, Headington Hill Hall (gr., Mr. A. Gibson), staged a very graceful, light and effective group of choice plants not for competition, which included Miltonias, Clarkias, Caladiums, Crotons, Souvenir de la Malmaison Carnations and some fine Gloxinias. This exhibit was awarded a Gold Medal. Mrs. Morrell is deserving of thanks and praise for all the good she does in anything pertaining to horticulture. Messrs. JAMES CARTER AND CO., Raynes Park, exhibited, not for competition, a bold, well-staged group of vegetables. Mr. A. ROWLES had a pleasing group of various plants and sundries.

ROYAL HORTICULTURAL.

JULY 11 AND 12.—The usual fortnightly meeting was held on Tuesday last in the Vincent Square Hall. The exhibition was not so fine as some of the recent ones, the falling-off being most noticeable amongst Orchids, while doubtless many Sweet Pea growers were reserving their efforts for the National Society's show at Eastbourne on the Wednesday and Thursday following. Neither the Orchid Committee nor the Fruit and Vegetable Committee made any awards to novelties, but several were recommended by the Floral Committee. Lilies, Roses, Japanese Irises, Carnations, Border Pinks and stove and greenhouse plants were the chief subjects shown. The annual show of the Southern section of the National Carnation and Picotee Society was held in conjunction with the R.H.S. meeting.

Orchid Committee.

Present: Sir Jeremiah Colman, Bart. (in the chair), Prince Shimadzu, Messrs. Jas. O'Brien (hon. secretary), Pantia Ralli, W. J. Kaye, E. R. Ashton, J. Wilson Potter, Frederick J. Hanbury, Gurney Wilson, S. W. Flory, Stuart H. Low, H. G. Alexander, H. T. Pitt, C. J. Lucas, Arthur Dye and Fred K. Sander.

The Chairman read the following communication from the Secretary, which it is hoped will do much to meet a difficulty generally experienced by Orchid exhibitors:—

"Dear Sir,—I am desired by the President and Council to inform you that they have decided that written application may be made for leave to remove, at 5 p.m., on the first day of a two-days show, special plants submitted for award. It is hoped that a sparing use will be made of this privilege and that application will only be made in cases of urgent necessity.

"The written application will, if leave is granted, be initialled by me and will then serve as a certificate to allow the plant to be taken out of the building.—W. R. Dykes, Secretary."

Mr. THURGOOD, gardener to H. T. Pitt, Esq., Rosslyn, Stamford Hill, was awarded Cultural Commendations for a fine plant of Platycodon biflorus with over thirty of its elegant drooping sprays of yellow flowers; and for a grand specimen of Bulbophyllum macrobulbum J. J. Smith with a dense cluster of twenty fleshy, Stapelia-like flowers of cream colour, densely spotted with chocolate red. The comparatively small pseudo-bulbs bore long, fleshy leaves and gave evidence of perfect health. The plant had previously received an Award of Merit under the provisional name B. Balfourianum.

GROUPS.

H. T. PITT, Esq., Rosslyn, Stamford Hill, was awarded a Silver Flora Medal for a very interesting group in which were noted a good selection of Odontoglossums with some bright scarlet Odontodas. Species of botanical interest were Catasetum fimbriatum, Chondrorhyncha Chestertonii, a grand specimen of Miltonia Phalaenopsis, Vanda teres, Anguloa Ruckeri, and several rare Epidendrums.

MESSRS. CHARLESWORTH AND CO., Hayward's Heath, were awarded a Silver Flora medal for an exceptionally good group of white Cattleyas, every specimen being finely grown and well flowered. Twelve varieties of their fine Cattleya Hesta (Suzanne Hye de Crom x Warszewiczii Fr. M. Beyrodt) were shown, all with white sepals and petals, and with labellums having various shades of violet. C. Muriel (Dusseldorferi Undine x Mendeli alba) bore two strong spikes of white flowers, and several C. Stuartii (Mendeli alba x Mossiae Reineckiana) bore many good white flowers and some with a pink tint on the lip. Messrs. FLORY AND BLACK, Slough, showed good examples of Disas. Disa Luna bore a stout spike of pretty rosy mauve flowers with large bluish-white galea; D. Blackii (Luna x grandiflora) had larger and darker flowers, D. Italia (Blackii x grandiflora) was still nearer the latter parent; the new D. Julia A. Stuckey (Italia x grandiflora) with its scarlet segments and large rose-striped galea closely approaches D. grandiflora, but is said to be much easier to grow. The progressive hybridising in these Disas is very interesting.

Messrs. J. and A. McBEAN, Cooksbridge, showed a very fine specimen of their Cattleya Falco gloriosa (Dupreana x Dowiana) with a spike of four large and perfectly shaped flowers, the sepals and petals of which are violet-mauve and the broad, crimped lip ruby-crimson in front, the disc being chrome yellow with some purple lines at the base. The fine form of O. Warneri in C. Dupreana is evident in this showy hybrid. Messrs. McBEAN also showed Odontoglossum Doreen var. Rotunda (eximium x Empress of India) of perfect shape and finely blotched.

Floral Committee.

Present: Messrs. H. B. May (in the chair), D. B. Crane, W. P. Thomson, H. J. Jones, H. P. Warrender, J. W. Barr, S. P. Morris, G. Reuthe, John Heal, Amos Perry, C. R. Fielder, John Jennings, W. B. Gingell, C. E. Pearson, H. R. Darlington, J. T. Bennett-Poë, W. J. Bean, R. C. Notcutt, Jas. Hudson, Reginald Cory, J. F. McLeod, and A. Turner.

AWARDS OF MERIT.

Begonia Sir J. Reid.—A splendid double-flowered tuberous-rooted variety. The Camellia-shaped blooms, which were of bright orange colour, were freely produced, and an additional attraction was the well-marked foliage. Shown by Messrs. BLACKMORE AND LANGDON.

Clematis Species.—The award to this graceful free-flowering species was subject to its being named in the near future. It bears long, elegant sprays of smallish white flowers. The four narrow sepals give a pretty star-like appearance. The smooth oblong Pea-green foliage has a glaucous hue. Shown by the Rev. W. WILKS.

Eschscholzia crism-carmine.—A brilliantly beautiful annual. The colour is well described by the varietal name and its beauty is enhanced

by the small white centre. Shown by Mr. W. H. GARDINER.

Lilium gloriosum.—This is the most vigorous of the many *L. pardalinum* hybrids which have been raised by Mr. Perry. The tall stem bears plenty of pointed, pale orange-coloured flowers which are freely spotted with rich crimson. Shown by Mr. AMOS PERRY.

Rose Kew Rambler.—An elegant, free-flowering variety raised at Kew by crossing the Chinese species *R. Soulieana* with the variety *Hia-watha*. It possesses more than a suggestion of the glaucous hue of the Chinese species, while the flowers are borne in longer sprays and are larger than those of either parent. It is suggestive of a pale American Pillar, but the exact shade more nearly approaches that of the Wild Rose. There is a bold, white centre to the flowers, and the buds are a bright pink. Shown by the DIRECTOR, Royal Gardens, Kew.

Hypericum species.—As with the *Clematis*, this award is subject to naming. It is much like a brighter *H. patulum* Henryi, and is a desirable garden plant; very free-flowering and of good bushy habit. Shown by LIONEL DE ROTHSCHILD, Esq.

Rhododendron auriculatum var.—This is a nearly pure white variety of the pale rosy-pink species discovered by Mr. A. Henry in W. Hupeh, and introduced by Mr. Wilson in 1900. Well-formed trusses were shown, which bore large, widely expanded blooms. The stalks as well as the flowers are white, and they are plentifully furnished with white hairs on the stalk and outside of the petals. The upper surfaces of the leaves are a pleasing green, while below they are somewhat silvery. Shown by the Hon. H. McLAREN.

R. discolor, pink variety.—Except in colour, which is a pleasant soft pink, this is identical with the type which was illustrated in last week's *Gard. Chron.* (see fig. 10). Also shown by the Hon. H. McLAREN.

CULTURAL COMMENDATION.

Magnolia macrophylla.—A magnificent bloom of this, the largest of all the *Magnolias*, was shown, accompanied by leaves nearly 2 feet long. It is a native of the South-Eastern United States, and the globular bloom was over 5 inches across and of creamy white colour. Shown by LIONEL DE ROTHSCHILD, Esq.

GROUPS.

The most imposing exhibit in the hall was the splendidly arranged collection of stove and greenhouse plants by Messrs. L. R. RUSSELL, LTD. There were many *Caladiums*, including the old favourite *C. argyrites*, which has become quite a rare plant. *Codiaeums*, *Acalyphas*, *Anthuriums*, a well-flowered specimen of *Dipladenia amabilis* and others, all displayed the first-class cultivation associated with Messrs. RUSSELL's plants (Silver-Gilt Flora Medal). Carnations were an important feature of the show, and these were shown by Messrs. ALLWOOD BROS. (Silver Flora Medal), who besides many perennials had a large quantity of *Dianthus Allwoodii*; and Mr. C. ENGELMANN (Silver Banksian Medal).

Roses were also freely exhibited. Messrs. PAUL, LTD., showed beautiful vases of such sorts as Paul's Scarlet Climber, Madame Edouard Herriot and the very dark fragrant Dinah (Silver Flora Medal). The Rev. J. H. PEMBERTON included many free-flowering sorts, of which Danaë, Prosperity, Vanity and Haverling Rambler are a selection (Silver-Gilt Banksian Medal). The deep yellow and orange coloured varieties, such as Margaret Dickson Hamill, Golden Emblem, Independence Day and Rayon d'Or, were well shown by Messrs. WATERER, SONS AND CRISP (Silver-Gilt Banksian Medal). In a collection by Messrs. D. PRIOR AND SON, Caroline Testout, Lady Pirrie and Modesty were very prominent (Bronze Flora Medal). At one end of a fascinating collection Messrs. F. CANT AND CO. had a large vase of the very fragrant Red Star, while The Queen Alexandra Rose and C. V. Haworth were also well shown.

Of the many collections of hardy border flowers none attracted more attention than the large quantity of *Lilium candidum* shown by Messrs. BARR AND SONS. Associated with these were

vases of *Alströmérias*, *Salvia Turkestanica* and Sweet Lavender (Silver Banksian Medal). On the opposite side of the entrance Mr. AMOS PERRY showed a number of his interesting hybrids of *Lilium pardalinum* and *L. regale*. For the most part they were unnamed, though a deep orange-coloured hybrid and *L. Pardal-Parryi* of rich orange colour spotted with chocolate were of striking appearance. The effect of these Lilies rising above many hardy Ferns was excellent (Silver Banksian Medal).

Japanese Irises, in good sorts, were included in a general exhibit by Messrs. W. H. ROGERS AND SON, who also had a good vase of *Callistemon speciosus* (Silver Banksian Medal). Messrs. G. G. WHITELEGG, LTD., also showed a good assortment of Japanese Irises with *Astilbes* (Bronze Flora Medal).

Especially good spikes of *Delphinium* were staged by Messrs. BLACKMORE AND LANGDON, who, in another part of the hall, had some excellent tuberous-rooted *Begonias*, of which Lady Rhonda, salmon pink, and Lord Lambourne, orange apricot, were prominent. Amongst the *Delphiniums* were Queen of Bath and Mrs. Townley Parker, pale blue, and Mrs. H. Kaye, very dark blue (Silver-Gilt Banksian Medal).

Mr. H. J. JONES filled a corner of the hall with excellent herbaceous *Phlox*. Besides the sorts we greatly admired at the previous meeting, he had *Maculata Alpha*, a magnificent white, Jules Sandeau, Mrs. Scholten, W. Watson and The Captain (Silver-Gilt Banksian Medal). A large quantity of *Lavatera Olbia rosea* was shown by Messrs. LADHAMS, LTD., who also had many garden Pinks and *Eurothera Golden Glow* (Silver-Gilt Banksian Medal).

Garden Pinks were excellent in the exhibit of Mr. M. PRICHARD, as also were various *Verbascums*, *Phloxes* and *Alströméria aurantiaca* (Silver-Gilt Banksian Medal). Mr. G. REUTHE arranged his customary collection of hardy border plants and shrubs (Silver-Gilt Banksian Medal). Border flowers in variety were contributed by Mr. W. WELLS, JUNR. (Silver Banksian Medal); Messrs. R. TUCKER AND SON, who had many pots of *Campanula Bellardi* Miranda and *C. pusilla* Miss Willmott (Silver Banksian Medal); and Messrs. G. JACKMAN AND SONS, who gave prominence to a quantity of *Helenium Crimson Beauty*, which is of brighter colour than *H. cupreum* (Silver Banksian Medal).

Other exhibitors of hardy flowers were Mr. YANDELL, who showed many *Violas* in boxes of sand (Silver Flora Medal), Messrs. R. H. BATH, LTD. (Bronze Flora Medal), Messrs. RICH AND CO., and Messrs. MAXWELL AND BEALE, who made a small rockery (Bronze Banksian Medal), Mr. F. C. WOOD, who included *Violas* and various alpinas (Bronze Banksian Medal), Messrs. JOHN FORBES, LTD., who had *Phloxes*, *Violas* and *Delphiniums* (Bronze Banksian Medal), Mr. R. C. DOWNER (Bronze Banksian Medal), and the Misses HOPKINS, who made and planted a small rockery.

Border Carnations of great excellence were staged by Mr. J. DOUGLAS. His blooms were all of good form and size, while many possessed the delicious Old Clove scent. The most prominent of the many varieties were Fair Ellen, Bookham Rose, Gordon Douglas, Lieut. Shackleton and Maroon Clove (Silver Flora Medal).

Messrs. LOWE AND GIBSON gave the place of honour in their collection of border Carnations Mary Murray (see National Carnation Society awards), and also had good examples of Lady Shackleton, a giant fancy, Kathie Moore, Skirmisher, Border Yellow and the fragrant Surrey Clove (Silver Banksian Medal).

Fruit and Vegetable Committee.

Present: Messrs. C. G. A. NIX (chairman), Geo. F. Tinley, G. Berry, E. Merryweather, G. Reynolds, E. Neal, H. Prince, T. Pateman, W. Bates and Rev. W. Wilks.

A seedling, unnamed, black Cherry of the Waterloo type was submitted by Mr. YATES, Cone Lodge, Iwer, Buckinghamshire, for award. The flesh is very solid and the stone is relatively a small one. Mr. Berry stated that the variety is very prolific and a most promising Cherry for market purposes. It was decided to ask Mr. Yates to name the variety and to

supply fuller particulars. Messrs. G. G. WHITELEGG AND CO. showed a new Red Currant named Orpington Prolific, a cross between Comet and Ruby Castle. The variety was referred to Wisley for trial, as were also two seedling Peas shown by Messrs. J. CARTER AND CO.; both were raised from Superb crossed with Quite Content; the earlier sort grows one and a half feet high, and the other, which is a second-early, two feet. The pods are exceptionally large for dwarfs. This firm was awarded a Silver Knightian Medal for twenty-three varieties of Broad Beans, including two dwarf kinds, Royal Dwarf Fan, a white seeded form, and Beck's Green Gem, green seeded. The two finest varieties were Leviathan White and Mammoth Windsor White; the most prolific cropper was Market Garden Windsor, a sort intermediate between the Long Pod and Windsor types. They had also a very fine type of Windsor, with four-seeded pods, named Homestead Green Windsor.

Messrs. G. G. WHITELEGG AND CO. made a small group with the new varieties of Red Currants Little Croft Beauty, Orpington Prolific and Improved Red Dutch. Mr. F. WALKER showed varieties of Apples from his Tasmanian orchards, to which reference is made on page 31. The exhibit was awarded a Bronze Hogg Medal.

NATIONAL CARNATION AND PICOTEE.

SOUTHERN SECTION.

The annual show, which was held in conjunction with the R.H.S. meeting, did not attract many competitors, but the exhibits were generally of great excellence. The Cartwright Challenge Cup was again won by Mr. J. DOUGLAS, while Miss SHIFFNER also repeated her success with the Martin Smith Memorial Challenge Cup in the Second Division, and Mr. E. W. PAINTER won the Edmund Charrington Challenge Cup in the Third Division.

FIRST-CLASS CERTIFICATES.

Mary Murray.—A splendid canary yellow variety of good size and borne on such long, stout stalks that artificial support would seem unnecessary. The foliage is very good indeed, and it is a free-flowering sort—quite the best of its colour. Shown by Messrs. LOWE AND GIBSON.

Snowflake.—A milky white variety of great excellence. The blooms are of medium size, perfect form, and the foliage is also very good. For purity of colour and substance of petal this variety is unsurpassed. Shown by Mr. J. DOUGLAS.

OPEN CLASSES.

Mr. R. MORTON, Woodside Park, was the only exhibitor of 6 Bizarres and Flakes in vases, and was awarded the first prize for a good collection, which included Master Fred (Premier Bizarre bloom), George Morland and Meteor.

Mr. JAMES DOUGLAS was similarly awarded the first prize for 6 vases of distinct varieties of (a) Selfs, (b) Fancies (yellow or buff), (c) Fancies (other than yellow or buff), and (d) Clove Scented. His excellent blooms included (a) Snowflake (Premier White Self), Grenadier, Salmon Clove, Marechal Niel, (b) Viceroy (Premier yellow ground Fancy), R. Kelso, Lieut. Shackleton and Highland Mary (c) Steerforth (Premier white ground Fancy), Sir D. Haig, (d) Scarlet Clove and King of Cloves.

Classes 34 to 44 were "Open to All," and, while their object or requirements were not stated on the exhibitor's cards or in the schedule, we assume they were colour classes. Mr. J. DOUGLAS won the first prize with Cherry Blossom, Albion, King of Cloves and Scarlet Clove, Eclipse, Kelso and Margaret Keep, while Miss SHIFFNER was equally successful with Border Yellow, Effie Deans and Grey Douglas.

AMATEURS' CLASSES.

Mr. J. J. KEEN, Southampton, won first prizes for (a) 3 varieties, Bizarres and Flakes, (b) Picotees (white ground), and (c) Picotees (yellow ground). The best of his very good blooms were (a) Huntsman (Premier seedling scarlet flake), Master Fred, (b) Ganymede (Premier heavy-edged Picotee), and (c) Eclipse (Premier light-edged Picotee).

Miss ELIZABETH SHIFFNER, Lewes, was particularly successful in these second division classes, winning first prizes for (a) 3 varieties, Fancies (yellow or buff ground), (b) Fancies (other than yellow or buff), (c) Picotees, and (d) Clove Scented. Miss SHIFFNER also won all the seven first prizes in the colour classes with excellent vases of the following: The White Fox, Border Yellow, Elizabeth Shiffner (buff or terracotta), Fujiyama (red or scarlet), Gordon Douglas (dark red or maroon), Mrs. R. P. Smith (pink or rose), and Grey Douglas (any other colour).

In the third division of the amateurs' classes Mr. E. W. PAINTER, Brentford, was the most successful exhibitor. He won nearly all the first prizes, showing very good blooms of such sorts as Gordon Douglas, Grey Douglas, Sam Weller and Lord Steyne. Mr. G. CHARRINGTON was first in the class for 3 yellow ground Picotees.

The best three vases of flowers grown in the open border were shown by Miss J. B. WELLS, Clapham, while the best single vase was by Mr. E. J. LOWE, Cricklewood.

ROYAL AGRICULTURAL SHOW.

It is not many years ago that the Royal Agricultural Society decided to add to the attractions of its annual gathering a horticultural section of the exhibition, and that the step was a wise one which has met with the most generous appreciation is proved by the thousands of visitors who pay an extra charge to see its glories. Since the institution of the flower show there has been steady improvement in quality and extent, and that held between July 4th and 8th at Cambridge, was the finest of the series. The exhibits were displayed in two immense tents each having central staging and side benches, with abundance of space for locomotion in between. The general effect was that of formal masses of brilliant colour relieved here and there by groups of softer hues.

The one objection appears to be the rigidity of the lines, and it is difficult to see a way out of it. However, we look to Mr. Peter Blair, who has managed the shows so admirably and with such conspicuous success up to now, to see whether it is not possible to break away from the severely formal to the wisely controlled informal which will lead to the artistically picturesque. Mr. Blair is as keen as possible to help the growers who come to make the show and it is quite certain that if he could devise a scheme under which arrangements, while conforming to necessary rules for the convenience of the visitors, might deviate from the straight lines which now prevail, the exhibitors would heartily welcome it, while the public would learn what can be done with flowers in the creation of decorative effect when the artistic hand and eye are allowed fair play.

Those who sent Roses and Sweet Peas must have had special favour from the clerk of the weather, for they were simply magnificent. There were colour, substance, form and size, with scarcely a trace of coarseness, and, almost without exception, the blooms were beautifully displayed.

In the competitive class for a collection of cut Roses Mr. THOS. ROBINSON, Nottingham, had a stand which was perfect in artistic effect, while the blooms shown by Messrs. A. J. AND C. ALLEN were conspicuous for remarkable quality. Messrs. R. BOLTON AND SON, Baythorne End, Essex, combined quality of blooms with delightful arrangement in their winning collection of Sweet Peas, as also did Mr. C. ENGELMANN, Saffron Walden, with perpetual Carnations. The collections of hardy perennial plants and cut blooms were excellent so far as the quality of the material was concerned, but they lost points generally through the diligence with which the packing in was done. Messrs. W. ARTINDALE AND SON, Sheffield, Messrs. HARKNESS AND SONS, and Messrs. G. GIBSON AND CO., both of Bedale, were all in good form. Messrs. J. CYPHER AND SONS, and Mr. W. A. HOLMES, Chesterfield, entered the lists with charming groups, while Messrs. BLACKMORE AND LANGDON, Twerton-on-Avon, were almost unfairly dazzling

with their tuberous Begonias, tempered somewhat by their adjacent collection of grand Delphiniums.

Handsomely meritorious as were the competitive classes, the non-competitive exhibits constituted the solid ground-work of the show, for they were at once numerous and well above the average for quality. Messrs. A. DICKSON AND SONS, Newtownards; Messrs. DOBBIE AND CO., Edinburgh; Messrs. A. IRELAND AND HITCHCOCK, Marks Tey; Messrs. SUTTON AND SONS, Reading; Messrs. ED. WEBB AND SON, Stourbridge; and Messrs. R. BOLTON AND SON did their respective duties with Sweet Peas; while Messrs. LAXTON BROS., Messrs. R. HARKNESS AND CO., Hitchin; Messrs. WOOD AND INGRAM, Huntingdon; Messrs. A. J. AND C. ALLEN, Norwich; Messrs. J. BURRELL AND CO., Cambridge; Messrs. B. R. CANT AND CO., Colchester; Messrs. A. DICKSON AND SONS; Messrs. DANIELS BROS., Norwich; and the Rev. J. H. PEMBERTON, Havering-atte-Bower, rendered splendid assistance with Roses.

Among those who sent hardy flowers or plants were Mr. R. C. NOCUTT, Woodbridge; Messrs. R. H. BATH, Wisbech; Messrs. I. HOUSE AND SON, Westbury-on-Trym; Messrs. W. ARTINDALE AND SON; Messrs. BAKERS, Wolverhampton; the CHALKHILL NURSERIES, LTD., Reading; Mr. JOHN FORBES, Hawick; and Messrs. R. WALLACE AND CO., Tunbridge Wells. Very beautiful Carnations came from Messrs. ALLWOOD BROS., Haywards Heath; Messrs. K. LUXFORD AND CO., Harlow; and Mr. H. LAKE-MAN, Thornton Heath. Messrs. PULHAM AND SON, Elsenham, arranged a charming little rockery; Mr. H. N. ELLISON, West Bromwich, staged splendidly grown Ferns and Palms; and Miss THOMPSON, Handsworth, Birmingham, showed an interesting collection of Cacti.

Fruit trees in pots were sent by Messrs. J. VERT AND SONS, Saffron Walden; Messrs. SEABROOK AND SONS, Chelmsford; the KING'S ACRE NURSERIES, LTD., Hereford; and Sir CARL MEYER; while Messrs. SUTTON AND SONS showed superb Melons and Messrs. LAXTON BROS. splendid Strawberries. Messrs. SUTTON AND SONS also showed numerous dishes of admirably grown and staged vegetables. Outside the great tents Messrs. LAXTON BROS. had a bed of fruit trees and Mr. C. ENGLEMAN two beds of Carnations.

NATIONAL VIOLA AND PANSY.

THE monthly meeting and show of this Society was held at the Crown Hotel, Birmingham, on Wednesday, July 5. Mr. H. J. Milner occupied the chair, and there were 30 members present, including the hon. secretaries. Mr. W. W. Staples, treasurer of the Society since its formation, and who is connected with several other horticultural organisations in the Midlands, gave his "Reminiscences," many of which were on the humorous side. The greater part of the evening was taken up with business and arrangements for the annual show, to be held on July 28 and 29, at the Botanical Gardens, Edgbaston, Birmingham.

A fair number of exhibits were staged for the members' monthly medal competition, awards being made as follows:—Open Vases (Violas): 1st, Mr. W. H. C. TOOBY-DESMOND, Moseley. Open Boards (Violas): 1st, Mr. W. H. TOOBY-DESMOND. Amateur Vases (Violas): 1st, Mr. S. BUSHILL, Birmingham. Amateur Boards (Violas): 1st, Mr. A. HOLBROOK, Harborne. Amateur Boards (Pansies): 1st, Mr. THOS. H. JUSTICE, Wolverhampton. Novice Vases (Violas): 1st, Mr. F. DENNIS, Birchfields.

The Floral Committee met at 8 p.m. Present: Mr. H. Milner, in the chair, and Messrs. W. ALLISON, F. BARNETT, W. H. C. TOOBY-DESMOND, and Hon. Secretary, H. F. CARTER. A First-Class Certificate was awarded to Mr. A. CARTER for a seedling Viola named Mrs. A. Carter, described by the Committee as a dense purple ground, marbled and streaked with French grey and carmine. The flower has a neat eye, and is considered to be a new break in fancies. Mr. CARTER was awarded 1st prize in the Amateur Seedling Class for this Viola at last year's annual show.

WOLVERHAMPTON FLORAL FETE.

THE thirtieth floral fete, held at Wolverhampton, took place on July 11, 12 and 13, and, as usual, its venue was the beautiful West Park, an open space of which the Midland town is justifiably proud. On this occasion the National Rose Society held its Provincial Show in conjunction with the fete, and the combination produced the finest exhibition yet held in Wolverhampton. The Roses were superb, and we hope to report upon them in our next issue, with special reference to the new seedlings which were exhibited in a tent by themselves. The chief features of the fete were the grand groups of plants, the specimen plants, the displays of hardy flowers and the floral decorations. Big tents are provided and there is ample space for the crowds of visitors, for whom, in addition to the plants, flowers, fruits and vegetables, various sports and outdoor attractions are provided. Mr. Alderman Jeffs, Chairman of the General Committee; Mr. F. T. Beck, Chairman of the Horticultural Committee, and Mr. G. W. Martin, the Secretary, deserve congratulations on the admirable arrangements made for exhibitors and visitors.

GROUPS.

There were three noble entries in the principal class for a group of flowering foliage plants, arranged on a space 25 ft. by 12 ft. Messrs. J. CYPHER AND SONS, Cheltenham, secured the premier award of £40 with a beautiful group of attractive and well-grown plants disposed most artistically. A low double arch formed the centre of the background, and this was furnished with Codiaeums, Fuchsia triphylla, and Humea elegans, with Palms behind. Humea elegans was used as dot plants with elegant effect, and the slender spikes of Francoa ramosa harmonised with it. Vantage points were distinguished by specimens of Codiaeums, while Odontoglossums, Ixoras, Miltonias, Laelias, Cattleyas and Anthuriums were used freely in the ground work in association with Ferns, Rex Begonias, and Nandina domestica, while Selaginella and Nertera depressa were used as an edging. Sir G. H. KENRICK (gr. Mr. J. V. Macdonald), Edgbaston, was a capital second prize-winner, and he used Miltonias and tall Codiaeums with great effect; 3rd Mr. R. MANNING, Dudley.

In the class for a large group of foliage plants Messrs. J. CYPHER AND SONS were again the winners of the chief prize, and won with a handsome arrangement, but scarcely so bright as some of their exhibits we have seen; Codiaeums, Acalyphas, Dracaenas, Anthuriums, Palms, Nandina domestica and Japanese Maples were the leading subjects. Sir G. H. KENRICK, 2nd; Mr. W. R. MANNING, 3rd.

A handsome group of Clerodendron Balfouriana arranged over equally good examples of C. fallax, won for the Cheltenham firm the first prize in the class for a group of one kind of flowering plant. Mr. A. S. DUNTON, Penn, 2nd, with Astilbes; Sir G. H. KENRICK, 3rd with Hydrangeas.

Messrs. J. CYPHER AND SONS led in the class for fifteen specimen plants, and showed medium sized, finely flowered examples of Clerodendron Balfouriana, Statice profusa, S. intermedia, Ixora coccinea, and I. Regina; 2nd, Mr. MANNING, Dudley. Mr. G. MASON (gr. Mr. T. Clark), Penn, had the best dozen flowering plants of one kind, winning with Hydrangeas; 2nd, Major S. THOMPSON, Oaken, with Begonias. Mr. Mason was also successful in a small group class.

Two collections of decorative plants and cut flowers were arranged, and produced a pleasing effect; the best of the two was arranged by Messrs. CYPHER AND SONS, Mr. R. MANNING coming second.

Floral Arrangements.

Two classes were provided for table decorations, and in the open one the competition was very keen. The principal award was made in favour of Mr. W. J. GRESSON, Severn, Stoke, who had a beautifully light design in Oncidiums, Francoa ramosa and Gloriosa Rothschildiana; the colour scheme was brilliant and daring. Sir G. H. KENRICK came 2nd also with Orchids, his arrangement being a handsome, but subdued

one of Miltonias, Phalaenopsis, Odontoglossums, and Vanda teres; 3rd, H. WATSON SMITH, Esq. (gr. Mr. H. Davis), Stourbridge.

In the Amateurs' Class, Mrs. COURTNEY PAGE, wife of the N.R.S. Secretary, won first place with a low design of bowls of a gorgeous Rose of the Queen Alexandra type; 2nd, Mr. R. W. HOSIER, Wettenhall, for a fine arrangement of Ophelia Rose; 3rd, Mrs. COLSTON HALE, Warminster, with Sweet Peas and Carnations; a trifle too freely used.

Bouquets were good, and in the class for a hand bouquet Mr. A. ADSHEAD, Gatley, led with a handsome design in bright-hued Orchids and Anthuriums; Mr. C. VICKERS, Leicester, 2nd, with an Orchid design, a trifle heavy. Mr. A. ADSHEAD was very successful in the class for a bridal bouquet and two bridesmaids' bouquets, and here he showed charming designs in white Orchids, and two bouquets of fine red Carnations. Mr. C. VICKERS, 2nd, with Orchids and yellow Carnations. Mr. C. VICKERS led in the class for a featherweight bouquet, a pleasing arrangement of Orchids and Anthuriums.

Mr. W. GRESSON and Sir G. H. KENRICK were placed first and second respectively in a class for a stand of cut flowers. Mr. H. E. FENTON, Walsall, showed the best bowl of Roses, the variety being the ever-popular Ophelia.

Sweet Peas.

No doubt the fact that the N.S.P.S. show was to take place on the following day at Eastbourne was responsible for a slight falling off in the exhibits of Sweet Peas—generally a very fine feature at Wolverhampton. In the leading class for a dozen bunches distinct, Mr. F. R. MINSHALL, Market Drayton, won first place with capital flowers of Constance Hinton, Picture, Royal Purple, Daisybud, La France, Mrs. Tom Jones, Royal Scot and other first-rate sorts. The blooms were large and fresh, but their arrangement in fan-shaped bunches was not pleasing; 2nd, Mr. D. GREEN, Wolverhampton (gr. Mr. Thorneycroft). Mr. J. T. FINNEY, Stone, won first prize for six bunches of distinct varieties.

Mr. A. S. DUNTON contributed the best collection of eighteen bunches of Sweet Peas, winning with fine flowers and showing Mrs. T. Jones, Royal Purple and Mascotts Hello, in fine form. Mr. H. WATSON SMITH led in a special class for six bunches, and Mr. H. BUCKLEY, Stone, had the best twelve bunches, distinct.

Hardy Flowers.

The sum of £20 was offered as 1st prize for a collection of hardy flowers arranged on a space 25 ft. by 7 ft. There were three competitors, and Messrs. HARKNESS AND SON, Bedale, won chief position with a very fine display in which were Delphiniums, Mulleins, Gaillardias, Liliums, Gladioli, Poppies (too closely packed), Campanulas and other good border plants; 2nd Mr. R. PRICHARD, Christchurch, who had a great variety of subjects, and included a collection of beautiful Pinks, a selection of Kniphofias, Romneya Coulteri, Delphiniums, etc., but did not finish off the front of his exhibit so well as did the first prize winner; 3rd, Messrs. GIBSON AND SON, Bedale. These three groups made an imposing and interesting display.

For a collection of a dozen bunches of hardy flowers, Mr. F. A. COOKE, Tettenhall, was easily first in a good competition where popular kinds figured. He was also first prize winner in the class for a collection of hardy flowers arranged on a space 8 ft. by 4 ft.; here there were three entrants, two of whom packed their blooms too tightly together.

Mr. M. PRICHARD led for a collection of Delphiniums, and Messrs. HARKNESS AND SON came second, but in each case it appeared that the exhibitors had insufficient time to properly arrange their flowers. Messrs. GIBSON AND SON were awarded first prize for a spike of a new seedling Delphinium, winning with a rich blue, white centred variety, with large, widely expanded blooms.

Mr. T. B. ADAMS, Compton (gr., Mr. Walker), showed the best collection of a dozen kinds of hardy flowers, a pleasing arrangement of Lilium elegans, Spiraea Aruncus, English Iris, Gaillardias, Delphiniums and Roses; 2nd H. WATSON SMITH, Esq. (gr., Mr. H. Davies), Stoneleigh.

Violas were admirably shown, and Mr. T. H. JUSTICE, Wolverhampton, led in a keen competition in a class for six varieties, with grand show flowers; 2nd, Mr. S. CARLESS.

There appeared to be only one exhibit of a group of Hardy Annuals, and this, awarded a first prize, was shown by Mr. A. S. DUNTON. Such a class should receive more attention from exhibitors, as it could be made a very interesting feature. For a group of bedding plants the chief award was won by Mr. E. LOWE, Stanstead, who had a very formal arrangement of Pelargoniums and Begonias, edged with Pyrethrum and Echeverias—not a very original design; 2nd, Mr. A. S. DUNTON.

Mr. C. WALL, Bath, was the only exhibitor of a display of Carnations, and he thoroughly deserved the first prize awarded him. His arrangement was bold and effective, and his flowers of popular perpetual varieties were of excellent size and colour. Mr. F. BAYLISS, Walsall, led for a dozen blooms of border Carnations, with very clean, shapely flowers; and also for a dozen fancy border Carnations.

Vegetables.

Considering the season, vegetables were fairly well represented. In Messrs. Sutton's class for a collection of six distinct kinds, Mr. W. J. GRESSON was first prize-winner, and Mr. G. H. HICKMAN, Cookley, 2nd. Mr. GRESSON was equally successful in an open class and in the class provided by Messrs. Webb and Sons, as well as in the amateurs' class for six kinds, and in every case he staged capital produce.

Non-Competitive.

Needless to state, the non-competitive exhibits were numerous and added greatly to the excellent beauty and interest of the fête. The three outstanding displays were those of Messrs. BAKERS, Wolverhampton—a formal garden with sunken centre and handsome borders of hardy flowers; Messrs. DOBBIE AND CO., who showed a fine lot of Roses; and Messrs. E. WEBB AND SONS, Stourbridge, who displayed vegetables, Begonias and annuals in good style.

Large Gold Medal. To Messrs. BAKERS, Wolverhampton; to Messrs. DOBBIE AND CO., Edinburgh; and to Messrs. E. WEBB AND SONS, Stourbridge.

Gold Medal. To Mr. H. ELLISON, West Bromwich, for Ferns and Cacti; to Messrs. STUART LOW AND CO., Enfield, for Orchids and Carnations; and to Messrs. J. E. KNIGHT AND SONS, for floral designs.

Silver Medal. To Messrs. JARMAN AND CO., Chard, for Pelargoniums and Sweet Sultans; to Messrs. ISAAC HOUSE AND SON, for Scabious in variety; to Mr. W. WELLS, jun., Merstham, for hardy flowers; and to Mr. E. MURRELL, Shrewsbury, for Roses.

Bronze Medal. To Miss THOMPSON, Wandsworth, for succulent plants; and to Messrs. MAXWELL AND BEALE, for alpine plants.

GENERAL BULB GROWERS' OF HAARLEM (HOLLAND).

THE different Floral Committees have made the following Awards at their meetings during the winter and spring of 1921-2:—

FORCING.—CERTIFICATES.

Narcissus Ajax Moonlight.—Perianth white, trumpet creamy-yellow. Shown by Mr. P. VAN DEURSEN, at Sassenheim.

N. bicolor Olivier Cromwell.—White perianth with yellow trumpet. Shown by Messrs. EGGINK BROS., at Voorschoten.

N. Campenelli odoros giganteum.—Deep golden-yellow, firm flower. Shown by Mr. P. VAN DEURSEN, at Sassenheim.

N. Cervantes.—Yellow, perianth not closed, trumpet somewhat deeper yellow. Shown by Messrs. BYVOET BROS., at Overveen.

Tulip (Darwin) Le Notre.—Striking rose, Shown by Messrs. EGGINK BROS., at Voorschoten.

Tulip (Breeder) Panorama.—Deep mahogany-red coloured. Shown by Messrs. EGGINK BROS., at Voorschoten, and Mr. NIC. BOS, at Katwyk-on-Rhine.

FIRST-CLASS CERTIFICATES.

Tulip (Darwin) Laura.—Bright violet with white centre, large white border. Shown by Messrs. C. G. VAN TUBERGEN, JUNR., at Haarlem.

Tulip (Parot) Fantasy.—Deeply lacinated rose, with green splashes outside. Shown by VEREENIGDE BLOEMBOLLENCULTUREN, LTD., at Noordwyk.

Iris pallida Empress of India.—Large flower, standards light violet with sky-blue shading, fragrant. Introduced by Mr. G. LUBBE THZ., at Oegstgeest.

AWARDS OF MERIT.

Eranthis Tubergens Var.—(*Eranthis cilicica* × *E. hyemalis*), soft yellow, free flowering. Shown by Messrs. C. G. VAN TUBERGEN, JUNR., at Haarlem.

Narcissus Adelaide.—Perianth and trumpet both white, cylindric trumpet, perianth firm. Raised by Messrs. E. H. KRELAGE AND SON, Haarlem.

N. Ajax Grand Vizier.—Perianth and trumpet soft sulphur-yellow, large petals, border recurved and notched, very large flower. Raised by Messrs. C. G. VAN TUBERGEN, JUNR., Haarlem.

N. Ajax Pile of Gold.—Deep unicoloured golden-yellow, very firm. Raised by Messrs. C. G. VAN TUBERGEN, JUNR., Haarlem.

N. Burri Glad Eye.—Creamy-white perianth, cup orange-scarlet, centre canary-yellow, flat. Shown by VEREENIGDE BLOEMBOLLENCULTUREN, Noordwyk.

N. bicolor The Queen.—Large creamy-white perianth, trumpet soft yellow, border notched. Raised by Messrs. E. H. KRELAGE AND SON, at Haarlem.

N. incomparabilis Alceste.—Cup bright yellow with white perianth, large petals forming a star. Shown by Messrs. C. G. VAN TUBERGEN, JUNR., at Haarlem.

N. incomparabilis Red Cross.—Perianth soft yellow, large cup dark yellow coloured, border orange shade, big flower. Raised by VEREENIGDE BLOEMBOLLENCULTUREN, LTD., at Noordwyk.

N. incomparabilis Selycette.—White perianth with large petals, cup canary-yellow, wide and recurved. Raised by Messrs. E. H. KRELAGE AND SON, Haarlem.

N. Leeds Her Grace.—Creamy-white perianth, cup light sulphur-yellow becoming white, rather long and wide. Shown by Messrs. C. G. VAN TUBERGEN, JUNR., at Haarlem.

N. Leedsii Prof. Westerdijk.—Cup soft pale yellow, perianth ivory-white, large petals. Shown by Messrs. E. H. KRELAGE AND SON, at Haarlem.

N. Poetas Brimstone.—Soft sulphur-yellow perianth, crown light citron-yellow, large flowering. Raised by Messrs. DE GOEDE BROS., Beverwyk.

N. Poetas Diadem.—Milk white perianth, crown bright yellow with orange border, large flower stalk. Raised by Messrs. DE GOEDE BROS., at Beverwyk.

N. Primrose Perfection.—Unicoloured, soft yellow with peculiar glow, flower medium-size. Raised by Messrs. E. H. KRELAGE AND SON, at Haarlem.

N. triandrus hybridus Gertrude.—Unicoloured, citron-yellow, wide and rather long, petals somewhat curled. Shown by Messrs. VAN ZONNEVELD AND PHILIPPO BROS., Sassenheim.

Tulip (Breeder) St. James.—Deep wine-red with bronze border. Shown by Messrs. EGGINK BROS., Voorschoten.

Tulip (Cottage) Mrs. Hoog.—Soft creamy-yellow, points sulphur-yellow. Shown by Messrs. C. G. VAN TUBERGEN, JUNR., Haarlem.

Tulip (Mendel) April Queen.—(Duc van Thol × Darwin), light lilac rose. Shown by Messrs. E. H. KRELAGE AND SON, Haarlem.

Tulip (Mendel) Early Beauty.—(Duc van Thol × Darwin) bright carmine-rose. Shown by Messrs. E. H. KRELAGE AND SON, Haarlem.

Tulip (single late) Gesneriana Advance.—(Tulipa gesneriana spatulata × Tubergiana), bright scarlet with blue centre, outside

greyish-white with violet glow. Shown by Messrs. C. G. VAN TUBERGEN, JUNR., Haarlem.

Tulip (single early) Fortuna.—Lilac rose. Shown by Mr. C. J. KIEFT, Heiloo.

Tulipa Eichleri.—Bright scarlet with gleaming black spots, light yellow centre. Imported from Asia by Messrs. C. G. VAN TUBERGEN, JUNR., at Haarlem.

Iris (Dutch) The First.—(*Iris tingitana* × *filifolia*), light blue standards, falls somewhat lighter, very early. Shown by VEREENIGDE BLOEMBOLLENCULTUREN, LTD., Noordwyk.

I. (Dutch) Vermeer.—White, standards green shaded, rather yellow round the centre, deep-yellow spot. Shown by Messrs. C. G. VAN TUBERGEN, JUNR., Haarlem.

I. (Dutch) Wouwerman.—Standards sulphur-yellow, falls deep golden-yellow with orange-red spot. Shown by Messrs. C. G. VAN TUBERGEN, JUNR., Haarlem.

I. filifolia E. B. Garnier.—Standards dark indigo-blue, falls light grayish-blue. Shown by VEREENIGDE BLOEMBOLLENCULTUREN, LTD., Noordwyk.

I. filifolia J. D. de Heem.—Standards soft mauve-blue, falls soft pearl-blue with bright yellow stripe. Shown by VEREENIGDE BLOEMBOLLENCULTUREN, LTD., Noordwyk.

I. filifolia A. L. Koster.—White, centre rather creamy-yellow, yellow spot. Shown by DE VEREENIGDE BLOEMBOLLENCULTUREN, LTD., Noordwyk.

I. Regelio-Cyclus Asporina.—Soft violet standards, veined dark purplish-red with large coloured brown-purple spot.

I. Regelio-Cyclus Clotto.—Very dark violet standards, falls short, velvety black brownish-purple with blackish-brown spot.

Obituary.

Thomas Hatton.—We learn with deep regret of the death of Mr. Thomas Hatton, who for many years was gardener at "Badgemore," Henley-on-Thames. He died on June 9, in New York, after a serious operation. He leaves a widow, two daughters and one son.

NEW HORTICULTURAL INVENTIONS.

ABSTRACT PUBLISHED LAST MONTH.

Packing Plants (Patent No. 178,327).—A patent has been granted in this country to Mr. J. Nissen, of 165, Obere Lichtenplatzenstrasse, Toltetern, Barmen, Germany, for a machine for packing the roots of living plants. The roots are enclosed with the necessary earth and straw in wire or thread netting. The root is held by a holder above a base-plate which carries, in arms, the bearings of shafts on which are mounted wire guiding-levers. The shafts are actuated from a planetary system of pinions connected by shafts to pinions gearing with bevel-gears. The wire is supplied from bobbins and is guided to the ends of the levers through eyes. The wire having been twisted together from the previous operation, the device is rotated by means of a hand-rail; the gear being prevented from rotating in one direction by a pawl, the pinions actuate the levers to place the wires about the root. After the levers have made half a revolution, the rotation of the device is reversed. The gear being free to rotate in this direction, the levers are not rotated about the shafts, and the wires were consequently placed round the neck of the root. The rotation of the device is again reversed until the levers have returned to their positions, this completing a network of wire about the root. On reversal again the ends of the wires are twisted and are cut off. In a modification, the root is held in a vertically movable carrier, and the wire-guiding levers are mounted on vertical axes in the rotary machine frame. In another modification, the wire guiding levers are mounted on vertical pivots and are actuated by the action of pins and slots in outward extensions thereof.

ANSWERS TO CORRESPONDENTS.

BET LEAVES DAMAGED: *H. P. K.* The leaves have been damaged by the leaf miner insect, which you will find present beneath the skin if you hold the leaf up to the light. As the grubs are present in the tissue below the skin, spraying is of no avail, and the only method is to destroy the pest by pinching between the finger and thumb or by piercing it with a needle. Next season spray the plants early with some distasteful solution, such as quassia extract, in order to deter the mother insect from laying her eggs on the leaves.

CATERPILLAR ON OAK: *J. E.* The Caterpillar to which you refer (the Oak leaf roller Moth) is very plentiful this year; see *Gard. Chron.*, July 1, 1922, p. 10.

CLUB ROOT: *W. A. R.* As the soil is so badly infected with the disease, the ground should not be planted with Brassicas or Turnips, but it would not affect such crops as Carrot, Beet, or members of the Pea and Bean family. Your suggestion to grow Strawberries might be followed, and, by the time the ground was cleared of the Strawberries, it might then be possible to grow members of the Brassica family again.

GRAPES SCALDED: *Urgent.* Scalding is due to the action of sunlight upon foliage and berries wet with condensed moisture. Theinery should be ventilated early in the morning so that the moisture is dispersed before brilliant sunshine can act through it, as through a lens, on the tender tissues. The chief point to observe in the prevention of scalding is to open the ventilators very slightly, early in the morning, and steadily increase the amount of ventilation through the day in bright and warm weather.

MILDEW ON VINES: *W. J. S.* Syringe the Vines immediately, in sunny weather, with sulphur mixed with water. First make a paste by mixing the sulphur with a little soapy water and then dilute sufficiently to enable the syringe to draw it up. The sulphur will do no permanent harm to the berries so long as the shade temperature does not exceed 80°. The sulphur may be syringed off with soft water in a fortnight's time.

NAMES OF PLANTS: *J. L.* 1, *Saxifraga* Geum var. *gracilis*; 2, *S. Hostii*; 3, *Ornithogalum umbellatum*; 4, *Saxifraga* Geum var. *dentata*; 5, *Scilla peruviana*; 6, *Sedum praealtum*; 7, *Euonymus japonicus variegatum*; 8, *Aesculus flava*.—*G. M. P.* 7, *Rhododendrons* Minnie; 2, Mrs F. Hankey; 3, Mrs. Mendel; 4, Bruce Finlay; 5, Charles Mason; 6, Mrs. J. P. Lade; 7, Marchioness of Lansdowne; 8, Martin Hope Sutton; 9, John Waterer; 10, Coral Star; 11, Barclayanum.—*A. H. and A. Y. L.* *Arum Draconculum*.—*T. A. V.* 1, *Scilla italica*; 2, *Stachys lanata*; 3, *Erigeron philadelphicus*; 4, a variety of the *Iris pallida* section.—*J. T.* 1, *Scilla italica*; 2, *Ranunculus acris flore pleno*; 3, *Veronica gentianoides*; 4, *Gnaphalium lanatum*; 5, *Erigeron speciosus*.—*J. A. C.* *Tecophilaea cyanocrocus*.—*W. L.* We cannot undertake to name varieties of florists' flowers.—*E. C.* 1, *Abutilon vitifolium*; 2, *Acer palmatum sanguineum*; 3, *A. p. aureum*; 4, *A. Negundo variegata*; 5, *Phlomis fruticosa*; 6, a variety of *Helianthemum* (rock Rose).—*G. B.* 1, *Muscari comosum monstrosum*; 2, *Crataegus tenacitfolia*.—*W. J. P.* *Cynosurus echinatus* (Rough Dog's Tail Grass).

PEACH AND NECTARINE FRUITS FAILING TO SWELL: *W. H. B.* Probably the growth of your Peach trees is too vigorous. Examine the roots early in October and bring them nearer the surface, adding plenty of old lime rubble in the compost. Also examine the border and make sure that the trees have not suffered for want of water at the roots. Absence of fire heat is not the cause of the fruits dropping, provided the house was ventilated carefully.

Communications Received.—*L. S. A.*—*P. D.*—*G. S.*—*J. W. H.*—*H. J. A.*—*H. W.*—*P. T. A.*—*A. H. F. S.*—*W. P. M.*—*A. Bros.*—*E. B.*—*C. R.*—*H. H. S.*—*D. L.*—*W. N. W.*

MARKETS.

COVENT GARDEN, Tuesday, July 11.

Fruit: Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Apples,		Grapes,	
—Sturmer Pippin 15	0-16 0	—BlackHamburgh 2	6-3 6
—Others	10 0-14 0	—Canon Hall ..	5 0-8 0
Apricots, French,		—Muscat	3 0-6 0
crates	12 0-14 0	Lemons	
Bananas, singles	15 0-25 0	—Messina, 300's	11 0-15 6
—doubles	20 0-25 0	—Murcia	14 0-18 0
Cherries		Melons	
—Napoleon	12 0-20 0	English and	
—Bigarreau	8 0-12 0	Guernsey	4 0-9 0
—Frogmore	7 0-12 0	—Cantaloupe ..	6 0-12 0
—Elton	8 0-14 0	Nectarines	8 0-18 0
—Waterloo	9 0-14 0	Nuts	
—Other Black ..	6 0-10 0	—Brazilis	44 0-46 0
Currants, Black,		Oranges,	
English ½ sve.	24 0-26 0	—Murcia	22 0-28 0
Figs, per doz. ..	4 0-15 0	South Africans	
Gooseberries		—Navel	18 0-22 0
English, Green,		—Seedlings ..	18 0-21 0
half sieve	7 0-9 0	Peaches, per doz.	6 0-24 0
—Ripe	9 0-12 0	Pineapples ..	2 0-5 0
South African,		Raspberries	
Grape-Fruit ..	35 0-45 0	4 lb. Chops ..	3 0-3 6
		Red Currants,	
		halves	10 0-12 0
		Strawberries	
		—Kent pecks, ..	5 0-8 0

Vegetables; Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Artichokes,		Onions, Egyptian	12 0-14 0
green, dozen	1 6-2 0	peas,	
Beans,		—blue, half bag,	8 0-10 0
—Guernsey, lb.	1 6-2 0	Potatoes,	
—Worthing ..	1 6-2 0	—Guernsey, new	
Beets, per bus. ..	3 6-4 6	cwt.	9 0-10 0
Cabbage doz. ..	1 0-2 0	—Jersey	10 0-—
Carrots, new,		—English,	
doz. bun. ..	2 6-3 0	Epicure	8 0-10 0
Cauliflower, doz.	4 0-6 0	Sharpe's Express	10 0-—
—flats, 3 doz.	12 0-16 0	Spinach per bush.	3 0-4 0
— " 3½ " ..	10 0-16 0	Spring Onions,	
— " 4 " ..	8 0-12 0	doz. bun. ..	2 6-3 0
Garlic, per lb. ..	0 8-0 9	Tomatoes,	
Greens, per bag	1 0-2 6	—English and	
Lettuce, per doz.	0 6-1 0	Pinks	7 0-7 6
Marrows per doz.	6 0-8 0	—Pink and white	7 0-8 0
Mint, per doz. ..	2 0-6 0	—Guernsey ..	6 0-7 6
Mushrooms		Turnips, new, doz.	3 0-6 0
—per lb. Forced,	1 0-1 6		
— " " Outdoor	0 6-0 9		

REMARKS.—The cold, wet weather has resulted in fewer consignments of home-grown produce, and also adversely affected the demand. At the time of writing the prospects are more promising for better trade. Choice fruits, such as Grapes, Peaches, Nectarines, Melons and Figs have an easier tendency in some instances, due to increased quantities. A fair inquiry is being maintained for satisfactory parcels of Australasian Apples, the season for which is now finishing. A fairly brisk demand is ruling for Black Currants from all sources. Raspberries and Red Currants are also selling well. Bananas show little fluctuation in values. Cherries are in fair demand, but a large proportion of the fruit is cracked and unfit for further transit, which tends to restrict values. Forced Beans are a short supply and inquired for. The few outdoor Beans available are realising good prices. The wet weather has resulted in very large supplies of field Mushrooms, and these being so plentiful the values of forced Mushrooms have seriously depreciated. Green vegetables are plentiful and cheap. Lettuces, unfortunately for the producers, are practically unsaleable. Potatoes are considerably cheaper; heavy quantities of Dutch tubers are quoted at low rates.

Out Flowers.

REMARKS.—Carnations and Roses are the most plentiful of flowers; the supplies of the former exceed the demand. The quantities of all outdoor blooms have been considerably reduced by the unfavourable weather of the past few days. Gladioli, Giant White Breckleyensis, Hally and Prince of Wales (salmon) are amongst the most attractive lines. Large consignments of these blooms are arriving from Holland, including large quantities of The Bride variety. Statice sinuata, in white, mauve and yellow colours, is arriving in better condition. The first consignment of Statice latifolia was on sale last week, also Gypsophila paniculata. Alstromera begins to make a bigger show. Lilium longiflorum still holds firm in price; L. lancifolium album and L. l. rubrum are more numerous. Asters have appeared in the market, but only a few, and good blooms are fetching high prices.

GARDENING APPOINTMENTS.

Mr. J. Roberts, previously Gardener to C. H. LOMAX Esq., Grove Park, Yorkford, Suffolk, as Gardener to CORONEL H. E. HAMMO, C.B.E., Coldham Hall, Bury St. Edmunds, Suffolk.

Mr. H. F. Zobel, for ten years Gardener to the late GEORGE BURT, Esq., J.P., at Castle Hill, Rotherfield, Sussex, as Gardener to G. W. GORDON, Esq., J.P., Southwood House, Hildenborough, Kent. (Thanks for 2s. for R.G.O.F. Box.—Eds.)

THE

Gardeners' Chronicle

No. 1856.—SATURDAY, JULY 22, 1922.

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 63.2°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, July 19, 10 a.m. Bar. 30.2; temp. 62°. Weather—Fine.

The Carrot's Crimson Eye.

Along the railway banks, by the roadside, and in the dry pastures, the white flowers of the Carrot are in evidence, and to the student of botany they have a great fascination, for the plant represents the wild condition of one of our best-known indigenous vegetables. Under cultivation the root has been made juicy, succulent and sugary. The Carrot belongs to the Order Umbelliferae, and for this reason it demands attention, for a plant cannot have attained to so great distinction all in a day. It must have a history, and that a long and eventful one. The word "umbel" was chosen, as anyone may see, on account of the shape of the inflorescence which spreads out like an umbrella, and the two words are derived from the Latin *umbra*. It is, as a rule, quite easy to distinguish an Umbellifer from any other plant. "As a rule," be it observed, for there are a few exceptions. The novice who does not at once recognise that the Sea Holly, the Sanicle, the Penny-wort or the Astrantia are Umbellifers, may be excused, but with few exceptions all the remaining plants of this order found in England have their flowers in compound umbels, usually white, occasionally yellow, and at times with a greenish or else a pinkish tinge. The Order is a large one. We find some fifty genera in this country alone, or nearly one-third of the whole Order. There are about seventy native species, which is a twentieth part of those which have been described. The Carrot, however, has one distinctive mark, and this exceptional badge makes it particularly

interesting. In its heart we may see a blossom which is distinct from all the rest. It is thus described by quaint old Gerard: "The floures are little, and stand upon broad spoked tuftes, of a white color, of which tuft of floures the middlemost part is of a deep purple." Withering, however, states, the "flowers are white, except the central floret, which is deep crimson." At times it is a vinous red, but in any case, it is conspicuous by reason of its colour. In the Hogweed, the Goutweed, the Parsnip, Parsley, or any other wild Umbellifer, we will fail to find the crimson eye. This is the one fact on which we focus attention. What means the Carrot's crimson eye? The colour of the eye is always significant, be it black, blue, red or otherwise. How are we to explain this striking phenomenon? Volumes have been written on the colours of flowers, and yet the subject is not exhausted. There are still many problems unsolved, and that of the Carrot's crimson eye is one. There is the biologist, for example, who considers colour is very largely a question of nutrition. Rich colours are exhaustive, and with large umbels the plants cannot supply their blossoms with the foodstuff necessary to colour the whole of the inflorescence, but the central floret, being near the heart of things, gets the fullest measure, and so turns crimson. That is one theory. Another theory is that the colour represents nature's beautiful device of adorning the decadent, but in the present case this does not apply. There is also the theory that the crimson eye is a response to the call of certain insect visitors who want a more striking colour scheme. It suggests that the Carrot is about to attempt higher flights, and will some day don the purple. But if that were so, why does not the cultivated Carrot show a crimson inflorescence? Grant Allen tells us that this family is a difficult one to deal with satisfactorily, and he refuses to look the Carrot in the eye. Lubbock wonders whether the neutral tints of the Umbelliferous flowers have any connection with the number of different kinds of insects by which they are visited. What insects do we find in search of honey on a Carrot? "In the common Carrot, where the honey is quite exposed, 13 in a hundred visitors are bees, 3 are butterflies or moths, 31 are flies, and 53 belong to other orders." Such are the figures supplied by one of the German authorities, but the present writer has not verified them. The theory that the richly-coloured floret is a freak will not hold. It is not sporadic; it has been recorded for hundreds of years and is found in every locality where the plant flourishes, no matter what the soil or season. There remains, so far as our observation goes, one other theory worthy of mention. It is that the crimson eye is representative of a glory which has departed; the last faint reminder of the days when the Carrot was clothed in crimson or clad in purple. It would take too long to follow out all the lines of argument, but the following observations are according to this theory. In the long ago, the Carrot produced highly coloured flowers which were scattered at intervals over the straggling flower-stalk. In the battle for life it was necessary to adopt a better means of securing insect visitors. Thus the umbel was evolved, and the expensive habit of producing coloured petals given up. True the umbel did not possess the aristocratic appearance which belonged to the earlier state, but there are times when appearances must be sacrificed to save life. The Carrot, however, was unwilling to sacrifice every heirloom, and just as the new poor retain the seal when the

coat of arms has vanished, so the Carrot hugs to its heart one single ruby from its ancestral coronet. To show that in this theory there is a possible solution of the question, two facts may be adduced. The first is that a plant is sometimes found in which the central umbellule (and not merely its innermost floret) is crimson. The second is that many years ago it was reported from Penzance that the umbel sometimes contains flowers which are entirely red.

Ghent Quinquennial Exhibition.

The decision of the Council of the Société Royale d'Agriculture et de Botanique de Gand to hold a great exhibition at Ghent in 1923, is one which has been received with great pleasure by horticulturists in this country, because many pleasant memories attach to quinquennial exhibitions of bygone years, and also because it is a token that Belgian horticulturists have sufficiently recovered from the effects of the war to undertake the organisation of an exhibition, which, judging from past experience, will be one of the largest held in Europe. In former years the great Ghent shows attracted horticultural traders from all parts of Europe and from America, as new and rare plants were invariably an important feature. Although new tropical plants of horticultural value are rarely seen nowadays and the demand for them has fallen off, we hope that in 1923 novelties among plants and flowers of these and other kinds will be as numerous as formerly and not less valuable and interesting. We have before us a schedule of the exhibition to be held in Ghent from April 14 to April 22, 1923. It is a booklet extending to 108 pages, in which are printed no fewer than 778 classes, together with the rules for exhibitors and the names of the officials. The exhibition will be held under the special patronage of His Majesty King Albert of Belgium. Once again M. Alexis Callier is President; M. Albert Ceuterick, Vice-President; M. Lucien de Cock, General Secretary; M. Robert Delmotte, Assistant Secretary and M. Maurice Duquesnoy, Treasurer. M. Henri de Wilde, Director of Open Spaces and plantations of Ghent, will plan the exhibition on artistic lines. The Council is composed of MM. le Comte Andre de Kerchove de Denterghem, Arthur de Smet, Romain de Smet, Maurice Lippens, Théophile Morel de Westgaver, Charles Pynaert, Francois Spaë, Louis Van Houtte and Maurice Verdonck. Sir Geo. Holford, Sir W. Thiselton-Dyer and Sir Harry J. Veitch are the British members of honour. The classes are divided into twenty-eight groups, i.e., for New Plants, Orchids, Stove and Greenhouse Plants, Aroids, Palms, Cycads and Pandanus, Ferns, Miscellaneous Flowering and Foliage Plants, Specimen Plants, Hard-wooded Plants, Roses, Herbaceous Flowers, Carnations, Bulbous Plants, Tuberos-rooted Plants, Azalea indica varieties, Camellias, Mollis and Ghent Azaleas, Ornamental Plants, Succulent Plants, Conifers, Fruits, Genetics, Florists' Art, and Horticultural Industries. To secure publicity for the exhibition the Council has appointed a Press Commission upon which we find the names of the principal horticultural journalists of this country and of France. We trust that the exhibition will be the success its promoters anticipate, and that it will prove an advance upon the seventeen quinquennial exhibitions previously held by the Ghent Society, which was founded in 1806 and has done a vast amount of excellent work in extending horticulture in its own land and also in the whole of Europe.

Retirement of Mr. W. Tilling from Heaton Park.—The Manchester Parks Committee is about to lose the services of Mr. William Tilling, their head gardener at Heaton Park, on his retirement under the superannuation scheme. Mr. Tilling is a native of Gloucester and has been at Heaton Park for more than forty years. He was gardener to the former owner, the Earl of Wilton, and when the park was purchased by the citizens of Manchester some twenty years ago he was appointed to the superintendency under the corporation. Always a most courteous and obliging official, he was held in great respect and esteem by all classes, and in particular by the staff under his control, who have made him a parting gift in the form of a handsome oak timepiece, together with a pair of silver vases for Mrs. Tilling. He carries with him into retirement the good wishes of the Manchester Parks Committee and of all with whom he has come into contact.

Presentation to a Head Gardener.—A representative gathering of residents in the Tardebigge district met in the Village Hall on the evening of the 8th inst. to present Mr. J. J. Graham, late head gardener to the Earl of Plymouth, at Hewell Grange, with a handsome gold watch and chain as a token of esteem and appreciation of the work he had done amongst them during his seven years' residence at Hewell. The Earl of Plymouth, who had been asked to make the presentation, travelled from London specially for the occasion. After several speakers had testified as to the excellent record of Mr. Graham, the Earl expressed the pleasure and honour he felt at having been asked to make the presentation. He voiced the feeling not only of himself, but of the whole neighbourhood, when he said how deeply they regretted his leaving them. He pointed out, however, that although old ties must be broken, no one could deprive them of the delight Mr. Graham had been while among them, and although they were losing him they would still have happy memories of the past. He paid tribute to the excellent service Mr. Graham had rendered to the whole community at Tardebigge, rich and poor alike. Mr. Graham, in a few well-chosen words, expressed his gratitude to the Earl and all the friends for their great kindness to him. Mr. Graham has recently been appointed by the Manchester Parks Committee to take charge of Heaton Park, the largest and most important of their public parks. He is succeeded at Hewell by Mr. F. Molyneux, late general foreman at the Royal Gardens, Sandringham.

The World's Requirements of Nitrogen.—An interesting estimate of the nitrogen requirements of the cultivated soils of the world is cited in the International Review of the Science and Practice of Agriculture (*Monthly Bulletin of Agricultural Intelligence*, XII., 10, October, 1921). According to estimates and reckonings, the nitrogen requirement, in terms of nitrate of soda, by the cultivated regions of the world is about eight and three-quarter million tons annually. They receive at present only some two and three-quarter million tons.

Rhus Toxicodendron and Other Poisonous Species.—The well-known poisonous effects of various species of *Rhus* have recently been investigated by Mr. McNair, whose results published in the *American Journal of Botany* (VIII., No. 5), indicate that the poison is non-volatile and is contained in the resinous sap. The skin irritation which the poison produces may develop only after a long latent period, and hence there is apt to be a difficulty in diagnosis. The paper contains an exhaustive bibliography on the subject of *Rhus* poisoning.

Self-sterility in Apples.—Tests carried out in Sweden* indicate that in that country self-sterile Apples include Belle de Boskoop, Bismarck, Cox's Pomona, Wellington; and that Lane's Prince Albert is partially self-sterile; and that Lord Grosvenor develops parthenocarpic fruit (i.e., without fertilisation) as also in a limited extent does Keswick Codlin.

Mr. E. Gilman.—Another old gardening association is about to be broken, as Mr. E. Gilman, so long gardener to the Earl of Shrewsbury and Talbot, at Ingestre Hall, Stafford, is retiring, after a period of service extending over forty-six years. Mr. Gilman belongs to a school of gardeners of which only a few now remain, and thirty or more years ago he made fame for himself in the Midlands as a grower and exhibitor of Chrysanthemums at the time when big blooms were at the height of their popularity. As a grower and exhibitor of fruit, notably Grapes and Peaches, Mr. Gilman also excelled, and in addition he was responsible for raising several good varieties of Melons and Tomatos. Mr. Gilman commenced his gardening career at the age of fourteen, in the gardens of John Cruso, Esq., Leek, and after remaining there for three years, he entered service under Mr. Rabone, at Woodseat, Uttoxeter, where this celebrated gardener was then producing Grapes of remarkable quality and creating a considerable sensation in the gardening world. A little later, Mr. Rabone became head gardener at Alton Towers, and young Gilman soon joined him, and stayed with him one year.



MR. EDWIN GILMAN.

From Alton, he was sent by Mr. Rabone to Coombe Abbey, where he received further training in fruit and plant cultivation under Mr. William Miller. Here he remained for three years, and then went to the famous Trentham Gardens, at the time when Mr. Zakok Stevens was the Duke of Sutherland's gardener. From Trentham Mr. Gilman went as gardener to Sir Henry Edwardes, Wootton Hall, Derbyshire, a beautiful place, where he obtained experience that qualified him for the more onerous duties of gardener to the Earl of Shrewsbury, at Ingestre Hall, Stafford, an appointment he took up in 1876. After twenty years service at Ingestre, Mr. Gilman also took charge of the famous gardens at Alton Towers, another of the Earl's residences, and the improvements he made during the time he lived at Alton testified to his ability as a gardener and organiser. Returning again to Ingestre to live, Mr. Gilman not only remained in charge of both establishments, but he made a new garden for his employer at Goring-on-Thames. With so many responsibilities on his shoulders, it was not unnatural that Mr. Gilman should drop out as an exhibitor and as a member of the Fruit and Vegetable Committee of the R.H.S., but his gardening enthusiasm never lapsed, and whatever his hand found to do was done well. In connection with Mr. Gilman's well-earned retirement it is regrettable that the glory has departed—tem-

porarily, at any rate—from the two once famous establishments over which he had charge, owing to circumstances following on the death of the late Earl. In severing his connection with the gardens he loved, Mr. Gilman must feel these things, but his nature is optimistic, and he goes to his new home on the borders of Cannock Chase with the good wishes of his many gardening friends.

The Packing of Soft Fruits.—At the conference of fruit-package manufacturers, held at the Imperial Fruit Show last year, the Controller of Horticulture promised to convene a further conference to consider the possibility of the introduction of a standard package for the transport of Strawberries and other soft fruit. This conference will be held at the office of the Ministry at No. 10, Whitehall Place, on Tuesday, the 25th instant, at 2.30 p.m.

National Association of Cemetery Superintendents.—The seventh annual congress of the National Association of Cemetery Superintendents was held at Birmingham on the 10th, 11th, and 12th inst. The delegates were welcomed to the city by Mr. R. R. Gelling, chairman of the Parks and Cemeteries Committee. The morning session was occupied with the submission of the secretary's and treasurer's reports and balance sheet and the election of officers for the ensuing year. During the afternoon the congress considered and adopted a motion to enlarge the activities of the association by amending the qualification for membership so as to admit the election of parks superintendents and assistant superintendents. The congress on the second day considered the advisability of publishing the activities of the association either in a monthly or quarterly magazine, but owing to financial considerations the idea was not found practicable. A paper was read by Mr. Harry Robertson, manager of York Cemetery Company, on "Should the Association Adopt a National Programme?" During the afternoon visits of inspection were paid to Witton and Handsworth Cemeteries. On the third day the association was addressed by Mr. L. Hill, general secretary of the National Association of Local Government Officers, on the Superannuation Bill. The remainder of the session was devoted to questions and answers on matters connected with cemeteries and their management. During the afternoon visits were paid to Yardley, Brandwood End, and Lodge Hill Cemeteries under the guidance of Mr. W. H. Morter, chief officer of the Birmingham Parks and Cemeteries Department. The secretary of the association is Mr. W. A. Cochrane, Hamstead Cemetery Office, West Hampstead, N.W.6.

Ormskirk Potato Trials, 1922.—The summer inspection of the Ministry of Agriculture's Wart Disease Immunity Trials at the Potato Testing Station of the National Institute of Agricultural Botany, Lathom, Ormskirk, will take place on Thursday, August 24. Attendance on that day will be by invitation from the Institute, but the Trial Grounds will be open on August 25 and 26 to all interested in Potato growing. The extensive plots of Potatoes planted at the Station include a large number of varieties from Australia, France, and other foreign countries, and also a considerable number of seedlings from Breeding Institutions, Potato raisers and others. There is also an interesting historical section. Trials for other purposes are being carried out by the Institute which this year has again undertaken Potato Maturity Trials and has planted a large number of Demonstration Plots of most commercial varieties of immune Potatoes.

Home-grown Bulbs.—Mr. W. R. Dykes, secretary of the Royal Horticultural Society, informs us that there will be no dry-bulb show at the Royal Horticultural Society this year, but exhibits of home-grown bulbs will be welcomed at the meetings on August 9 and 22. Applications for space should be made in the ordinary way a week before the meetings, and be accompanied by a declaration that the whole of the produce to be shown has been grown in the British Isles.

* *Monthly Bulletin of Agricultural Intelligence*, XII., 10, October 1921. International Institution of Agriculture.

Magnesium Sulphate as a Fertiliser.—According to the *Chemiker Zeitung*, XIV., No. 56, May 10, 1921, magnesium sulphate has a markedly beneficial effect on crop production when used as a fertiliser in conjunction with potassium salts and the usual nitrogenous and phosphatic fertilisers. The effect in a series of cultivations of Potatoes was to increase yields by a small definite amount—about two per cent. Although the effect on the Potato crop of magnesium is much less considerable than that of potassium, it is by no means to be ignored. The yields obtained without the use of potassium was in this series of experiments 202* quintals per hectare, with chloride of potassium 244, with sulphate of potassium 250 and with potassium and magnesium sulphates 253.

Appointments for the Ensuing Week.—Tuesday, July 25: Royal Horticultural Society's Committee meet; lecture by Dr. A. B. Rendle on "Plants of Interest Exhibited"; Bath and West and Southern Counties Society's Council meeting. Wednesday, July 26: Irish Gardeners' Association's meeting; Cardiff and County Flower show (two days); Whitechurch and District Horticultural Society's annual exhibition; Elgin Horticultural Society's meeting; Hayward's Heath Horticultural Society's show (two days); Welsh National Agricultural Society's Horticultural show on the Racecourse, Wrexham (three days). Thursday, July 27: Bristol and District Gardeners' Association's meeting; Royal Botanic Society's meeting. Friday, July 28: Paisley Florists' Society's meeting; Midland Carnation and Picotee Society's show (two days). Saturday, July 29: National Viola and Pansy Society's exhibition; Newburgh Flower show.

"The Gardeners' Chronicle" Seventy-five Years Ago.—Exhibition at Chiswick.—The exhibition season of 1847 was terminated on Saturday last by the meeting in the garden of the Horticultural Society. The day, although ushered in with a tempest, proved enjoyable in the afternoon, and 6,827 visitors found their way to Chiswick. We have no space for an account of the music, which was enchanting, from the variety introduced into its arrangements, and the large area over which the movements of the bands extended; and we must refer to the witnesses of the gay scene for a description of the beauty of his Grace the Duke of Devonshire's grounds, of the noble lawn, the rich parterres, and the majestic timber there. We can only dwell upon the novel features of the exhibition in the Horticultural Society's Garden. Conspicuous among them was Messrs. Veitch's plant of *Medinilla speciosa*, a Melastomad from Java, with broad, concave, fleshy leaves, and large bunches of semi-transparent pink flowers, which seemed as if carved from crystal. Then came an *Aerides* from Sir George Larpent, resembling maculosum, and perhaps a variety of it, but with a lip of the deepest crimson. Of an inferior rank, but beautiful, were Kuhl's *Dendrobe*, a pink-flowered species, in the way of *D. secundum*, and a beautiful Brazilian *Oncid*, the form of whose flowers might have satisfied the fastidiousness of a florist. The two last are from Messrs. Veitch, who also produced an orange *Ixora*, called the Javan, which will probably be a fine show species. A prize was also awarded to a little specimen of a blue-flowered *Leadwort* from Shanghai, quite distinct from all in gardens, and likely to be a valuable bedding-out plant; it has been received by Sir George Larpent, whose gardener, Mr. Eyles, has succeeded in raising it. Another remarkable part of the exhibition was a collection of thirty-five different Palms from Messrs. Loddiges. This occupied a large circular table, and excited much attention. We do not, however, think that plants of this description are capable of producing a striking effect when ramixed with others. *Gard. Chron.*, July 24, 1847.

Publications Received.—*Science in Diet*. By K. Monteath. A thesis on Vegetarianism with a table of food values. Second edition. Messrs. Chapman and Wilson, Coney Street, York. Price 4d. post free.

* A quintal = 100 kilograms = 220.49 lb., and a hectare = 2.47 acres.

THE ALPINE GARDEN.

PATRINIA PALMATA.

Not many of the *Patrinias* which have been in cultivation are ever likely to achieve lasting popularity, and there are only a very few indeed which are destined to be favoured by the cultivator of alpine flowers, who has now an almost bewildering choice of charming plants with which to furnish the rock garden. *Patrinias* belong to the natural order Valerianaceae, and mostly possess a share of the comparative coarseness of the family. *P. palmata*, which, as I know it, is a dwarf plant about 9 in. high; does not wholly agree with the description of the plant by the late Mr. Reginald Farrer, for he classes *P. palmata* with several others

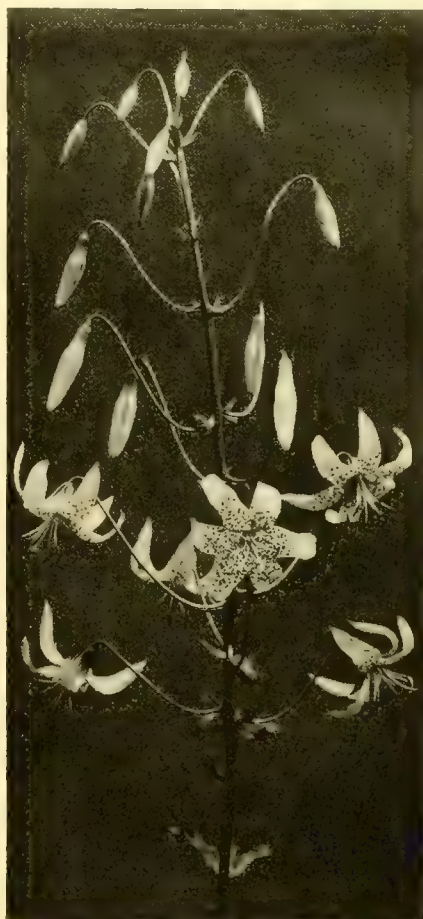


FIG. 20.—*LILIAM GLORIOSUM*: R.H.S. AWARD OF MERIT, JULY 11 (SEE P. 41).

as "being too precisely Valerian-like in tall stem and loose habit to be fitted in the garden for any place more choice than the wilder parts where *Paradisea* is growing among the *Astrantias* and *Campanula rhomboidalis*." I have not found the plant to exceed the height of 9 in., while it is even less in stature if grown in a dry moraine, where it flourishes excellently. It may not be a choice, but it is a pleasing plant, with palmately divided, glossy green leaves and heads of golden-yellow bloom. In the moraine it thrives well, spreading a little and giving plenty of flower. I think it prefers a dry soil.

CAMPANULA PUNCTATA.

BUT rarely met with, yet a good Bellflower of considerable beauty and interest, is that known as *Campanula punctata*, which comes from North Asia, and ought to be a free and easy grower in these islands, but, unfortunately, proves none too long-lived in numerous gardens. Its habit would suggest that it would present no difficulty, as it seems to delight in spreading and

sending up little stems bearing its rather neat leaves, and eventually producing handsome bells, but it frequently dies off, much to our disappointment. Indeed, some have considered it only a biennial, although it is not such, but a true perennial. It needs, experienced cultivators agree in asserting, a dryish and sunny place, but even there it is not always that *C. punctata* will prove perennial. Therefore it is not so much seen as its beauty deserves. The stems are about a foot high, inclined to arch over, and bear several large, drooping bells of a pinky-white outside, white inside, and beautifully spotted in the interior like a Foxglove. Its full beauty is not seen until the inside of the flowers is examined. Some think that the distinct Bell-flowers named *C. Burghaltii* and *C. Van Houttei*, have *C. punctata* as one of their parents, but others class them as hybrids or descendants in the direct line of *C. latifolia*. It looks as if *C. punctata* was one of the parents, with, possibly, *C. latifolia* as the other. *S. A.*

TROPAEOLUM POLYPHYLLUM.

At the end of June and early in July, this showy, hardy perennial was one mass of yellow flowers, trailing over and among the rocky boulders. The long, prostrate growths furnished with grey-green foliage were well over 4 feet in length and studded with golden bossoms. This plant is known as the Indian Rock Cress, and by this one can easily imagine that it requires a hot, sunny position. I never remember seeing it quite so fine as this season, and undoubtedly this is due to the heat and drought of last summer and autumn. When planting this perennial, it is wise to place it near or between the rocks. It will then quickly send its creeping stems in all directions. It is important that the soil should be well drained, unless the slope be fairly sharp, as it resents stagnant moisture at the roots. When once established, it should be left undisturbed. The foliage dies down in the early autumn, and growth does not appear again until about early May, when the soil begins to get warm; thus it is wise to mark the site to avoid any danger of the plants being lifted. *R. H. Crockford, Weston Park Gardens, Stevenage.*

ORCHID NOTES AND GLEANINGS.

DENDROBIUM NOBILE.

DENDROBIUM nobile, Lindl. *Gen. et Sp. Orch.*, p. 86 (1831), one of the oldest and still one of the most deservedly popular species, first became known in British gardens through a plant of it flowering in Messrs. Loddige's nursery in 1837, the small specimen having been brought from China by the late Mr. John Russel Reeves. Since then it has been imported frequently from Southern China, and a wide range in North and North-East India. It was collected by Gibson in the Khasia Hills at an altitude of about 4,000 feet and sent to Chatsworth in 1837. The range of its distribution being great, wonderful variation in the flowers results, and while the typical form, with its amethyst-purple tinted sepals and petals, is the most commonly seen, there are forms varying from the pure white variety *album* through various shades to the now well-known *D. nobile nobiliss*, with its richly coloured flowers four inches across, described by Reichenbach in *Gard. Chron.*, 1882, p. 366, and which is yet one of the finest of *Dendrobiums*.

Scores of varieties have received distinctive names, and all are fine and easily distinguishable from each other, two of the most interesting being the peloric *D. nobile Cooksonianum*, which appeared in several gardens, with petals resembling the labellum in colour; and the singular *D. nobile burfordiense*, in which the lateral sepals partake of the colouring of the lip.

Probably no *Dendrobium* has played so useful a part in gardens as *D. nobile* during the eighty years or so in which it has been a familiar object. It has been grown, and should still be grown, in gardens where Orchids are not made a speciality, the adaptability of its

requirements rendering its culture possible in any gardens where a warm glass house exists. Its time of flowering may also be extended by treating some of the plants differently from the rest. In *Gard. Chron.*, November 2, 1901, particulars were given of very successful results from outdoor treatment in summer, and similar experience with it and other Orchids in the late Dr. Smee's garden at Hackbridge have frequently been noted.

But in the main the old prescription of a warm, moist temperature during the season of growth and a long, cool, dry period during the resting time are details to be relied on for success. On those lines the old collections produced huge specimens, those of the Rucker collection at Wandsworth, and the Holford collection at Westonbirt often bearing close on 1,000 flowers at a time.

The tufted habit of growth of *D. nobile*, which admits of a practically unlimited number of pseudo-bulbs to a single specimen, accounts for the possibility of such giants, and in regard to them one may note an important point in which modern cultivators have surpassed the old growers.

Many years ago it was the custom to leave all the old stems until they passed away after being useless and unsightly for a considerable time. The modern cultivator prunes his *Dendrobiums* and other Orchids, removing all old pseudo-bulbs before they become unsightly, and in the case of *D. nobile* and some others using the stems for propagating young plants of such varieties as are required.

ALLIES OF DENDROBIUM NOBILE.

Dendrobium Linawianum, a native of China and Japan, was first introduced by the Horticultural Society in 1823. It was known and figured generally as *D. moniliforme*, a name now known to belong to the Japanese species formerly called *D. japonicum*. In growth and flower it may be likened to a small form of *D. nobile*, the disc of the lip having but two small, purple spots. It is interesting as being one of the parents of the first hybrid *Dendrobium*, *D. Dominianum* (*Linawianum* × *nobile*), recorded as early as 1864, but not described until in *Gard. Chron.*, 1878, p. 202. It is quite intermediate between the parent species, and with its *D. Linawianum* parent has been used in a dozen other crosses, while *D. nobile* has been applied directly to about forty other species and hybrids.

Dendrobium Regium, a native of Lower Hindustan, described by Dr. Prain in the *Journal of the Asiatic Society*, lxxi., p. 89, and which first flowered in the Royal Botanic Garden, Calcutta, in 1901, flowered at Kew in 1904, and was soon fairly represented in gardens, both the late Sir Trevor Lawrence and Messrs. Charlesworth and Co. obtaining First-Class Certificates for it on August 6, 1907. It is a beautiful species, closely related to *D. nobile*, but quite distinct from it, having more equally arranged segments of clear amethyst pink on a white ground, and a differently shaped lip without the dark zone, differences which render it easily recognised.

It is a charming species, not yet sufficiently well known, and with good prospects to the hybridiser.

So far, Sir Jeremiah Colman, Bart., is the only grower who has proved hybrids of it, his *D. alpha* (*eucosmum* × *Regium*) (1910); *D. Royal Princess* (*aureum* × *Regium*) and *D. Royal Sovereign* (*Curtisii* × *Regium*) (1912); and *D. Prince Arthur* (*Euryalus* × *Regium*) (1919) being very handsome hybrids, showing much of *D. Regium*.

Dendrobium tortile, *D. Hildebrandii* and the many hybrids produced from them, and *D. nobile*, come into this section. They are all most floriferous and, although their flowers do not compare favourably with good *D. nobile* or *D. Regium*, they are excellent for decorative purposes, especially *D. Wiganiae* and *D. Wiganianum* and their progeny. All show the elegant arrangement of the flowers, as in *D. tortile*, to which *D. Hildebrandii* is closely allied; so also does *D. Dartoisianum*, from Indo-China (*Bot. Mag.*, t. 8352). *J. O'B.*

THE HISTORY OF THE MOSS ROSE.

A CRITIQUE.

IN a short article on the origin of the Moss Rose, which appeared in the *Gardeners' Chronicle* for September 24 last, and which in a more elaborated form was published in the *Journal of the R.H.S.*, vol. xlviii., part I, an attempt was made by Major Hurst to trace the history of this old, popular, floral favourite. More recently, in the *Rose Annual* for 1922, that gentleman gave us, with but few variations, notes on the history of that flower which are in substance a repetition of the previous articles.

I make no claim to a qualification for dealing with that part of the history which is essentially botanical, and leave that entirely outside my consideration, but from the purely literary and historical aspect it seems that a few critical comments on the evidence upon which the author of those three articles has relied, together with a few other items of additional material which do not appear to have come under his notice, may serve to put a somewhat different complexion upon the history of the Moss Rose compiled by him, with the result that we shall ultimately arrive at a closer approximation to the true facts.

Major Hurst has gathered together from many sources, more or less authentic, a quantity of information, to a large extent second-hand, and in some cases it would seem that he has failed to get a proper grip of his material; while in others he has undoubtedly drawn conclusions from false or insufficient premises, as there will be but little difficulty in demonstrating, and thus in more than one important point the value of his researches has been neutralised.

When surveying the accumulation of literary and historic material that lies before me, after going through and verifying the facts and data comprised in Major Hurst's articles, I can only regret that a writer with the wide floricultural knowledge and consummate literary skill of the late Shirley Hibberd has not had the handling of it. We should then have seen the raw material and plain facts deftly woven by a practised hand into a harmonious whole, and should have had presented to us, replete with every needful accessory of detail, that which might justly claim to be a history, fascinating and holding the reader, as was the rule when that great writer undertook the task of historical floral investigation, beneath the spell of his inimitable style.

The three separate articles referred to in the opening paragraph cannot in the space at disposal be treated individually, and there is really no object in doing so. Major Hurst has collected a series of quotations and extracts from various authorities without making any serious endeavour, in some instances, either to prove or disprove their accuracy. The mere gathering together of a collection of quotations, or of facts, chronological or cultural, without any apparent or definite object is not a history. Book titles are here and there misquoted. Some of the authorities upon which Major Hurst seems to have relied implicitly can easily be proved to be unworthy of the trust he reposes in them, and consequently the result is scrappy and disjointed.

In examining the early authorities on Rose history one is bound to concur in the expression of opinion that a careful search reveals no evidence in support of the oft-repeated statements in English horticultural literature of the 19th century, that the Moss Rose was introduced from Holland in 1596. One of the earliest modern writers to say so is Thomas Rivers, junr., in the *Rose Amateurs' Guide*, 1837. It would serve no useful purpose to enumerate the various authors who followed suit. One of the latest is the Rev. J. H. Pemberton in his recent work, *Roses*. Even the eminent English rosarian William Paul, in 1845, says, "on the authority of botanists," without naming them, "the year 1596 saw several species of Roses introduced to England, among

them being the Moss (*R. centifolia muscosa*)." Neither Mr. Pemberton, nor Mr. Paul, nor indeed any other writer who makes this assertion enlightens us as to the name, English or Latin, that this supposed original Moss Rose bore nor in what old work the fact is recorded, but in passing it may be observed that the name was most assuredly not *muscosa*, for as a specific name it will be seen later that the word was not used in connection with a Rose for many years afterwards. Instead of accepting such unsupported statements modern writers ought to have been more cautious, and have gone back to contemporary authorities and subjected such statements to a practical test.

It is astonishing to anyone accustomed to research work to read in the Rev. J. H. Pemberton's book on Roses such a paragraph as this—"the common Moss, which came from Holland in 1596 . . . and it is remarkable that no varieties of the Moss were in cultivation between 1596 and the end of the eighteenth century." That very fact alone when once ascertained, and it can be without much difficulty, ought to have raised in the author's mind the question: Was it really a Moss Rose that was introduced in the year named? and is it possible that so distinct and so singularly beautiful and attractive a variety of a popular garden favourite, such as the Rose has always been, could in those far-off times when flowers were much less numerous than in these later days, have been obliterated; or if actually introduced as alleged that it could have been utterly ignored by every writer on Roses for upwards of a century? Major Hurst, with the same idea in mind, expresses it well when he remarks that the Moss Rose is a variation so striking that it could hardly fail to be noticed by the most casual observer. No! the thing is inconceivable, and the plain truth or the matter is that the Moss Rose was never imported into this country either from Holland or elsewhere in, or prior to, 1596, despite the bald and unsubstantiated reiteration of modern Rose writers.

It is no part of my present purpose to contradict without reason or to affirm without proof. There is far too much of that kind of so-called argument in horticultural literature, and such methods may be left to those persons who are content to copy the errors of their predecessors, and thus spare themselves the trouble of embarking upon a course of independent original research!

In pursuance of this intention I shall first of all deal with the mystic date of 1596, and that as briefly as the importance of it will permit, and then follow on in their proper sequence with some of the other questionable points that arise on a perusal of Major Hurst's compilations. Students of horticultural literature will need no reminding that in that year John Gerard published a *Catalogue of Plants* which he had collected, and were then growing in his garden at Holborn. Among them are enumerated sixteen different kinds of Roses, some, if not all, of which had long been in cultivation in this country before coming into his hands. They are all more or less fully described, and fourteen of them are figured in his *Herbal*. Among them is one called *R. holosericea*, or in current English of the period, the Velvet Rose. At one time it was considered that *R. holosericea* was identical with the Moss Rose, but this opinion has been abandoned as indicated in a footnote to Major Hurst's article in the *Journal of the R.H.S.*, and also in another one to his article in the *Rose Annual*.

It may usefully be observed at this juncture that, in some of the old books published after the actual introduction of the Moss Rose, both the Velvet Rose and the Moss are given as separate varieties. Thus in *Furber's Catalogue* in the 1724 edition of Miller's Dictionary, they are both entered separately. In *The Compleat Florist*, 1740, the *Catalogus Plantarum*, 1730, and other similar publications the coloured figures of these two Roses depict varieties that are quite dissimilar. *C. Harman Payne.*

(To be continued.)

PLANTS NEW OR NOTEWORTHY.

EUONYMUS WILSONII, SPRAGUE.

PREVIOUS to the introduction of this species, *Euonymus japonica* and its varieties and allies, amongst which must be included *E. radicans*, were the only hardy evergreen Spindle-trees in cultivation. It is very distinct from them, and represents a curious group in the genus with prickly fruits. According to Mr. Wilson's note on one of the labels of the specimens of his own collecting, he appears to have found it as a kind of climber and growing up to 20 feet high. But, so far as I have seen, it promises under cultivation to be a loose-habited bush rather than a climber. Its leaves are of leathery texture, 5 to 6 inches long, 1 to 1½ inch wide, of lanceolate outline, with a long, slender point and very shallowly toothed. Like the young shoots and other parts of the plant, they are quite devoid of pubescence. The flowers are pale green, produced in densely furnished cymes. The sprays exhibited by the Hon. Vicary Gibbs at the R.H.S. Show on June 7 and 8 were very profuse in blossom and quite ornamental (Fig. 21). It is much to be hoped that fruits will develop at Aldenham, for I do not think they have yet been seen on cultivated plants, and they are very curious and probably effective in colour. Judging by the few fruits on Mr. Wilson's specimens in the Kew Herbarium, the capsules appear to be yellow, and they are thickly set with awl-shaped spines about ½ inch long.

This shrub is evidently quite hardy, and may be propagated by cuttings taken in July or August and put in a close, gently heated frame. Probably its profusion of blossom this year is due to the heat of 1921, and, so far as I know, Mr. Vicary Gibbs is the first to have had it in flower. It is a native of Mount Omi, in Western China, and was discovered and introduced to the Coombe Wood Nursery in 1904 by Mr. E. H. Wilson.—W. J. B.

HYBRID OLEARIAS.

THE interesting correspondence by Sir Herbert Maxwell and Mr. Irwin Lynch on the behaviour of plants from the southern hemisphere in northern gardens is worth following up. In the wonderful collection of Sir John Ross, of Bladensburg, at Rostrevor, two strange *Olearias* appeared spontaneously some years ago. The conditions there are peculiarly suited to New Zealand plants and to some Australian ones also. One of the apparent hybrids shows evidence of being a product of *Olearia arvicenniaefolia* × *Olearia nitida*. It forms a handsome shrub of rapid growth, producing its flower heads abundantly in June from the axils of the leaves on shoots of the previous year.

The ray florets number about seven to each head, and are pure white, half an inch in length and about 1-12 of an inch broad; the involucre consists of four series of imbricated softly hairy scales. The leaves vary from 1½ in. to 3 in. long and from ½ in. to 1 in. wide, tapering to both ends, the base ending in a petiole about half an inch in length; the upper surface is dark green, while the lower surface is clothed with a dense, dull white tomentum, the margin being remotely and irregularly toothed.

The other hybrid is supposed to be the result of a cross between *O. argophylla* and *O. macrodonta*. It is a somewhat stouter shrub, with larger leaves (Fig. 23, p. 55), more numerous and smaller flower heads, produced in a more or less corymbose manner. The larger leaves are up to 4 in. long and 1½ in. wide, tapered to both ends, but more sharply towards the apex, while the base is often oblique; the petiole is nearly ½ in. long. The upper surface is at first pilose, but later becomes glossy green, the lower surface remaining densely coated with a yellowish-white tomentum. The margins are coarsely toothed, and approximate in this respect to *O. macrodonta*.

The parentage of both hybrids is largely inferred from the fact that the parents are

growing in proximity to the position in which each hybrid was found.

Of the four species mentioned, it will be noticed that three are natives of New Zealand, while the fourth, *O. argophylla*, is Australian. The size of the leaves is taken from plants growing at Glasnevin, but under more favourable conditions they might easily be much larger. J. W. Besant, Glasnevin.

TREES AND SHRUBS.

GYMNOCLADUS CANADENSIS.

ALTHOUGH recorded as being first introduced to Britain by Archibald, Duke of Argyll, in 1748, and planted at Whitton, Middlesex, very few large specimens of *Gymnocladus canadensis* exist

among the first to fall in autumn, though the leaf-stalks remain until later. The leaves are bipinnate, 1 to 3 ft. long and 9 to 24 in. wide, with from 4 to 10 or 11 pairs of leaflets. With few exceptions the trees are dioecious, the Kayhough specimen having staminate flowers borne in a racemose corymb, while the flowers on pistillate trees are arranged on a larger raceme.

A second species of *Gymnocladus*, *G. chinensis*, Baillon, is, as the name suggests, a native of China. It is, however, on the borderland of hardiness, and only suitable for planting in the mildest parts of the country. Both species are best propagated by means of imported seeds, which are not difficult to obtain. Among a consignment of seeds recently received at Kew from China was a packet of the *Gymnocladus*, the seeds germinating freely.—A. O.



FIG. 21.—EUONYMUS WILSONII.

to-day in our gardens. The flowering of a tree about 50 ft. in height at Kayhough, Kew Gardens Road, Kew, is my reason for writing this note and drawing attention to a tree with very ornamental foliage. Planted by the late Mr. Charles Wright in 1878, when it was said to be twenty-two years old from seed, his daughter, the present owner, is justly proud of this tree, and also of a beautiful specimen of *Taxodium distichum* planted at the same time, still carrying many of the cones produced last year.

G. canadensis—the Kentucky Coffee—is a native of North America, and, though found over a wide area, it is nowhere common. Some of the native trees exceed 100 ft. in height. The tallest tree in this country is said to be one at Claremont, between 60 and 70 ft. in height. An attractive foliage tree in summer, *Gymnocladus canadensis* is also readily recognised in winter by its rugged wood with few branches and thick branchlets. Its leaves unfold late in spring, but they are nevertheless

KOELREUTERIA PANICULATA.

ONE of the best shrubs for town planting is *Koelreuteria paniculata*, which was introduced to this country from Northern China in 1765. In its native country it is a small tree; but here it generally attains a height of from eight to twelve feet. The shrub is hardy in, perhaps, every part of the British Isles, but it will give the best results if placed in a sheltered corner, and planted in a rich soil. Under these conditions it will grow and flower freely, and although in its growth it is rather irregular, it is certainly well worthy of a place in the garden. It is remarkable alike for its flowers in summer and its foliage in autumn, and these two qualities render it a valuable aid in ornamental planting. The bright yellow flowers, which are produced in large panicles during July and August, stand out well above the foliage, while in the autumn the leaves assume beautiful tints of yellow, bronze, and purple. Robert H. Jeffers.

The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the DUKE OF MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Miltonia.—*Miltonia vexillaria*, its many varieties, and the numerous hybrids derived from them, comprise the most showy and popular members of the genus. They are mostly vigorous and very floriferous under good treatment, and their flowers will remain on the plants in good condition for a considerable time, and make a considerable display over a long period. When growing strongly they often start into growth before the flowering period is over; therefore, the roots should never be allowed to suffer for the want of water, even whilst the plants are at rest. Those plants which produced their flowers early in the season, and were rested as advised previously, are commencing to grow actively, and those that require fresh rooting material may have attention at this season, soon after new growth commences. I find that it repays to repot these plants annually, for, if the compost becomes decayed, a general decline in the plants occurs. Young, vigorous plants that require more root room should be shifted into larger pots, or pans, which I prefer, with as little root disturbance as possible. Exhausted plants, or those that have lost their centres, are best divided, and potted afresh in small receptacles, to make specimens next year, thereby keeping up a succession of young and vigorous plants. The best potting material should be used, and it is advisable to separate it thoroughly of all earthy particles. A suitable potting compost consists of equal parts of *Osmunda* fibre, *Al* fibre, and *Sphagnum* moss, with some half-decayed broken leaves added. The pots, or pans, should be half-filled with drainage material, as these plants are purely surface rooters, and in no case should they be over-potted. Potting should be done moderately firmly, bringing the heads of the live moss to the surface to eventually grow and make a green, cool surface.

Treatment after Potting.—After they are repotted the plants should be placed together in a house, where an intermediate temperature is maintained, staged in full exposure to the light to prevent them becoming drawn, and kept shaded from strong sunshine. The supply of water at the roots during the early stages of growth is of great importance, as if too much is given the roots will die and the plants receive a check. The cause and effect of too little or too much moisture is much the same; hence the necessity of careful observation on the cultivator's part. On bright days slight spraying overhead will be most beneficial, and be the means of keeping the plants in a clean and healthy condition. With the aid of the late summer blooming forms and the autumn flowering ones, it is possible to maintain a display of these beautiful flowers for fully six months of the year. The re-potting of the late flowering varieties is best deferred to a later period, but as they succeed in similar material and under the same conditions, their culture is similar, except that, being later in making their growth, they require attention accordingly. Un-suitable atmospheric conditions should be avoided. Too much heat will result in an attack of thrip and other insect pests, and the young growth will damp and fall off in cold, damp conditions.

THE KITCHEN GARDEN.

By JAMES E. HATHAWAY, Gardener to JOHN BRENNAND, Esq., Baldersby Park, Thirsk, Yorkshire.

Cabbage.—A small sowing of Cabbage should be made in late districts. Sow the seed in drills made one foot apart and well cover it. Scatter a good dressing of wood ash on the soil, as this will help to deter insects; if

birds are troublesome cover the seed bed with a net. Ellam's Early and Sutton's April are two of the best sorts for present sowing.

Onions.—The recent heavy rains and cold nights have been favourable to attacks of mildew, which should be checked immediately by dusting the rows with lime and soot, and also flowers of sulphur when the foliage is damp.

Swedes.—The garden varieties of Swede are very useful late in the season. The seed should now be sown in drills made 18 inches apart on ground which has been recently cleared of early Potatoes. As soon as the plants are growing freely, give them a dressing of artificial manure.

Vegetable Marrow.—Marrow plants are growing and cropping freely, and the roots should have liberal supplies of liquid manure made from sheep or deer droppings, soaked in a tub of water.

Brussels Sprouts.—The early plants of this vegetable are growing freely, and if they show signs of falling over support them by placing earth up to the stems or by stakes. Keep the ground free from weeds, stirring the soil freely with the Dutch hoe.

Shallots.—These bulbous plants are now ripe and should be harvested and laid on open trellises to become thoroughly dry. If allowed to remain in the ground the plants will commence to make fresh growth.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir C. NALL-CUNN, Bart., The Node, Codicote, Welwyn, Hertfordshire.

Euphorbia pulcherrima.—The earliest-rooted plants of *Poinsettia* should now be ready for their final potting, and the same treatment may be extended to these plants as was advised for *Euphorbia jacquinaeflora*.

Chrysanthemums.—Plants intended to produce large blooms, that are growing in their summer quarters, should be given every attention with regard to tying the young shoots to prevent them from being broken by high winds. The shoots should be examined frequently, and all side growths removed as they appear. The receptacles are now becoming well filled with roots and it will be found necessary to examine the plants three or four times daily during hot, dry weather for watering. A little soot water applied to the roots at intervals will be found to be very beneficial to the plants. Earwigs are sometimes troublesome, and means should be taken to trap these pests. Bean stalks cut into pieces nine inches long form one of the best traps for earwigs, which should be blown out of the Bean stalks every morning into a vessel containing an insecticide.

Winter Flowering Begonias.—The earliest rooted cuttings of *Begonia* belonging to the tuberous section, such as *Optima*, *Elatior* and *Exquisite*, may now be potted for the last time in 6 inch receptacles, which is the most useful size for these plants. Where a good fibrous loam is obtainable, the compost for this potting may consist of three parts loam and one part leaf mould and manure from a spent Mushroom bed, the last after it has been passed through a fine sieve. A little bone meal and sufficient sand to render the compost porous should be added. The plants should be grown in an intermediate temperature and kept shaded from the direct rays of the sun. Syringe between the pots twice daily on all hot days, and fumigate the house occasionally to destroy mite and other pests that check the growth of these plants.

Begonia Gloire de Lorraine.—The earliest rooted plants of this *Begonia* are growing freely, and the growths should be supported by small, neat stakes. Later inserted cuttings of this useful *Begonia* should receive attention with regard to potting, as they become ready; if grown in large 60-sized pots and fed judiciously they will make useful plants for decorating purposes, and are particularly suitable for placing in small ornamental bowls in the dwelling rooms.

HARDY FRUIT GARDEN.

By H. MARKHAM, Gardener to the EARL OF STRAFFORD, Wrotham Park, Barnet.

Strawberry Beds.—As soon as the plants have been cleared of their fruits remove the litter and gather up the nets, which, when perfectly dry, should be stored in a dry, airy shed. The beds should then be weeded, the plants trimmed of the runners and all superfluous growths, and the soil lightly forked over, and then well manured, to encourage the development of strong, fruitful crowns for next year. In deep, mellow soils where the plants are apt to grow too strongly manure should be used sparingly, but it may be liberally applied on light, shallow land. The heavy rains have suited the plants, and that, together with a thorough cleaning of the bed, should prove very beneficial to the plants in building up good growth and making strong crowns. I usually destroy a certain number of the oldest plants each year, and plant afresh a given number to meet the requirements. A change of stock is necessary occasionally.

Thinning Fruits.—Peach trees cropping heavily should have their fruits reduced to the number required to ripen on each tree. Young trees making strong wood may be allowed to carry heavy crops, but older trees covering a large amount of wall space should not be over cropped, as not only will the fruits be small in size and wanting in flavour, but the trees are liable to be crippled for next season. Peach shoots should be trained thinly; those of medium growth with strong, green, leathery foliage, free from red spider and thoroughly matured, are the best for cropping.

Summer Pruning.—This work should be undertaken, but do not prune the shoots too severely at this season, as this results in the buds forming fresh shoots instead of remaining dormant until next spring. All shoots required for furnishing the trees, where space is vacant, should be neatly attached to the walls or trellises. Stop and rub off all gross growths, and thin out some of the other shoots that are not wanted, in order that light and air may reach those remaining. Where young trees are making strong, gross shoots, hard pruning will not bring the wood into fruitful bearing.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

Composts.—If a good supply of loam has not been secured, no further time should be lost in getting it cut and stacked, and provided it is intended solely for use in the orchard house, proper correctives and fertilisers may be added in layers. Whether wireworm is suspected to be present in the turves or not, a liberal dusting of soot should not be omitted. Old lime rubble and burnt earth may be added to heavy loams, whilst marl and old cow manure will improve light, sandy soils. The latter may be further improved by liberally pouring liquid manure over the stack; indeed, on most loams this fertiliser might be used with advantage.

Peaches.—As the trees in early and succession houses are cleared of their fruits, prompt attention to pruning, cleansing, and rearrangement of the shoots will be necessary. All superfluous wood which has borne fruit should be cut away. The borders may be lightly forked over to ensure an even distribution of water to the roots, and mulched or otherwise, according to the vigour or weakness of the trees. If the wood is fairly strong and the foliage good, it is best to err on the safe side and withhold rich stimulants. On the contrary, if the trees from age or over-cropping show signs of weakness, they may be stimulated with such fertilisers as diluted liquid manure and soot water. The trees must be kept clean by occasional syringings with insecticide and liberal evening syringings with pure water. From this time forward, the ventilators may be left constantly open.

Succession Peach Houses.—Trees with fruits that are swelling fast need an abundance of water at the roots, and should be syringed thoroughly twice daily with soft water. It is better to reduce the syringing to once a day than to use water charged with lime on woolly skinned Peaches. It is more than probable that the long spell of drought may be followed by the opposite extreme. If so, soft water should also be applied freely to the roots of inside borders, no matter how recently they may have been watered. An abundance of air should be admitted from the time the fruits begin to colour, and their size may be increased by pinching the points of those shoots which in due course will be removed. The complete closing of the house at this time of the year is not absolutely necessary, as, with syringing, the atmosphere may be kept charged with moisture without excluding all the fresh air. If the fruits from these houses are intended to precede the supply from open walls, the trees should now be well thinned and the shoots tied down, otherwise the young growths may be allowed freedom for some time longer, as Peaches not only make slower progress, but produce the finest fruit under the natural shade of their own foliage. All borders, inside or out, should be well mulched with fresh stable manure. By adopting this plan and adding a little fresh material at short intervals, the moisture constantly arising from it keeps the foliage clean and healthy, and reduces the necessity for direct syringing to one operation on the hottest days.

THE FLOWER GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

Ornamental Crabs.—To the ornamental Crabs referred to in my notes in the issue of June 24, may be added *Pyrus Malus transitoria toringoides*, which was sent home by Mr. E. H. Wilson. The plant has pretty, Hawthorn-like foliage, and develops a wealth of pale pink blossoms, which are succeeded by small Cherry-like fruits in abundance. Many more quite distinct sorts, each with its own particular beauty, might be mentioned. There are also hybrids of garden and nursery raising, which, though pretty in flower, are chiefly attractive in the autumn, when in fruit; of these probably the pick are P. M. Veitch's Scarlet, P. M. Cheal's Crimson, P. M. John Downie, three sorts with fine deep red coloured fruits, and P. M. Montreal Beauty, with very large fruit of blending yellow and red tones. With these may well be joined P. M. *baccata* (the Siberian Crab), of which there is a yellow-fruited as well as a red-fruited form.

Propagation.—The raising of fresh Alpine plants and shrubs to replace old worn out specimens should be undertaken now. It is little short of wonderful the variety of plants that may be raised in this way in an ordinary cold frame. The bulk of our hardy plants at Aldenham are propagated in this way and largely during the present month. Well-drained, 48-sized pots filled with a good compost of loam with which is incorporated a plentiful amount of sand, the whole moist, but not wet, should be prepared, and into these the cuttings should be dibbled, making them firm at the base but loose at the collar. In the case of shrubs we generally commence with such subjects as *Philadelphus*, *Deutzias* and *Diervillas*, starting with those which make strong, young shoots, which ripen quickly, for once the wood gets ripe it is not easy to strike the cuttings. The propagation of *Viburnums*, *Veronicas*, *Genistas*, *Abelias*, *Ceanothus*, *Cytisus*, *Cistus*, and *Forsythias* follows in quick succession, and then the rooting of various other kinds, such as *Escallonias*, *Euonymus*, *Loniceras*, *Buxus*, and many others follow, working right through each group once the work has started, to the end, and leaving such items as *Ligustrums*, *Loniceras* of the Honeysuckle group; *Poplars*, *Salix*, and similar classes for propagation during a later period of the year.

THE ROSE GARDEN.

THE ROSE TRIALS AT BAGATELLE.

THE report of the trials of the new Roses at Bagatelle which was published in your issue of July 8, is one that demands the attention of all rosarians. Those who were present at the trials last season stated that they were almost a farce. The soil, of course, was very dry as the result of drought, and the Roses were simply not in a condition to be judged. Despite this, the jurors went on with their work and made awards in the usual way. The trials should have been postponed for another year. The varieties simply did not get justice. This season a similar state of affairs has to be recorded.

Your correspondent (see page 24) states that only a few flowers were to be seen, but the jury decided to go on and make awards. A Gold Medal was awarded to a variety named



FIG. 22.—ROSE LADY ROUNDWAY; NATIONAL ROSE SOCIETY'S CERTIFICATE OF MERIT, JUNE 29 (SEE P. 25).

Elvira Aramayo, which was sent in by a Dutch firm of nurserymen. Your correspondent also states that its bloom was almost over and did not seem to possess much substance. The raisers of this Rose had it staged for a Gold Medal award at the recent show of the National Rose Society at Regent's Park. It was unanimously turned down. It was indeed a poor thing, and a long, long way behind the calibre and dignity of Roses as we expect them to be in these days. It has, nevertheless, received a Gold Medal after trial at Bagatelle. One of the jurors at Bagatelle has described the place as "a barren sand-heap," and states the soil is totally unsuited for the cultivation of Roses.

I have advised Mons. Forestier that my firm can no longer send Roses for trial at Bagatelle, and that as conditions are at present it is only a waste of time and money. I received a reply from Seville that he is at present there on holiday, but that he will write me fully on his return to Paris. In the meantime, he informs me that a further inspection of the Roses will be made in September. That is all very well, but what of the Roses that were turned down last season? They never had a chance, for they were never seen in condition. They were literally burned out of the ground. Raisers can have no confidence in Bagatelle unless matters are very materially altered. *George M. Taylor, Edinburgh.*

GARDENERS' CALENDARS.

I THINK I can approximately answer the Rev. Joseph Jacob's query so far as it concerns Evelyn's dedication of this *Kalendarium* to Cowley. Before doing so it may be permissible to inquire did the first edition (1664) have for its frontispiece the picture Fig. 9, on page 20. I think that must be doubtful, for so far as my knowledge goes, the first edition of the *Kalendarium Hortense* appeared in Evelyn's *Sylva* in folio, and was not issued in separate form. The separate and independent issues of the *Kalendarium* were either 8vo or 16mo in form. My copy of the *Kalendarium Hortense* is "the third Edition, with many useful Additions," and is dated MDCLXIX. The Epistle Dedicatory is evidently that of the second edition and begins as follows: "To Abraham Cowley, Esq. Sir,—This Second Edition of my Hortulan Kalendar is

yours," etc. Cowley's poem must have been added to some subsequent edition, as also was the frontispiece, for so far as I can discover, no issue of the *Kalendarium* is credited in the bibliographies with a frontispiece until the 8th (1691). With regard to that illustration, of course, Mr. Jacob is aware that it originally formed the frontispiece to the *Jardinier Francois*, by Nicolas de Bonnefons, a 12mo, published first in 1651. John Evelyn translated that work into English, which ran into several editions. He called it *The French Gardiner*. I have two editions, one dated 1658, and the other 1675. In each of these volumes Evelyn reproduces as the frontispiece Bonnefons' picture, but in the process of reproduction has reversed it. I had no idea that Evelyn also used this picture for the frontispiece of an edition of the *Kalendarium*, the only apparent difference between that and the original being in the label where "*Kalendarium Hortense*" is substituted for "*Le Jardinier Francois*." Some of these title pages were by artists of no mean ability. It has often occurred to me that it would be a most instructive and interesting work of exceptional utility if Mr. Jacob, or some other equally enthusiastic bibliophile were one day to give us a book containing examples in photogravure, or other similar process, of some of the rare old frontispieces and title pages. *C. H. P.*

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 5, Tavistock Street, Covent Garden, W.C.2.

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

CALCEOLARIAS

CALCEOLARIAS comprise annuals, herbaceous perennials, and shrubby perennials. Of the annual kinds *Calceolaria scabiosaefolia* is probably the best decorative species, but is apt, through self-seeding, to become a weed. It was introduced exactly a century ago, as also, in the same year, were several shrubby species, of which *C. rugosa* and *C. integrifolia* are the best. These and a few others kept their place in flower gardens till at least 40 years later. *C. Fothergillii*, the first of the herbaceous section, was introduced as early as 1777, but it was not until after the year 1822, when *C. corymbosa* was introduced, that Calceolarias engaged the attention of gardeners. In 1830 a series of hybrids was raised from herbaceous species, several of which were distributed by Young's, of Epsom, in the succeeding year, that named after himself being the pick, and it was long grown afterwards, though, judged by the coloured figure of it, the variety was a very poor one. This and a few more, the names of which Paxton, along with one or two more hybrids raised by others in the same year, included among the species in his *Botanical Dictionary*. Young's varieties were raised by one Morrison, gardener to Lord President Hope of Granton. He anticipated Darwin by cherishing and acting on the theory that a crossed plant would produce more seeds than a self-fertilised one, and it was in putting that theory into practice that these varieties were raised. Their appearance seems to have caused a commotion among botanists, and Professor Grahame, of the Edinburgh Botanic Gardens, contributed an article to a scientific journal upon their history and evolution. It is noteworthy, too, that most of these hybrids displayed spots and blotches, and were certainly the forerunners of the florists' section of later years.

All sections were cultivated under glass, plants of the shrubby section having been grown to five feet across (that was the day of specimen plants!). It was long before the propagation of these was understood, it being usual to strike cuttings in August in heated frames, a fair description of the process being detailed in *The Gardeners' Chronicle* for 1845. Five years earlier, at the beginning of flower massing, such species as *C. rugosa*, *C. integrifolia*, *C. viscosissima* and *C. salviaefolia* were being employed to furnish beds in flower gardens, and in 1845, according to Paxton, *C. amplexicaulis* was introduced. In *Hortus Veitchii* the date is given "about 1849." The plant, however, was distributed all over the country before that year, and was figured in the *Botanical Magazine*, t. 4,350, in 1847. Probably, therefore, Paxton was correct in the date. *C. amplexicaulis* is a fine species, and is only surpassed by *C. Burbidgei* and *C. Chibranii*. I have frequently had standards of it in the open up to 5 feet or 6 feet in height. These were produced from cuttings inserted in September, stood in cold frames till November, and after that the plants were wintered in a heated structure, to be grown on rapidly in the spring and planted out in May. Along with Prince of Orange, a later dark variety, it is the least hardy of the shrubby section. For long it retained its popularity as a bedding plant, most growers pegging down the somewhat straggly shoots. In the Glasgow Park a dwarf variety of similar colour used to be largely grown, by name, I think, Eastwood Gem. About the middle of the century, Sultan, Kentish Hero and Kayn were popular sorts, and a little later the long-time popular *aurea floribunda*, while in 1862 *C. equari-*

sis was greeted as the finest plant ever put into the hands of flower gardeners. A year or two later Ambassador, from Lang of Kirkcaldy, caused a great sensation, and I recollect how every scrap was propagated, the chief bed in the garden furnished with it, but the said bed was the failure of the year! In 1856 Calceolarias were attacked by a disease in the stems that decimated stock almost everywhere. After a while the disease lost its virulence, and again the Calceolaria looked up, to be, some 30 years later, once again attacked. I tried to overcome the disease by planting out in March, but finally *C. amplexicaulis* alone could be depended upon to withstand it. One of my men, on taking up a situation, had an amusing experience through introducing this practice. The old men on the estate, where previously Calceolarias had been prepared for planting in pots, assured him all would be killed, and he no doubt rose many degrees in their estimation when the success of the experiment proved him to be not the fool they thought.

With the exception of the two sorts above noted as somewhat tender, the best time to take cuttings is October, to be rooted in cold frames and freely ventilated after the beginning of the year. In spring, cuttings strike almost as readily as Verbenas, but under less hot conditions. The herbaceous section has all along been that favoured by florists, and we find the usual clash of opinion between Glenly and raisers as to the points to be aimed for in the obtaining of improved varieties. Glenly's objective was a flower perfectly globular in form, if small. Gaines and others affected as large a flower as possible, though less inflated, and therefore deficient in the property that Glenly esteemed so much. The controversy died out long ago, and also it is long ago since florists had the round and large flower in conjunction. The many coloured illustrations in the florists' magazines of that period show small flowers with markings of no great beauty, yet in the course of another 20 years plants bearing flowers of the type we are all familiar with had become general. The earlier strains, moreover, were not so amenable to cultivation as the later, in which something of the shrubby section had been introduced. And also gardeners, up to the middle of the century, propagated named varieties by means of cuttings and layers, novelties appearing every year from Green, the grower of mammoth plants, and a few others. Up to 1870 this practice was not yet obsolete. Roots were freely produced on basal growths, more especially when they were covered with some light compost kept moist and the plants kept cool and shaded. A little earlier than the middle of the century the whole system of cultivation was altered, and altered for the better, by growers for Covent Garden market. They grew them entirely from seed, annually selecting some of the finest seedlings for seed production, and each year making an advance in the quality of the flowers, till finally it was not worth while to cultivate Calceolarias by any other method.

As already stated, the early growers erred in coddling the plants, being unaware that in their native habitats the western slopes of the Andes—they revelled in damp, shaded positions. Given similar conditions under cultivation, these difficulties do not materialise. Seeds may be sown at any time from July to September; in July to provide the largest plants. The seeds are merely sprinkled on the sandy surface of the previously moistened compost, pressed very gently down, protected by a sheet of glass, and the receptacle stood on a cool, moist bottom in a shaded position, or even in a frame out of reach of sunshine; the seedlings are attended to, pricking them out and potting as required till danger of frost is imminent, and during winter keeping them in a low temperature, only just above freezing point during frost. Paradoxical as it may seem, while moisture is essential, they succeed best when not over-watered. I had at one time to

grow Calceolarias in a garden in which was a detached span pit of low pitch heated by a flue which was used only to keep out frost. Therein the plants were watered only at long intervals, and thrived exceedingly while the insects that usually prey upon them never put in an appearance. The final potting should be done in February. At that time the lower shoots should be pegged down to give them more space to develop. R. P. Brotherston.

MR. KINGDON WARD'S SIXTH EXPEDITION IN ASIA.

No. 20.—THE LITANG-YALUNG DIVIDE.

We spent the next three days in camp on the moorland, ascending in search of flowers; but it was not till the evening of the third day, when we descended to the village in the valley, that we began to find new ones. Now that the rain had come, drenching the mountains with cold water, there was a distinct lull in the appearance of new plants, though all those which had already ventured to peer above ground started at the shock as if it were the touch of a spur, and grew amazingly. There are two great flowering periods in these mountains of Western China—early spring, when melting snow supplies the water (May), and autumn, when the reluctant sun shines out again and warms a saturated world, calling the Gentians and Saxifrages out of the ground (September).

There was, however, one fine plant above our camp, as beautiful as anything we had seen yet. This was a violet-flowered *Meconopsis* of the *Primulina* section, growing in a remote valley head on a greasy slope. The central scape, about six inches high, rising from a rosette of leaves, terminated in a single, large, nodding flower of shimmering violet silk, tossed by the wind and battered by the rain, but splendid despite all. From the axils of the leaves rose two or three shorter scapes surrounding the central one; but these were not as yet in flower. The curiously bent stigma and slender, obconic capsule were distinguishing features. There was a fairly large group of these beautiful Poppies here, some growing on the steaming, grass-clad slope, others springing up amongst the boulders, perhaps two or three dozen plants in all. Later, I found a few plants in fruit amongst dwarf *Rhododendron* scrub on the open moorland, but the species is certainly rare, at least in this locality.

The section *Primulina* contains some of the most lovely Sino-Himalayan blue Poppies, and the addition of this charming plant—for it conforms to none of the eight known species—will surely be welcome to horticulturists. Unfortunately, it seems to be monocarpic.

On the evening of the third day in this rather bleak camp, we descended to the village in the valley, not far distant. As soon as we got down to the torrent we began to find flowers in unexpected numbers. One of the first was *Primula Cockburniana*, hiding its rich orange flowers and mealy white pedicels in thickets of high grass and Bamboo, as though it could not brook the sunlight; there was little chance of its getting any at this season. *P. Cockburniana* is a Tatsienlu plant, so we really were getting into the Szechuan flora, though more than a hundred miles of mountains still separated us from Tatsienlu.

In the high meadow, in deep shade—quite a different situation to that taken up by *P. vincaeflora*—we found scattered plants of another *Omphalogramma* *Primula* in fruit. The plants were very tall, the capsules small, and the leaves narrow; the flowers we were left to speculate on. It might, of course, be *P. Franchetii*, known from Tatsienlu; but most of the *Omphalogrammas* seem to have a restricted range, so that it might equally well be something new.

* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 22, August 20, September 3, October 8, October 29, 1921; January 7, January 21, March 11, March 25, April 8, April 23, May 6, May 20, June 3, June 17, July 1 and July 15, 1922.

A tall, slender *Codonopsis* with blood-shot, nodding flowers crowded the meadows by the streamside, and further on we came to clumps of Iris with queer slate-blue flowers, both standards and falls being very narrow; violet Irises also grew here in profusion.

The stream was lined with trees of *Hippophaë rhamnoides*, which in autumn would, I knew, be a fine sight. Masses of *Primulas*, familiar to us ever since our arrival in the country, crowded the marshes. It was here, under the *Hippophaë* trees, that we found a rather coarse *Muscarioid Primula*, new to me; but its flowering time was already past. We spent three days at a little Hsigan village here near the valley head and 11,000 feet above the sea. For dirt, gloom and smells, a Hsigan house will hold its own with most Tibetan competitors; how I longed for the commodious houses of the Chung-tien Tibetans!

The valley here began to split up, and there were meadows fringing the stream, where a host of brilliantly coloured flowers grew rankly. A cloud of blue *Cynoglossum* occupied one territory, followed by a galaxy of crimson *Pedicularis*, against a background of golden *Potentilla*. Everywhere the little crimson spires of *Primula littoniana* (or maybe *P. Vialii*) were pricking through the ruck.

We also found another dwarf *Rhododendron* here, possibly two, the second being a form of *R. racemosum*; but these, of course, were long past flowering. Had the weather been at all kindly disposed, we should have seen snow peaks in one direction or another from above our village; but though we did, indeed, have intervals without rain, it was always far too cloudy to see even the nearer mountains. The Campanulaceae were now coming into their own; besides the species of *Codonopsis* referred to, a second species with lavender-blue bells, changing to dusky purple at the base, grew in masses on the moorland. Two species of *Campanula* were also in flower, one a plant of the limestone, very like our own Harebell—the Bluebell of Scotland—but more dwarf, the second a tall, untidy thing with flowers of uncertain violet growing on rocky outcrops at lower altitudes. But it was not till the middle of August that the Campanulas attained to the height of their power, when all the twining species of *Codonopsis* and the alpine Campanulas were in full bloom. They heralded the beginning of autumn, which season pays scant respect to dates in Chinese Tibet.

On July 13 we started back for Mu-li, following the same route as before. The road is never quite the same going as coming, and one reason for this is certainly that on the return journey you are traversing fresh those parts of the route which on the outward journey you traversed in a somewhat faded condition.

We found *Primula septemloba*—or a dwarf form of it—in the wooded valley, and the little *Soldanelloid Primula* everywhere.

On July 16 we were back in Mu-li with our spoil; the rose-flowered *Malvacea Primula* by the bridge was now a fine sight, and it was during the next few days that we found the other two *Malvaceae* already referred to, one of them undoubtedly being *P. blattariformis*.

Although Mu-li is situated in a dry region, it would be a great mistake to suppose that it does not rain there. On the contrary, it rains very thoroughly in the wet season, and for six weeks on end it did scarcely anything else. Its dryness consists in the fact that the rainy season is short, and that there is a long dry season. There is a second wet season, but as this occurs in the winter, it is of little assistance to the vegetation, except indirectly.

Where there are snow peaks in the vicinity, it must rain fairly heavily at times, and the mountain ranges surrounding Mu-li get their fair share. During five days spent at Mu-li on our return from the Shui-lu (June 29-July 3), over an inch and a half of rain fell, most of it during the night. Throughout July and the first week of August it rained steadily, generally at night in the valley, by day on the mountains, or, rather, day and night on the mountains. Between July 18 and 23 at Mu-li I recorded 2.4 in. of rain, while ten days' rainfall in the mountains accounted for

another 4.7 inches. This, of course, is slight enough when compared with the rainfall in the southern and western parts of Yunnan. I dare say we had on an average 12 or 14 inches of rain in July, but it varied considerably in different localities. Anyhow, this rainfall, coming in the vegetative season, is sufficient to support a moderately rich flora on the mountains, with a certain amount of thin forest on the sheltered slopes. There is no temperate rain forest, such as is met with on the North East Frontier of Burma, nothing but mixed forest below, or woods of scrubby Oak, and Conifer forest above.

There are even a few plants of Indo-Malayan affinities—species of *Strobilanthes*, *Begonia*, *Impatiens* and *Hedychium*, genera which are enormously developed along the Burma frontier. Are these waifs which have arrived here fortuitously, or are they the remnant of a once more extensive representation? The fact that the whole of this region is extensively glaciated, and hence that the rainfall must

NOTES FROM WISLEY.

ALTHOUGH the spectacular effects of the spring and early summer have run their appointed course, Wisley Gardens are full of interest. On every hand serene content with the change in the weather is the chief impression one obtains from a tour of the gardens. Roses are effective and the *Viola* and Sweet Pea trials provide an interesting study.

The herbaceous borders are chiefly devoted to late blooming plants, and for the moment have little colour. One plant, however, makes a bright patch—*Glaucium flavum* var. *tricolor*—which is similar to our Sea Poppy, but 3 ft. high and with orange-coloured flowers.

Throughout the gardens many species of *Campanula* are in flower. On some of the ditch banks are masses of the pale blue *Campanula lactiflora*, behind which are the pink blossoms of *Rosa rugosa*. Near by is *C. latifolia* and its still more handsome variety *alba*.



FIG. 23.—A HYBRID OLEARIA: *O. ARGOPHYLLA* × *MACRODONTA*? (SEE P. 49).

once have been far heavier, inevitably leads to the latter conclusion. I even found on the limestone cliffs—and at no great altitude, either, 10,000 feet—during the first week of August, one of those really dwarf *Rhododendrons*, only a few inches high, with the flowers borne in pairs on long pedicels; a group almost peculiar to the mountain tops of the high ranges further west, enjoying a heavy rainfall. This plant, which was in flower, apparently for the second time, had a flat, almost rotate corolla, standing on edge—there is a little plant with rather larger flowers from the North-East Frontier of Burma which closely resembles it in habit. My Mu-li species, however, has flowers of a gorgeous Plum colour when seen by reflected light, but blood-red when seen with the sunlight streaming through it. And this is obviously the way to grow it, on a cliff edge high up against the sky.

This discovery brought our *Rhododendrons* up to over twenty species from the neighbourhood; and I dare say continued search would in time yield as many again; but they form a very different assemblage to those found even so near as Tachin or Atuntzu, and are strikingly less in numbers. The rain continuing, we returned to Glacier Lake Camp on July 23, going by easy stages. F. Kingston Ward.

In the rock garden our native Harebell is much in evidence, and also the variety *hirsuta*, which is a much finer plant, bearing large flowers on erect stems a foot high. Many plants of *Rampion* (*Campanula Rapunculus*), *C. rapunculoides*, and *C. glomerata* are to be seen scattered about the rock garden. A beautiful little gem is Farrer's *Campanula Billardieri* *Miranda*, which grows about four inches high and has nodding bells of a very pale greyish blue.

Another good plant is a bright, crimson-flowered form of *Thymus Serpyllum*, which attracted the notice of the Director, and was sent to the gardens. Two rock pinks deserve mention, *Dianthus Old Rose* and *D. Gladys Cranfield*, the latter having flowers of a warm shade of pink with a dark crimson centre. Among the shrubs on the rock garden *Philadelphus purpureo-maculatus*, with its purple-splashed blossoms is flowering well. In the wood the groups of *Lilium giganteum* are flowering, but are rather short in the stem owing to lack of moisture. In a heated tank in front of the laboratory is the Berlin variety of *Nymphaea stellata*. This plant is something of a barometer, as if a fine day is ahead the blue flowers are closed in the early morning, but if rain is imminent, they open very early. J. E. G. White.

MESEMBRYANTHEMUM AND SOME NEW GENERA SEPARATED FROM IT.

(Continued from page 24.)

41. *C. petraeum*, N. E. Br. (Fig. 24). Growths 5-6 lines long, 2-3 lines broad and $1\frac{1}{2}$ lines thick, obconic, convex and elliptic in outline at the top, glaucous-green or slightly bluish-green, marked in a somewhat regular manner with interrupted or continuous lines of confluent blackish-purple or very dark green dots; one such line usually extends over the middle of the top from each side of the orifice, and branching from or disconnected with this central line on each side are two simple or forked lines and one or two separate dots. Calyx 4-lobed. Corolla only seen in a dried state apparently about 3

exposed to the sun) dark green. Calyx 4-lobed. Corolla 3-8 lines in diameter, expanding in the evening, scentless; tube equalling or longer than the calyx; petals 30-35 in 2-3 series, milk-white. Stamens 15-20; anthers all more or less exerted, creamy-white or very pale yellowish. Style 1 line long; stigmas 4, rising to the base of the anthers, $1\frac{1}{2}$ lines long, whitish.—*M. scitulum*, N. E. Br., in *Journ. Linn. Soc. Bot.*, v. 45, p. 100.

South Africa. Locality and collector unknown.

44. *C. uvaeforme*, N. E. Br. Growths subglobose or grape-shaped, resembling the green grape called "Muscadine," pale green, with small, slightly confluent dots of a darker green.—*M. uvaeforme*, Haw., *Rev. Pl. Succ.*, p. 84.

South Africa. Locality and collector unknown.

The above description, copied from Haworth's account of it, is all that is known of this plant. I have not seen any plant that can be referred to it.

EEE.

Growths distinctly obcordate, with or without a slight ridge or keel extending from the orifice to the top of the convex lobule on each side of it, and often with the slopes of the notch on each side of the ridge more or less flattened. (Types O-Q). Species 45-49.

The six species comprising this small group are very similar in appearance and very difficult to discriminate by characters that can be set down in words, yet when seen growing side by side, can easily be distinguished. They all expand their flowers in the evening, or late in the afternoon, and the flowers of all the species are very pleasantly scented, something like Cloves, and of some shade of pink, except those of *C. placitum*, which vary from white to pink. The stamens (except in *C. placitum*) are numerous (30 or more) and whitish, with the upper series of anthers visible at the mouth of the corolla tube. But the size, shape, and general character of the flower of each species seems to be constantly different from that of the other species. So that in the following descriptions none of the above general characters are mentioned.

45. *C. ficiforme*, N. E. Br. (Fig. 26). Growths $6\frac{1}{2}$ -12 lines long, 5-9 lines broad, and

widely spreading, white for about one-fourth of their length at the base, the upper part bright pink. Stamens numerous in 3-4 series, with the

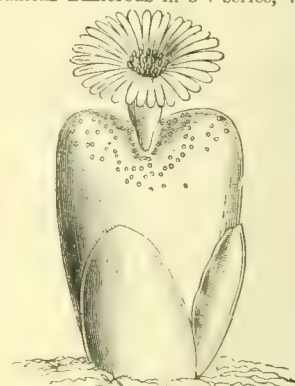


FIG. 26.—CONOPHYTUM FICIFORME, N. E. BR.

white anthers of the upper series just exerted. Style and stigmas imperfectly developed in the only flower examined.—*M. ficiforme*, Haw., *Rev. Pl. Succ.*, p. 83 (1823); N. E. Br., in *Gard. Chron.*, 1876, p. 743, and 1886, v. XXV., p. 373, Fig. 73.

Worcester Div. Near Worcester, Cooper.

The locality from which the original plant came is unknown, but it may very well have been the same as where Cooper collected it. Haworth states that he received it from Salm Dyck, in 1819, and there is a drawing at Kew of a plant of *M. ficiforme*, stated to have been received from Haworth in 1824, that is labelled as having been received from Bowie, "who says it grows on the rocks of Kogmans Kloof and Lange Kloof." I suspect these localities to have been given by Bowie from memory, and I much doubt their being correct. At any rate, the plant here described is the same as that figured in the Kew drawing, which must be taken to represent the type. N. E. Brown.

(To be continued.)

HEDGES AND THEIR MANAGEMENT.

For all practical purposes hedges may be divided into two kinds, useful and ornamental, the former being chiefly in use for protective purposes and keeping farm stock in bounds, and the latter in connection with private grounds, and for garden sub-divisions where ornament and not utility is of first importance. For plantation fences and field boundaries the Hawthorn, Beech and Hornbeam are mainly employed, while for purely ornamental purposes and where resisting properties are of little moment, the list of suitable shrubs is a long one, and includes, amongst others, several species of Berberis, the Box, Aucuba, Yew, Holly and Privet, in fact, almost any shrub that fancy dictates may be used. Where strength, hardihood and shelter are concerned no other shrub that I know can equal the common Hawthorn as a hedge plant, and for this reason it is more extensively used than any other in the formation of estate and farm fences. It



FIG. 24. CONOPHYTUM PETRAEUM, N. E. BR. NATURAL SIZE.

lines in diameter, with about 25 petals, probably whitish, in the dried flower seen usually marked with from 1-3 linear glands. Stamens all with exerted yellow anthers. Style about $\frac{1}{2}$ line long; stigmas 4, about $\frac{1}{2}$ line long, slightly thickened upwards.

Laingsburg Div., near Laingsburg, Pole Evans.

42. *C. vagum*, N. E. Br. (Fig. 25). Growths under cultivation variable in size and form, 5-7 lines long, 3-6 lines broad and $2\frac{1}{2}$ lines thick, some, as viewed from above, regularly elliptic in outline, others more or less distinctly six-angled, the angulation seems chiefly confined to the larger growths, obconic, with the top slightly convex and the larger growths slightly keeled, smooth, glaucous-green or greyish-green, with about 3 dots on each side of the orifice, behind the middle dot on each side extends a straight line of more or less connected dots, towards the middle angles, and on each side of that line at a little distance from it are one or two dots or a diverging line of dots directed towards the lateral angles, all dark purple-brown. Calyx 5-lobed, with the tube 2 lines long, and partly exerted. Corolla 7-10 lines in diameter, expanding in the evening, not scented, closed during the day; tube not longer than the calyx; petals 26-31 in 1-2 series, very lax, widely spreading, 3-4 lines long, very narrowly linear, acute, white. Stamens about 20, in 3 series, all more or less exerted from the corolla-tube; anthers light yellow. Style, half a line long; stigmas 5, erect, 1 line long, not nearly reaching to the lower anthers, filiform.

South Africa. Locality unknown. This species was sent to me by Prof. P. MacOwan, in 1878.

43. *C. scitulum*, N. E. Br. Growths 6-7 lines long, 4-7 lines broad, and $3\frac{1}{2}$ lines thick, obconic, somewhat convex at the broadly elliptic top (type E), with or without a slight transverse notch at the centre, greyish green, tinted with purple on the sides and marked on the top in a map-like manner with branching and more or less connected lines of a dark purple-brown or violet brown colour, or (if not



FIG. 25.—CONOPHYTUM VAGUM, N. E. BR. PHOTOGRAPHED AT 8 P.M. NATURAL SIZE.

$4\frac{1}{2}$ -7 $\frac{1}{2}$ lines thick, without or with only a faint ridge on the faces of the notch, which is not so deep as in the other species (type O.), light greyish green or somewhat glaucous-green, sometimes tinted with purple on the basal part, and thickly covered on the top with moderately large dark green conspicuous dots, all separate or a few of them more or less confluent into a short line, extending from the centre of the orifice on each side over the top, and a confluent line of them around the orifice. Calyx 4-lobed; tube much exerted. Corolla 10-12 lines in diameter; tube at first not longer than the calyx, finally exceeding it, white; petals 30-40 in few series, the outer finally recurved, the others

is of stout, stubborn growth, perfectly hardy, of fairly rapid growth, not at all subject to disease, long-lived, and readily propagated. Though by no means particular as to the quality of soil in which it is planted, the Thorn delights in a rather rich, brown loam, but detests in a marked degree stagnant moisture, and attains its greatest perfection at not too high an altitude. Few shrubs so well repay good treatment as the Thorn, and for this reason thorough preparation of the ground where it is to be planted is a point of great importance. The ground along the line of fence should be trenched or dug deeply, and thoroughly loosened to a depth of 18 inches or 2 feet; if of poor quality, a quantity of thoroughly decomposed farmyard manure may be added, and the whole left in a roughly-turned-up condition for a month or longer before planting is done.

Where it is intended to form a hedge in rather damp, low-lying ground it is advisable to plant slightly above the level of the surrounding ground, so that when trenching or digging is being carried out a slight mound may be raised along the proposed line of fence. Autumn, immediately after the fall of the leaf, is the best time to transplant the Thorn, when stout, well-rooted plants about 15 inches in height should be used. The usual method of planting is to stretch a line along the prepared surface of the soil, close to which a V-shaped trench of sufficient depth to permit of the roots being inserted and spread out, should be opened. Plant in a single line, which is preferable to the double row, about 8 inches apart, replacing the soil in the trench and tramping it firmly.

Both the Beech and Hornbeam make satisfactory hedges, and thrive better than the Thorn on exposed, high-lying ground, an advantage with the Beech being that a great proportion of the leaves are retained throughout the winter, thus rendering it valuable for shelter at that time. It is, however, subject to disease and insect attack. Compared with the Thorn, the Beech lacks rigidity, and is thus a less valuable farm fence, and this is true also of the Hornbeam, which, however, in stiff soils approaching clay, will thrive in a satisfactory manner.

Both the Holly and Yew are excellent hedge plants, but are most suitable for ornamental gardening, although the latter should be out of the reach of farm stock. Gorse or Furze hedges are valuable on poor, gravelly or sandy soils, at high altitudes, and on the Welsh and Scotch hill-sides are largely employed as subdivision fences. For the top of a dyke or sunk fence they are specially useful, and may be quickly raised from seed, 1 lb. of which will sow 100 yards of fence. In order to keep the Gorse healthy and bushy, pruning should be done immediately after the period of flowering, and cutting the plants down to ground level every third or fourth year is to be recommended. The Blackthorn and Myrobella Plum have been recommended for hedging purpose, but they are not employed to any great extent.

Ornamental hedges, as before stated, may be formed of almost any shrub that fancy dictates, and in Cornwall even the Escallonia is highly valued for that purpose; near the sea, at Penzance, I saw hedges of this shrub that were perfect wedges over 6 feet high and fully 4 feet thick. At Penrhyn Castle, in Wales, both the Hydrangea and hardy Fuchsia are employed for a like purpose, and not far distant hedges of the Tamarisk and Myrtle are not uncommon. In a young state especially, Berberis Darwinii makes one of the most beautiful hedge plants, and is especially valuable for subdivision purposes, but should be allowed to produce its flowers, and the same may be said of the Laurustinus, Sweet Briar and many other of the ornamental type of shrubs.

Amongst Coniferous trees several are in constant use as fences, including Lawson's Cypress, the American Arborvitae, Retinospora plumosa and Thuja gigantea. At Ken Wood there is a perfect hedge of the common Oak, and at Holwood, in Kent, the Mediterranean

Heath makes a capital boundary hedge of not too rampant growth, while at Oxford Gaultheria is largely employed in that way.

The after-management of hedges consists mainly in keeping the ground around the roots of the plants in a clean condition, for weeds rob the soil of nourishment, choke, and sometimes kill out the young plants and prevent the free access of rain to the roots.

Elder should never be allowed to luxuriate in a hedge of any kind, as it quickly kills out its neighbours, as do also the Ivy and Honeysuckle. After three years' growth the hedge may be trimmed into shape with a sharp switching knife, and annually afterwards the same operation may be engaged in, but with the exception of cleaning and pruning, a well-formed hedge should require but little attention for many years. Should the hedge at a later period show signs of becoming thin and gappy through soil exhaustion, the roots should receive a top-dressing of thoroughly decomposed farmyard manure, while plants that have died outright should be made good by inserting stout, well-rooted plants in their stead. A. D. Webster.

FRUIT REGISTER.

PERMAIN APPLES AND POMME-POIRE.

SINCE writing on this subject (*Gard. Chron.*, June 24, 1922, p. 336), I have had access to the classic work of Julien de Paulmier (*De Vino et Pomaceo: traduit en Français par J. de Cabaigues, réimprimé par E. Travers, Rouen, 1896*), which affords a very suggestive idea as to how the connection between Apple and Pear arose and led to the spelling of pearmain for permain and parmain. Many attempts have been made to explain it by pretended resemblance in shape and size, for instance, Hogg's insupportable *Pyrus magnus* or Great Pear Apple, and in respect to quality, Manger's (1780) plea for an Apple having the worth of a Pear.

The lexicographer Cotgrave (1650) lists "Pomme Poire, a pear apple, a little russet apple, and, as some hold, a Pearemaine," showing some confusion between Apple and Pearmain. At an earlier date, Dalechamp, 1586 (*Leroy, Dict. IV., p. 575*) identified the Melapum of Pliny with the pomme-poire, perhaps through a resemblance between types of Apple and Pear, as is to be seen in such varieties as the Pear Olivier de Serres of the present time. De Paulmier, however, gives another reason for the association; he gives "Pomme-Poire ou Roussette ou Oignonnet. Pomme-poire est plus longue et plus ronde que Chevalier, ayant neantmoins mesme gout et presque mesme couleur au dedans et autant de jus... le sidre de ces deux especes de pommes, pillées ensemble est si peu coloré qu'il seroit pris pour poiré, si on n'en goustoit..." (called) Roussette ou Oignonnet parcequ'elle est ronde comme un oignon et rousse." Chevalier he describes as streaked with red, as large as or larger than an egg and a somewhat red flesh. Here it will be observed that the association of the words Apple and Pear rests upon the apparent similarity of the cider obtained from the Pomme-Poire to perry, and is entirely apart from any similarity in appearance of the fruits. It must be doubtful whether the Onyon-Apple, a synonym for the Marigold-Apple recorded by Worlidge (1676), is identifiable with the Pomme-Poire or Oignonnet, but it is interesting that it was called "sometimes Johns Pearmain from its likeness to a Pearmain." Mayer, in 1776 (vide Leroy) seems to have been much troubled to find the Pomme-Poire and obtained trees from French, Dutch and German sources, all of which yielded fruit of a flattened, rounded shape and resembled the Reinette Grise, thus agreeing with that of Cotgrave, though he was so disappointed at its want of Pear-shape that he surmised he had not obtained the right thing.

A knowledge of the virtues of perry has considerable antiquity, Duval (*Essai Historique sur le Cidre de la Poire*, Doin, Paris), relates that St. Rhadegund selected it as her sole

beverage more than a thousand years ago, and it might well be that an Apple which gave a perry-like cider may have attracted attention even before the days of J. de Paulmier. Thus light from another aspect is thrown on the nature of the Pomme-poire and helps to dissociate a spurious linking of Pearmain and Pear-apple. H. E. Durham.

HARDY FRUIT GARDEN.

THE PLUM CROP.

FOLLOWING my remarks on p. 201 in *Gard. Chron.*, April 22, 1922, re the cross-fertilisation of Plum blossoms, I am now able to give the results of experiments made this season. Pollen was taken from trees by means of a rabbit's tail and transferred to the stigmas of shy fruiting varieties. The results show that cross pollination is essential for most varieties, for trees which have had only very meagre crops in the past are this season plentifully furnished with sound fruit. Although this is a good Plum season, there have been equally good seasons when the same trees have been almost failures. Care was taken not to cross-pollinate varieties which were proved at Wisley to be incompatible, viz., Coe's Golden Drop and Rivers' Late Orange; but a free use of the pollen of such varieties as Monarch, Victoria, Czar, and Denniston's Superb Gage was made. It would be wise for those who intend planting during the coming autumn to make a note of these sorts, and to plant them freely in close proximity to others, especially where large plantations are in anticipation and where artificial pollination would be almost an impossibility. R. H. Crookford, Weston Park Gardens, Stevenage.

VEGETABLES.

THE SOWING OF BEANS.

LAST year attention was called to the depth of sowing for Beans by Mons. Mottet and myself (*Gard. Chron.*, July 16, 1921), and shallow sowing was controverted by a subsequent writer. This year, as usual, the early sowings in the greenhouse were mainly quite on the surface and, as usual, the few seeds that were buried were later in their germination. Out of doors a ten-yard run was divided into four parts, one fourth was sown without burying the seeds at all; by means of a dibber, marked at 1, 2 and 3 inches, the other three-fourths were sown at the depths indicated. This row was not watered, and owing to the extreme dryness which supervened all but one of the superficial seeds failed; the remainder are now showing the deterring effect of deep sowing, for the three-inch lot has only three fully formed divided leaves, whilst those sown one inch deep have five or, in some cases, six such leaves; the two-inch deep ones are intermediate, and show three or four; these are Yellow Dwarf Chinese.

In another sowing (of French Climbing Mangebout), one row sown quite superficially and watered have all come up and show the first pair of leaves, large and fully developed, and the first and second divided leaves nearing full size. In parallel, a row was sown at the same time two inches deep; several of these seeds have failed, probably from some underground pest, and those that have appeared have not fully developed their first pair, and the later leaves are only just appearing. It is obvious that the deeply-sown ones are heavily handicapped, and that in very dry weather (without watering) one inch deep is enough to protect the young rootlet from getting scorched; where there is enough dampness the seeds need not be covered. Several rows of different varieties of dwarfs, the seeds of which were hardly covered, are coming up sturdily; but when sowing no deeper lots were put in, as the confirmation of the desirability of shallow sowing seemed to need no further proof. H. E. Durham.

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

White Runner Beans.—In *The Gardeners' Chronicle*, of July 15, p. 38, Mr. Clark recommends using the White-seeded Runner Bean as a winter vegetable. During the war, we commenced to grow Carters' White Monarch, especially for that purpose, and found it very useful. My employer prefers it now to the imported Butter Bean. The method of cooking is to soak the beans for 24 hours, and then boil them without squeezing them from the case, and they are quite a success. *J. Bundy, The Grange Gardens, Farnborough, Hants.*

Plants from the Antipodes.—My good friend Mr. Elwes, to whom I owe so many choice plants, has somewhat misunderstood (page 34) the problem which I propounded in your columns some weeks ago. It was not the difficulty of acclimatising in the northern hemisphere plants from the southern hemisphere that I submitted for consideration, nor is the question one of the power of any southern species to resist cold and wet. The problem consists in the readiness with which plants from the northern temperate zone colonise lands in the southern temperate zone, sometimes actually suppressing the indigenous flora, contrasted with the absence of any counter invasion, notwithstanding the abundance of seed produced by such southern shrubs and herbs as *Olearia* and *Senecio*. I cited our experience on the south-west coast of Scotland, where the climate and soil have proved peculiarly congenial to a great variety of species from South America and Australasia, most of which ripen plenty of seed. I mentioned four species—*Berberis Darwinii* and *B. luxifolia*, *Veronica Traversii* and *V. parviflora*—as the only plants which had become thoroughly naturalised, i.e., propagated themselves freely in our woods. I ought to have added a fourth, namely, the Chilean *Tropaeolum speciosum*, which has long been a most prolific, but much esteemed, weed in our borders, and has now escaped into roadside hedges, where it escapes the attention of rabbits. Seedlings of many southern species may spring up in garden borders (we have recovered a single self-sown seedling each of *Olearia nummularifolia* and *Desfontainia spinosa*), but outside the cultivated ground no species, except the five mentioned above, have succeeded in establishing themselves in competition with our native flora. Our experience in Spain seems to bear on this question. A mining company in Andalusia, whereof I am a director, has considerable plantations of Blue Gum and Jarra-Jarra; the former gives us pitwood in ten years from planting, and railway sleepers in twenty. The Blue Gum ripens plenty of seed, but our forester informs me that he has ceased to use it in the nursery because Australian seed produces far more vigorous plants. *Herbert Maxwell, Monreith.*

Dunkeld Larches.—The following note from *Coniferous Trees* (2nd Edition, Constable and Co., 1918) may throw further light on the history of these trees. The date of planting coincides with that given by Mr. Clinton Baker (page 337) and also with the measurements recorded by Sir Herbert Maxwell: "After a life of one hundred and seventy years, it has been found necessary to remove one of the parent Larches situated near Dunkeld Cathedral. The uprooting of this magnificent tree is the more regretted when it is remembered that it was considered the finest specimen Larch in existence. Brought from the Tyrol by Mr. Menzies, of Culdees, with a few other specimens, this tree, with another, was planted at the west end of Dunkeld Cathedral, in 1738. Five of the trees he left at Dunkeld, and eleven at Blair Atholl, for Duke James, the grandfather of 'the Planting Duke,' as he was familiarly called. Two of the five were felled by Duke John, in 1809, and one had been cut down by mistake about twenty years before. Of the two felled in 1809, one contained 147 cubic feet of timber, the other contained 168 cubic feet. Though originally treated as greenhouse plants, the trees proved so hardy as to be long recog-

nised as the best and largest specimens that exist, although they are closely approached by those grown at Menzie, near Crieff. In 1888, the measurements of both were taken and recorded on boards placed at the foot of each tree. The record of the larger of the two, which has just been cut down, is as follows:—

Planted in 1738.	Meas. taken in 1888.
Total height ...	162 ft. 10 in.
Girth at 3 feet from ground "	102 4
" 5 " " " "	17 2
" 17 " " " "	15 1
" 51 2 " " " "	12 10 1
" 63 " " " "	8 8
" Contains 64 1/2 cubic feet with bark.	6 1
" 532 " " without bark.	

After the tree was cut down the measurements were found to be practically the same as twenty years ago. The tree, which was struck by lightning two years ago, was allowed to stand to see if it would come round. The size of the tree and the difficulty of its removal may be to some extent understood when it is mentioned that some of the roots cut off measured 9 feet in circumference. The Duke of Atholl, the Marquis of Tullibardine, and the Earl of Mansfield visited the place, and expressed great regret that a tree with such a history should have to be removed." *A. D. Webster.*

SOCIETIES.

NATIONAL SWEET PEA.

JULY 12 AND 13.—Held in conjunction with the Eastbourne Horticultural Society's show, in the Devonshire Park, and favoured with delightful weather, the National Sweet Pea Society's twenty-second show was a great success. If any fault can be found with the conditions it would be that the lighting in the Winter Garden was not good, being far too subdued to allow the colours of the flowers to show up well; moreover, the table decoration classes occupied an unfortunate position where the light was bad even when the electric lights were on.

After the gales of the previous week expectations of a first class show were very poor, but, so quickly do Sweet Peas recover, these melancholy anticipations were not fulfilled, and the result was a grand display of competitive and non-competitive exhibits of flowers of good quality and colour. It would not be correct to state that the N.S.P.S. has never before held so fine a show in the provinces, but it was a grand show, nevertheless, and filled the spacious Winter Garden with elegant beauty, exquisite colouring and delightful fragrance.

The President of the Eastbourne Society generously entertained the N.S.P.S. officers and Committee, as well as his own Committee, to luncheon in the Indian Pavilion on the opening day. Princess Alice, Countess of Athlone, very graciously opened the exhibition during the afternoon, and with Sir C. O'Brien Harding, Lady Northcote, Mr. Peyman, Mr. J. Stevenson and Mr. C. H. Curtis, made a tour of the show, inspected the flowers and accepted a handsome bouquet of Sweet Peas. At the opening ceremony the Mayor of Eastbourne officially presented to the N.S.P.S. the very handsome Eastbourne Cup, presented by the borough as a memento of the visit, and to be held yearly by the exhibitor of the best trade exhibit of Sweet Peas at the N.S.P.S. Show.

During the evening a dinner and re-union was held in the Indian Pavilion under the presidency of Mr. B. Peyman, who presided in the unavoidable absence of the President, Mrs. Macnamara. There was a large attendance and the numerous cups and pieces of plate were presented to the winners. There were a number of speeches and several musical items, and a very pleasant evening was enjoyed by all present.

OPEN AMATEURS' CLASSES.

The "Daily Mail" Cup, one of the leading awards on this occasion, offered as first prize in an open class for twelve bunches, distinct, was won by F. W. FRANKS, Esq. (gr. Mr. W.

Humphrey), Loampits, Tonbridge, with beautiful fresh and bright blooms of Hebe, Jean Ireland, Tangerine, Royal Purple, Elegance, Mascotts Ingman, Constance Hinton, King Manoel, Picture (also the best bunch in the show), Royal Scot, and Valentine. There was a very keen competition in this class; W. H. WALKER, Esq., Lewes, 2nd, with fine flowers a little marked by the weather; Sir RANDOLPH BAKER (gr. Mr. A. E. Usher), Ranston, Blandford, 3rd.

Sir RANDOLPH BAKER won the Sutton Challenge Cup for eighteen varieties with fine flowers which showed signs of the recent inclement weather; Miss RUSSELL, 2nd. Premier award in the Cory Cup class for six vases was won by Mr. TOM JONES, Ruabon, with superb blooms of Tangerine Improved, Picture, R. F. Felton, Elegance, Matchless and Hebe; 2nd, Mr. E. GIBBS, Gore Park Road, Eastbourne; 3rd, Mr. W. MARTINEAU.

In Messrs. WEBB AND SONS' class for nine vases, distinct, Mr. F. W. FRANKS won first place with Hebe, Orchid, Fair Lady, Valentine, Hawmark Pink, Mascotts Ingman, Mrs. T. Jones, Constance Hinton, and La France. Sir RANDOLPH BAKER won the Stevenson Cup for a display of new Sweet Peas with handsome bunches of Tangerine Improved, Salmon Queen, Matchless, Sunset, Colne Valley, Conquest, Frilled and Beauty; Miss RUSSELL (gr. Mr. C. H. Rundle), Barton Court, Canterbury, 2nd. In the Woodcock class for three varieties, distinct, D. H. ABBOTT, Esq. (gr. Mr. C. Fry), Ardene, Farnham, led in a close competition with Royal Rose, King White and Faith; 2nd, Miss RUSSELL; 3rd, Sir R. BAKER.

TRADE CLASSES.

MESSRS. IRELAND AND HITCHCOCK, Marks Tey, won the Monro Cup for varieties raised or introduced by the exhibitor, with a fine collection of Flame, Mascotts White, Mascotts Ingman, Tangerine Improved, Primrose Queen, Annie Ireland, Mrs. A. Hitchcock (new selection), Mascotts Helio, New White, and Mascotts Cream; Messrs. E. W. KING AND CO., Coggeshall, 2nd; Mr. J. STEVENSON, Wimborne, 3rd.

Tremendous interest centred in the competition for the Eastbourne Cup, presented by the County Borough of Eastbourne, and to be competed for each year by trade growers who have to make a display on a space 15 ft. by 4 ft. 6 in. There were ten exhibits, and these alone made a fine show. They were arranged all round the competition exhibits, as is usual when the Society holds its exhibition at the Royal Horticultural Hall. The competition was very keen and eventually resolved itself into a final tussle between Messrs. DOBBIE AND CO., Edinburgh, and Messrs. IRELAND AND HITCHCOCK, Marks Tey. Each of these firms made a grand display and showed fine blooms admirably set up. The four judges had no ordinary task in appraising the merits of the stands, and their final award showed that Messrs. DOBBIE AND CO. won the cup with a margin only of a half-point. The Edinburgh firm obtained 38 1/2 points out of 44, and Messrs. Ireland and Hitchcock 38. The latter firm won points for colour, but lost some on arrangement, as their group lacked the frontal finish which was a good feature of the Edinburgh group.

The same judges made the medal awards as follow:—

Gold Medal.—To Messrs. DOBBIE AND CO., Edinburgh; Messrs. IRELAND AND HITCHCOCK, Marks Tey; and Messrs. SUTTON AND SONS, Reading.

Silver-Gilt Medal.—To Messrs. MORBEY, Lindfield; Mr. J. STEVENSON, Wimborne, whose group was composed almost entirely of varieties of his own raising; Messrs. S. BIDE AND SONS, Farnham; and Mr. W. J. UNWIN, Histon, Cambridge.

Silver Medal.—To Mr. JEWELL; Messrs. JAS. CARTER AND CO., Raynes Park; and Mrs. W. ABBOTT.

OPEN TO ALL.

The President's prize for the best dozen varieties was won by Mr. A. H. PARSONS, Lewes, with very large blooms of Renown, Mrs. A.

Hitchcock, Picture, Royal Scot, Colne Valley, and G. Shawyer.

Messrs. S. BIDE AND SON, Farnham, led for three bunches of seedlings, distinct, with the rose and white bicolor Nancy; the bluish fancy named Unique, and a pink edged cream sort named Alma Bide; Messrs. E. W. KING AND CO., 2nd; and Mr. J. STEVENSON, 3rd. Messrs. E. W. KING AND CO. led in the class for a vase of one new seedling, with Rosemary, a very pleasing variety.

In the Raisers' Class for six varieties raised by the exhibitor Mr. J. STEVENSON was successful with his varieties Wild Rose, Lavender Bell, Crinon Glow, Splendour and Fair Maid, a very pretty set.

The Burpee Cup offered as first prize in the class for a table display of waved Sweet Peas was won by Messrs. E. W. KING AND CO., Coggeshall, with an attractive exhibit of flowers arranged in baskets and vases; Tangerine, George Shawyer, Mrs. A. Hitchcock, Austin Frederick, Warrior, Orchid, and Gladys were among the leading varieties. It was a great pity there were no other competitors, as a "walk over" is a most unfortunate happening in this competition. LAURENCE HORTON, Esq., Glenthorne, Wolverhampton, secured the E. W. King Cup, with a dozen fine bunches, his Austin Frederick, Elegance and Mascotts Helio being especially good.

Mr. W. H. WEEKES showed the best bunch of a novelty introduced in 1921-22; this was Mascotts Ingman.

Numerous single bunch classes were provided and in these Mr. A. O. COSHAM won for a white variety with Constance Hinton, for a lavender or mauve variety with Orchid, and for an orange variety with Royal Scot. Mr. F. W. FRANKS was successful for a pink variety with Hawlmark Pink, and for a crimson and scarlet variety with Field Marshal. Mrs. PALMER led for a cream variety with Matchless, a very fine form, and for a Picotee-edged sort with Jean Ireland, also finely represented.

DISTRICT CLASSES.

These classes were not well filled. In the Southern class Mr. W. H. WALKER, Malling Street, Lewes, led with grand bunches of G. Shawyer, Constance Hinton, Royal Scot, Mrs. Arnold Hitchcock, Colne Valley, and La France. Mr. E. KEITH, Cambo, Morpeth, won first place in the Northern class with very fine blooms of the old Edrom Beauty, Gloriosa, and others.

SMALL GROWERS.

Mr. G. W. WELLICOME, West End Gardens, Marlow, secured the Bide piece of plate for a dozen bunches in a class open only to single-handed gardeners; the competition was excellent. The Breamore Challenge Plate for six bunches was won by Mr. W. MARTINEAU, The Chestnuts, Boxmoor, with fresh blooms of large size, his Royal Purple being especially good. Mr. S. COLE, Beeston, had the finest set of three bunches.

In other classes Mr. E. WILLIS, Swindon, had the best six vases grown by an amateur, and Mr. E. G. GIBBS, Eastbourne, was also eminently successful in winning the Hamilton Cup and Gold Medal for twelve varieties, distinct.

The Amateur Gardening Challenge Cup offered for a dozen bunches was won by Mr. T. CASUNELLA, Cambridge Place, Bath, with Austin Frederick, Cecily, Royal Purple and Picture in excellent condition. Mr. L. E. SIMMS, Eastbourne; Mr. C. R. LEGG, Hertford Heath, were also successful prizewinners.

DECORATIVE CLASSES.

The competition was excellent in the decorative classes. Mrs. RUFF, Sharnbrook, Bedfordshire, led for a dinner table decoration with a pretty association of Annie Ireland, Melba and Tangerine; Mrs. A. R. BIDE, Farnham, 2nd, with R. F. Felton and a pink variety; and Mrs. C. FOX, Tunbridge Wells, 3rd. Mrs. FOX also showed the best bowl of Sweet Peas, and Mrs. BIDE the best basket of Sweet Peas. Mrs. RUFF was equally successful in another class for table decoration.

LOCAL CLASSES.

Mr. A. O. COSHAM, Ringwood Road, Eastbourne, led in the local classes for a display of Sweet Peas with an attractive exhibit in which a large basket of Orchid was conspicuously good; 2nd, Mr. R. S. HORTON, Pennfield, Wolverhampton. Mr. C. GRINSTEAD, West Cottage, Eastbourne, and Mr. W. H. WALKER, Malling Street, Lewes, were also successful in this section.

NATIONAL ROSE.

PROVINCIAL SHOW, WOLVERHAMPTON.

JULY 11 AND 12.

THE Provincial Show of the National Rose Society was held on the above dates in the West Park, at Wolverhampton, in conjunction with the annual floral fête of the city. It was generally agreed that this was the finest and largest provincial show yet held by the National Society. There was fairly keen competition in many of the larger classes, and the blooms were all staged in grand condition. The representative groups of cut Roses, shown on a space not exceeding 30 feet by 4 feet, were particularly fine, and there were five entries in this class, and there were four entries in the class for a collection shown on a space of 15 feet by 4 feet. These groups commanded a great deal of attention from the visitors, the tents being thronged with admirers during the two days of the show. In responding to the toast of the National Rose Society, which was proposed at luncheon, Mr. Courtney Page (secretary of the National Rose Society) stated that he never remembered having attended such a wonderful show of Roses in the provinces as was staged that day.

GOLD MEDAL ROSES.

The classes for New Seedling Roses is always an interesting one. On this occasion four Gold Medals were awarded to new varieties, and we certainly think that the judges were far too liberal. Messrs. FRANK CANT AND CO., Colchester, received a Gold Medal for H.T. Rose *Captain F. S. Harvey Cant*. This is a large pink variety of good shape. It was awarded a certificate at the National Show at Regent's Park. The judges here, however, thought it worthy of the higher award. The colour may be described as a bright pink, of a deeper colour towards the centre of the flower.

Venus, shown by Messrs. BEES, LTD., Liverpool, which also received a certificate in London, qualified here for the Gold Medal. This is a pink Rose flushed with reddish-salmon. We think the certificate award already made at London correctly indicated the value of these two Roses.

Messrs. HUGH DICKSON, LTD., Belfast, gained a Gold Medal for W. E. Wallace, a large Hybrid Tea Rose of a subdued tone of yellow. This Rose was also awarded a certificate in London, and the judges there thought this award high enough. Opinions differ, however, and the judges at this show appeared to have different ideas from their colleagues in London.

Messrs. G. MCGREDY AND SON, Portadown, were awarded a Gold Medal for H. T. *Mrs. Courtney Page*. This is one of the high-coloured Roses already represented by Lady Inchiquin and Messrs. Chas. E. Shea. It is a flaming rosy-cerise. The flowers are of medium size.

CERTIFICATES OF MERIT.

Chastity, a white climber shown by Messrs. F. CANT AND CO. This is a very beautiful flower in the bud stage, and it is delightful when fully opened. The colour is a chaste white, which is enhanced by the yellow boss of stamens in the centres of the expanded flowers. We think there is room for this variety, and it is a potential winner of the Cory Cup in the autumn.

Lord Allenby, from Messrs. ALEXANDER DICKSON AND SONS, LTD., Newtownards, a large crimson-scarlet exhibition Hybrid Tea Rose.

Harriet Eastlea, from Messrs. MCGREDY AND SON. This is very similar in colour to The Queen Alexandra Rose, but the flowers, although they are somewhat smaller, are of

better shape than those of the older sort. This Rose, too, is more Hybrid Tea in character than The Queen Alexandra, and in it we are getting away from the spines and foliage of the Pernetiana groups.

None of the other seedlings is worthy of detailed notice. One or two of them have already received certificates and have been described before. Some of the seedlings staged were very poor, and their raisers must improve their ideas about the type of flower that is required for a Gold Medal award. We observed that most of the seedling Roses were wired. We think the National Rose Society should prohibit this practice.

TRADE CLASSES.

In Class 1, for 36 blooms, distinct, the trophy went to Messrs. F. CANT AND CO. for an even lot of flowers. We noticed fine blooms of Mme. Jules Gravereaux, Capt. Harvey Cant, Phansacker, H. V. Machin, Nellie Parker, and Colleen. Second place was awarded to Messrs. HUGH DICKSON, LTD., Belfast, who had good examples of E. Godfrey Brown, Coronation, George Dickson, Rev. Page-Roberts, and Molly Bligh. Third prize was taken by Mr. W. SLINGER, Newcastle, Co. Down. There were five entries in this class. Class 2 was for 24 blooms, distinct, and there were eight entries. Premier place was gained by Messrs. ALEX. DICKSON AND SONS, Newtownards, for a remarkably fine collection. Outstanding flowers were Molly Bligh, Earl Haig, Candeur Lyonnaise, Bessie Brown, and Marcella. Second and third prizes were taken by Messrs. F. CANT AND CO. and Mr. CHAS. GREGORY, Chilwell, Notts., respectively. In Class 3, for twelve distinct Teas or Noisettes, Mr. GEORGE PRINCE, Oxford, easily won first prize with flowers of his usual supreme quality. This grower excels in the cultivation of Tea Roses. His flowers of Maman Cochet, Mme. Constance Soupert, and Lady Plymouth were very fine. Second place went to Messrs. F. CANT AND CO., and third to Mr. E. J. HICKS, Twyford. In the latter's stand we observed fine flowers of W. R. Smith and Mrs. Foley Hobbs.

Class 4 called for twelve blooms of new Roses distributed since January 1, 1918, all to be distinct. Mr. E. J. HICKS won first place with a choice lot of flowers. Bessie Chaplin, Frank W. Dunlop, Mrs. Henry Bowles, and Mrs. Henry Morse were exhibited in fine condition as to size, shape and colour. Mr. GEORGE PRINCE took second place with an almost equal lot, comprising fine flowers of Mrs. G. K. Rindye—a somewhat pallid form of Golden Emblem Premier, and Edith Cavell. Third prize fell to Messrs. HUGH DICKSON, LTD., who had fine examples of Marjorie Bulkeley, and Earl Haig.

In Class 5, for one basket of cut Roses, one variety, there were three entries. First prize was won by Messrs. D. PRIOR AND SON with noble blooms of George Dickson; second by Mr. CHAS. GREGORY, for finely coloured Queen Alexandra, and third by Mr. GEORGE PRINCE for shapely flowers of A. H. Gray. Class 6 was for three baskets of cut Roses, distinct varieties. Honours were easily won by Messrs. ALEXANDER DICKSON AND SONS with glorious baskets of Lady Inchiquin, Sunstar, and Betty Upritchard. All were supremely fine in colour, and arrested the attention of every visitor. Second prize was awarded to Mr. C. GREGORY, who had splendid examples of Golden Emblem, Los Angeles, and Mrs. Henry Morse; third, Mr. JOHN MATTOCK, Oxford, with Los Angeles. Mrs. H. Morse, and Margaret D. Hamill.

In Class 7, for 24 distinct varieties of decorative Roses, not fewer than three, nor more than seven, stems of each variety, Mr. JOHN MATTOCK excelled with, amongst others, fine specimens of Padre, Geverine, Sheila Wilson, Lady Pirrie, and K. of K.; second, Messrs. F. CANT AND CO. For 12 distinct varieties, in Class 8, Mr. C. GREGORY was first, and Mr. GEORGE PRINCE second. Class 9 was for one basket of Roses not yet in commerce. There were two entries, and first place was awarded to Messrs. HUGH DICKSON for a variety named Marjorie Webb, and second to Mr. E. J. HICKS for John Hart. We do not see any opening in commerce for either of these varieties.

GROUPS OF ROSES.

The principal class in this section was No. 10, for a representative collection of cut Roses, to be placed on a staging in a space not exceeding 50 feet by 4 feet. There were five entries. The premier prize, a piece of plate, value twenty-five guineas, was won by Mr. E. J. HICKS with a group staged in his usual style, combining variety, lightness and freshness. His group was flanked with bunches of Joanna Bridge, R. moschata alba, and Mme. A. Chateau, and backed with stands of such sorts as Isobel, Red Letter Day, Dr. Van Fleet, Lady Reading—a red Wichuraiana, after the style of Excelsa—and Climbing Lady Hillingdon. There were also noble pyramids of Margaret D. Hamil, K. of K., Mrs. George Shawyer—which was exceptionally fine—and Lady Pirrie. He had also grand specimens of Golden Emblem, Mrs. Chas. E. Shea, and the new single, Ethel James. Messrs. GUNN AND SONS, Oulton, were second with a somewhat similar arrangement. This was a well-staged exhibit, but the flowers lacked the freshness of the first lot. We noted Golden Emblem, Ophelia, Mme. E. Herriot, Isobel, and Paul's Scarlet Climber in good colour and condition. Third place fell to Mr. THOS. ROBINSON, Nottingham, for a good arrangement, in which there were fine pillars of Lamia, Mrs. H. Morse, Emma Wright, Colonel Oswald Fitzgerald, The Queen Alexandra, Donald Macdonald, and K. of K. Fourth prize was awarded to Messrs. A. DICKSON AND SONS. We noted choice blooms of Clara Curtis, Capt. Kilbee Stuart, Sunstar, Lady Inchiquin, and Betty Pritchard on their stand. Fifth award went to Mr. A. S. DUNTON, Wolverhampton.

Class 11 was for a similar collection, staged on a space of 15 feet by 4 feet, and Mr. GEORGE PRINCE was easily first with a representative group, comprising The Queen Alexandra, Lady Ashtown, Isobel, K. of K. and Mrs. Henry Morse. Second prize was taken by Messrs. ENGLISH AND SONS, Gloucester. The third and fourth prizes, which went to KING'S ACRE NURSERIES, Hereford, and Messrs. WHEATCROFT BROS., Gedling, Notts., in the order named.

For a bowl of cut Roses, Mr. JOHN MATTOCK took first place with an arrangement of Mrs. Redford and Irish Fireflame; and Mr. E. J. HICKS was second with Joanna Bridge.

AMATEUR CLASSES

In the amateur section of the schedule the principal class was No. 15, for 24 blooms of distinct varieties. The first prize and Jubilee Trophy was won by G. SPEIGHT, Esq., Market Harborough. He had fine flowers of Coronation, Lemon Pillar, H. V. Machin, and Mrs. Geo. Marriot. Second prize fell to H. E. FENTON, Esq., Walsall; and third to F. DENNISON, Esq., Leamington Spa. For 12 blooms, distinct (open only to growers of fewer than 1,000 plants), Mrs. HENRY BALFOUR, Oxford, was first; P. F. RAYER, Esq., Worcester, second; and H. E. FENTON, Esq., third. Mrs. C. E. WHITCOMBE excelled in the next two classes, for twelve blooms and six blooms; and G. SPEIGHT, Esq., was easily first in Class 19, for 12 blooms, open to those who, without assistance, grow and stage their own Roses. Mrs. HENRY BALFOUR was first in the class for Tea and Noisette Roses. There were several small classes.

DECORATIVE CLASSES.

There is always keen competition in the Artistic Classes in the amateur section. For a Dinner Table decoration of cut Roses, Mrs. COURTNEY PAGE, Enfield, won with a graceful arrangement of Sunstar. Miss ETHEL JAMES, Abingdon, was second with the new single, Ethel James, a flower of the Isobel type, but with more refinement. Third place fell to Mrs. COLSTON HALE, Warminster, for Lady Pirrie and Irish Elegance; and fourth to Mrs. BLAIR, Congleton, for Irish Fireflame.

For a bowl of cut Roses, H. E. FENTON, Esq., was winner with a beautiful lot of Ophelia, and Mrs. COURTNEY PAGE second with Golden Emblem; third, Miss ETHEL JAMES, with Joanna Bridge; and fourth, Mrs. COLSTON HALE, with Ophelia and Irish Fireflame. For

the vase of cut Roses, Miss ETHEL JAMES occupied premier place with Ophelia; Mrs. COLSTON HALE second with Lady Pirrie, and Mrs. COURTNEY PAGE third with Red Letter Day.

SILVER MEDALS.

A Silver Medal for the best Roses exhibited by a nurseryman was won by Messrs. F. CANT AND CO., with Mrs. Cornwallis West, a large, creamy-white Hybrid Tea. A similar medal for amateurs was awarded to Mrs. HENRY BALFOUR for H. V. Machin.

ROYAL HORTICULTURAL.

TRIAL OF BROAD BEANS.

THE following awards have been made by the Council of the Royal Horticultural Society to Broad Beans after trial at Wisley:—

Awards of Merit.—No. 4, *Multiple*, sent by Messrs. RYDER AND CO.; No. 14, *White-eyed Early Large*, sent by Messrs. ZWAAN AND DE WILJES; No. 15, *Early White-eyed*, sent by Messrs. VAN DER VELD; No. 18, *Broad Windsor Selected*, sent by Messrs. DOBBIE AND CO.; No. 23, *Giant White Windsor Improved*, sent by Messrs. WATKINS AND SIMPSON; *No. 46, *Shirley Long-pod*, sent by Mr. POUND; No. 54, *Exhibition*, sent by Mr. A. DICKSON; No. 67, *Champion Long-pod*, sent by Messrs. DOBBIE AND CO.; No. 70, *Hangdown Selected*, sent by Messrs. ZWAAN AND DE WILJES; and No. 79, *Green Leviathan*, sent by Messrs. J. CARTER AND CO.

Highly Commended.—No. 6, *Green Gem*, sent by Messrs. J. CARTER AND CO.; No. 10, *Victory*, sent by Mr. DICKS; No. 11, *White Giant Four-seeded*, sent by Messrs. BARR AND SONS; No. 34, *Harlington Windsor*, sent by Messrs. R. VEITCH AND SON; No. 35, *Green Harlington*, No. 1, sent by Messrs. DICKSON AND ROBINSON; No. 41, *Kinver Mammoth Long-pod*, sent by Messrs. ED. WEBB AND SONS; *No. 45, *Aldenharn Invincible*, sent by Mr. E. BECKETT; and No. 59, *Eclipse Long-pod*, sent by Messrs. WATKINS AND SIMPSON.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

THE monthly meeting of this society was held in the R.H.S. Hall on Monday, July 10, Mr. Arthur Bedford in the chair. Five new members were elected. Three members were allowed to withdraw double the amount of their interest upon their deposit accounts, amounting to £13 1s. 8d. Two members over the age of seventy years withdrew from their deposit accounts sums amounting to £117 8s. 5d., and the sum of £26 17s. 6d. was passed for payment to the nominee of one deceased member.

The sick-pay for the month on the private side amounted to £57 4s. 9d., and in the State section to £58 14s.; maternity benefits, £10. The committee has pleasure in stating that Mr. Leonard Sutton will preside at the society's annual dinner on October 4, 1922.

RICHMOND HORTICULTURAL.

THE forty-fourth annual flower show and fête of the Richmond Horticultural Society was held in the Old Deer Park, on Wednesday, July 12. The exhibits were of a very varied character, such as one frequently sees in rural districts. The best and largest exhibits were shown by nurserymen in the honorary section. The best exhibit in the show consisted of stove and greenhouse plants, and the best plant was a well-grown specimen of *Miconia* (*Cyanophyllum*) *magnifica*, shown by Messrs. L. R. RUSSELL. Most of the exhibits were placed in four large tents.

Mrs. H. E. GREEN, Devonshire House, Strawberry Vale (gr.), Mr. N. A. Primrose, won the first prize in the class for three exotic Ferns; she was also awarded the second prize for three greenhouse plants, and the third prize for three stove or greenhouse plants.

Lady MAX WAECHESTER, Richmond Hill, was awarded the first prize for six Gloxinias, which were well flowered.

* Nos. 46 and 45. These two Beans are alike, but No. 46 is the better stock.

The premier award for 36 blooms of Roses, in triplets, was awarded to Messrs. FRANK CANT AND CO., Colchester, who had fine blooms of Lyon Rose, Mildred Grant, Modesty, and British Queen.

For twelve varieties of Roses, in triplets, the same firm took the lead with grand blooms. They were followed by Mr. F. J. JEFFERIES, Thornton Heath, for second place. This order was maintained in the class for twelve blooms in two varieties. Messrs. FRANK CANT AND CO. were the only exhibitors of twelve blooms of one variety, showing grand flowers of A. Hartmann.

Mr. J. H. HART, Potters Bar, was awarded the first prize for six bunches of garden Roses, and Mr. F. J. JEFFERIES the second prize for twelve varieties of garden Roses. Mr. J. H. HART was awarded the first prize for twelve blooms distinct; and he also excelled in the class for twenty-four blooms distinct. Mr. G. J. FAVEL was awarded first prize for twelve blooms distinct.

The best twenty-four vases of hardy herbaceous plants were shown by CHARLES WILSON, Esq., Petersham, who put up a fine assortment in excellent condition. He also had the best six vases of hardy and half-hardy annuals.

Mr. J. LOCK, Oatlands Lodge Gardens, Weybridge, excelled in the class for six dishes of fruit, showing excellent Grapes, Peaches, Nectarines, Plums and a Melon. He won the first prizes in the classes for two bunches of black Grapes; two bunches of white Grapes; one Melon; one dish of Peaches; and one dish of Nectarines.

The leading prize for nine dishes of vegetables was won by Mr. A. COOMBS, Windsor, who had good Cauliflowers, Onions, Dwarf Beans, Peas and Potatoes. Mr. R. KENE, Richmond, was a good second, his Onions being of first-class quality. Mr. E. WATTS, Richmond, was third.

Mr. R. KENE took the lead for nine vegetables, open only to allotment holders. He was followed by Mr. G. E. BEST, Twickenham, and by Mr. J. DENTON, Lower Mortlake Road, in this order. Mr. W. SOLLERS, Richmond, had the best six vegetables; Mr. J. TOWER, Richmond, was first for six vegetables in another class for allotment holders. Mr. R. J. KENE had the best four vegetables in the class for novices. Mr. H. WATTS had the best collection of eight vegetables; and secured the first award for six in a special class. There were numerous classes for single dishes of vegetables, which were a strong feature of the show.

HONORARY EXHIBITS.

Messrs. CARTER AND CO., Raynes Park, London, put up a large group of annuals. They also staged Broad Beans and Peas (Silver-gilt Medal). Messrs. L. R. RUSSELL, Richmond, displayed a large and beautiful group of stove and greenhouse plants in one of the tents. In the open this firm showed Japanese Maples, *Laurus nobilis* and the Pomegranate in bloom. (Large Gold Medal.)

Mr. WILLIAM THOMPSON, Sheen Nurseries, Richmond, built up a high group with tall Palms in the centre, surrounded by Japanese Maples, Hydrangeas, *Eurya latifolia* variegata, etc. (Small Gold Medal.)

Messrs. S. SPOONER AND SONS, Hounslow, exhibited a group in the open of cordon Red and White Currants, Gooseberries, and standards of the latter. In a tent they had an exhibit of Roses, on stands and in boxes. (Silver Medal.)

Sir JOHN ARCHER, Devonshire Lodge, had an exhibit of vegetables in great variety. (Small Silver Medal.) Sir JOHN ARCHER also staged a group of stove and greenhouse plants. (Bronze Medal.)

Mr. J. G. ROMER, Sandycombe Road, Richmond, staged an exhibit of dwarf Japanese trees. (Bronze Medal.)

ROYAL CALEDONIAN HORTICULTURAL.

JULY 4.—The ordinary monthly meeting of this Society was held at 5, St. Andrew Square, Edinburgh, on this date, Mr. David King, President, in the chair. Two short communica-

tions were submitted, one by Mr. Charles Comfort, late of Broomfield, on "Some of the Less Popular Bulbous Plants," and the other, entitled "The Classically and Inspiration of Gardening," by the Rev. David R. Williamson, which was also read by Mr. Comfort.

The exhibits were:—Collection of Delphiniums, Violas, Gloxinias and Roses, from Messrs. DOBBIE AND CO., LTD., Edinburgh (Gold Medal); Pansies and Violas, from Mr. C. COCKBURN, Pencilaitland (Cultural Certificate); Anomatheca cruenta, from Mr. D. Armstrong, Drum; border Pink "Princess Mary," from Messrs. JAMES GRIEVE AND SONS, Edinburgh; Figs grown out of doors in Edinburgh, from Mr. CATHIE, Pilrig House, Edinburgh.

HORTICULTURAL CLUB. ANNUAL OUTING.

On Friday, July 14, the members of the Horticultural Club visited Wisley Gardens and Pyrford Court, Woking, on the occasion of the annual outing. The programme made provision for a two hours' trip on the river by the "Merrie Thames" launch, but, owing to delay in starting and unfavourable weather, the river trip was abandoned and the journey was made direct to The Hut Hotel, Wisley, where forty-two sat down to an excellent lunch. The morning was wet, but the weather cleared at intervals and it was dry when the Wisley Gardens were reached. Mr. Chittenden was waiting to welcome the visitors, and several having expressed a wish to first inspect the laboratory, the various rooms and their uses were explained by the Director. A tour of inspection of the gardens was next made, a few making a special visit to the trial of Raspberries which had been judged on the day previous by a sub-committee of the Fruit and Vegetable Committees. The main party, with Mr. Chittenden as guide, proceeded to a general tour of inspection, past the glass-houses, to the magnificent border of herbaceous flowers, the trial quarters of Phloxes, Asters and Dahlias. The greatest interest, however, was taken in the trial of Violas, for the plants were in full flower and presented a gorgeous spectacle of rich and varied colouring. The rock garden and wood were next visited, but when the latter was reached the weather broke again and rain fell in torrents. As soon as this cleared, the majority made their way back to the laboratory, but some completed the inspection of the rock garden and the fruit trees on the higher ground.

The visit to Pyrford Court was made under more agreeable conditions, and the journey, through some of the most beautiful parts of Surrey, was very delightful. The sun shone brilliantly when the members stepped from the coaches and were welcomed by Lord and Lady Elveden, who were awaiting to receive their guests. Lady Elveden entertained the party to tea in the beautiful hall hung with seventeenth century tapestries representing the Battle of Solebay, on May 28, 1672, between the Dutch and British navies. The view from the terrace of the mansion is exceedingly beautiful over miles of the richest landscape. The gardens at Pyrford Court are in the best dressed style and included handsome Pergolas, Lily pools, Rose gardens, Iris borders, rich lawns and a series of colour gardens, including white, blue, grey, yellow and scarlet, the most novel of these being the yellow garden, which has a background of golden Catalpas, golden Elms, golden Poplars, with golden Conifers of a little dwarfier stature, golden Hollies, Privets and others, with broad borders of herbaceous plants, amongst which Tansy, Senecios in variety, Coropsis, Lychimachias, Anthemias, and other yellow-flowered species contributed to a very effective scheme. A tour of inspection was also made to the extensive wild garden, under the guidance of Mr. Auton, the gardener, on to the Iris garden, where several acres of marshy land are planted with varieties of Iris Kaempferi. A large sheet of water, with great patches of water Lilies on the surface and Willows by the bank reflected in the water, contributed to a scene that was imposing in its grandeur. The journey to London was made by road in beautiful weather, and Charing Cross was reached about 9 p.m.

NORWICH ROSE SHOW.

This fixture of the old Norfolk and Norwich Horticultural Society was held on July 13th, in the grounds of Bracondale Woods, on the outskirts of the ancient city of gardens. From a general aspect the exhibits were better than for the past year or so, but the number of competitors seemed to be fewer.

The chief prizes in the open competitive classes were won by growers from Colchester. The Rev. JOHN FELLOWES maintained his position as the best home county exhibitor, while Captain J. H. MANDER, Dr. DEACON, and Mr. H. JOHNSON staged praiseworthy specimens. In the section for Sweet Peas the outstanding feature was the triumph of Mr. G. L. MILLER, schoolmaster, of Scarning, Norfolk. He made ten entries and secured nine first prizes, and he staged perfect blooms throughout. Mr. G. S. SIEDEL, gardener to the Hon. Mrs. Petre, had a charming collection of herbaceous flowers, winning easily in that section. A notable feature of the show was the success achieved by Mr. G. HIGH, gardener to J. A. Christie, Esq., Framlingham Manor. This exhibitor won the first prizes in both classes for Liliums, staging exquisite spikes of L. Henryi and L. auratum. He was first also for Carnations with a vase of choice blooms, which included several home-raised seedlings. In the Iris class he also excelled with a splendid group of three distinct types. He also won several prizes in the vegetable and fruit classes. His fruits of Raspberry Pyne's Royal were exceedingly fine, and his collection of vegetables was placed first in a strongly contested class.

Mr. ULPH, gardener to J. E. Moxey, Esq., Framlingham, deserved great praise for his fine exhibit of double tuberous Begonias in pots; he also staged the best Peaches.

Trade growers contributed fine exhibits. Messrs. DANIEL BROS., LTD., Norwich, showed new Roses, hardy herbaceous flowers, Sweet Peas, and other subjects in season.

Messrs. A. J. AND C. ALLEN, Earlham, Norwich, had a magnificent display of the newest and best Roses for the garden, H.T.'s predominating. Mr. HENRY MORSE, Eaton, Norwich, contributed a display of new Roses, special mention being due to his blooms of Queen Alexandra. Messrs. WINDER AND BOUSFIELD, Lingwood Lodge, and Messrs. A. REEVES AND CO., Catton, also had good banks of Rose blooms, and Messrs. G. STARK AND SON made a feature of Sweet Peas and Poppies.

ELSTREE AND DISTRICT HORTICULTURAL.

THE name of Elstree will occupy a prominent place in the annals of contemporary horticulture, as much for the remarkable exhibits contributed to flower shows from the gardens of the Hon. Vicary Gibbs at Aldenham House, as for the classical collection of plants and especially trees and shrubs that those celebrated gardens contain. It is not surprising that two such famous gardeners as the Hon. Vicary Gibbs and Mr. Edwin Beckett have lent their patronage and support to a local flower show, which is one of the finest village flower shows held in this country. The exhibition this year was held on Saturday, the 15th inst., and it may possibly have an historic interest, for the collection of vegetables staged by Mr. Beckett from the Hon. Vicary Gibbs' gardens was undoubtedly the largest and best ever shown in Great Britain and may never be excelled. Those who have seen Mr. Beckett's previous efforts in this direction were quite unprepared for an exhibit of this extent and quality and when we state that every dish was as near perfection as is possible to obtain, that the arrangement, colour blending and general effect, were even better than anything that Mr. Beckett has previously attempted, some idea may be gained of its merit. The subjects embraced almost everything the kitchen garden affords, either in season or out of season, and every dish would have held its own in the keenest competition.

Next to this outstanding exhibit the principal subjects shown were Sweet Peas and Roses,

both of which reached a very high standard, but the schedule made provision for other subjects, including hardy flowers, Antirrhinums, Stocks, Carnations, fruits, vegetables, artistic decorations and special sections for cottagers and allotment holders.

Probably the finest floral exhibits were the Roses in the special class open to all, in which a silver challenge cup and money prize were offered for the premier exhibit. The winners were Messrs. Chaplin Bros., who displayed their blooms in tall stands of which there were three tiers and they very cleverly blended the colours to harmonise, the result being one of the finest displays of Roses we have seen this season. The principal sorts shown were Mrs. Henry Bowles, Mrs. Wemyss Quin, Mrs. H. Stevenson, Margaret Dickson Hamill, Christine, and K. of K. Messrs. HARKNESS AND CO., were placed second and Messrs. FRANK CANT AND CO., third.

The best exhibit of six bunches of garden or decorative Roses in six distinct varieties, shown in vases, was contributed by W. E. MOON, Esq., High Wycombe. His blooms were exceptionally fine, especially the varieties Miss May Marriott, Ophelia and Margaret Dickson Hamill. Mr. J. A. HART, Potters Bar, who won the second prize in this class, showed a remarkably fine bloom of Mme. Léon Pain.

Five competed in the class for twelve varieties, distinct, in which a silver cup was offered as the first prize together with money. The last-named exhibitor was successful with good examples of Candeur Lyonnaise, Molly Bligh, Saint Helena, and Bessie Chapman. Mr. W. E. MOON, who won second prize, had especially choice specimens of Candeur Lyonnaise and Coronation.

Sweet Peas also call for special comment and, taking the nine classes for these flowers, competition was keen and the quality good all round. The silver challenge cup in the class for twelve distinct varieties was won in strong competition by Mr. PALMER with magnificent spikes of such varieties as King White, Dora, Hercules, Orchid, Jean Ireland, Arnold Hitchcock, Royal Purple, Sunproof Crimson and Picture. The second prize was won by Mr. E. THORNTON-SMITH (gr. Mr. J. W. Gutteridge), and this exhibitor was not far behind the premier collection in quality. Mr. Palmer also won the prize in the class for six distinct varieties, in which Major Edgecombe, Aldenham Grange, was second. Mr. ANSTEE had a very fine win in the class for three bunches, with splendid flowers of Hawmark Pink, R. F. Felton and Royal Purple. In the colour classes the best pink variety was Hawmark Pink shown by Mr. HASSARD, Harpenden; the best white variety, Constance Hinton, shown by Mr. PALMER; the best crimson or scarlet variety, Charity, shown by Mr. ANSTEE; the best lavender variety, Lavender George Herbert, shown by Mr. Palmer; the best cerise or scarlet cerise variety, Hawmark Cerise shown by Mr. Thornton-Smith, and the best cream, buff, or ivory variety, Black-Seeded Cream, shown by Mr. Palmer.

Mr. JAMES PAICE, gardener to the Vicar of Aldenham, again won the first prize, including the Silver Challenge Cup, for the best collection of six kinds of vegetables. He has previously won one cup in this competition outright.

Several excellent non-competitive groups added variety and interest to the exhibition. Messrs. CRIBB AND SON arranged a very pretty group of Polyantha Roses and Carnations, using the former as a ground work to good effect. Mr. J. C. ALLGROVE exhibited splendid Gooseberries, Currants, and Raspberries, with small pot trees of Rev. W. Wilks Apple bearing good crops of large sized fruits. The Rev. J. H. PEMBERTON showed a collection of Roses, including many of his raising, and Messrs. Ireland and Hitchcock contributed a remarkable collection of Sweet Peas, which included such fine sorts as Mascotts Ingman, the new Shamrock, of rosy mauve colour; and Bunty, a fine, orange pink variety. Messrs. A. SCRIVENER AND SON, Watford, showed flowers, plants and floral designs.

The show was favoured by fine weather and visitors were numerous; the gardens at Aldenham House were open to inspection and thousands availed themselves of this privilege.

ANSWERS TO CORRESPONDENTS.

BOTTLING TOMATOS: *F. E. B.* Medium sized fruits, which are just on the point of ripening, should be selected for this purpose. Tomatoes are as easy to bottle as any fruit, and there are few, if any, that retain their flavour better. Some folk add salt to the water as a preservative, but this is not necessary, and we do not agree with the practice; sugar, of course, should not be used. Put the Tomatoes into the preserving bottle, packing as closely as possible without damaging them, and then fill the bottle with clean, cold water. Affix the sealing cap, and then, placing the bottles in the medium used for heating for sterilizing purposes, bring gradually up to a temperature of 160 deg., and maintain this for about five minutes. After removing the bottles from the sterilizer, stand them in a draught-proof place to cool, and thereafter examine the sealing cap to make sure the bottle is air-tight, and then store in the usual way in a cool larder, or similar repository.

CORDON FRUIT TREES: *G. B.* The correct depth at which to plant cordon fruit trees may be determined by observing the ground line of the trees when they were growing in the nursery. It is not advisable to place the part where the stock and scion were grafted below the ground.

DUCK WEED IN POND: *A. S. R. and Co.* The weed sent is the common Duck weed, *Lemna minor*. This can be disposed of by slugging it from the water by means of a canvas net attached to a stout rod, and once the weed is fairly cleared, water towel, such as ducks, ornamental or domestic, will keep it down.

GARDENERS' WAGES: *A. J. B.* The wages paid to gardeners vary according to the district, the amount of responsibility and other circumstances. In private establishments they range from 55s. to £3 10s. in small gardens; Foremen from 45s. to 50s.; Journeyman 35s. to 40s.; Boys from 20s. to 30s., according to age.

NOTICE TO QUIT AND INCREASE OF RENT: *F. D.* If you hold your premises on annual tenancy, your landlady should have given you notice to quit, and a further notice of intention to raise your rent when she increased the rent, two years ago. Even assuming that she complied with the necessary formalities, she would not be entitled to raise the amount by 40 per cent, i.e., £10, unless she did both the internal and the external repairs. If, however, you still do the inside repairs, you are entitled to a reasonable deduction from the 40 per cent. on that account, and you should point this out to her. If she insists on the full £10 increase, you should consult a solicitor.

NAMES OF PLANTS: *P. R. S.* *Orchis maculata*.—*A. E. W.* 1, Too scrappy to identify; 2, *Clanthus puniceus*.—*T. H.* 1, *Syringa Emodi*; 2, *Cotoneaster frigida*; 3, Not recognised; 4, *Spiraea ariaefolia*; 5, *Euonymus Europaeus* (Spindle Tree).—*W. D.* *Rhus Cotinus*.—*F. K.* 1, *Tilia platyphyllos* var. *asplenifolia*; 2, *Rhus Cotinus*; 3, *Jasminum revolutum*; 4, Too withered to identify. —*H. S.* 1, *Azara microphylla*; 2, *Pyrus lobata*; 3, *Crataegus coccinea*; 4, *Rhamnus Frangula*; 5, *Diervilla sessilifolia*.—*E. R. T. P.* 1, 2, 3, 4 and 6, We cannot undertake to name florists' flowers; 5, *Cupressus macrocarpa*.—*G. S.* 1, *Allium Moly*; 2, *Jasminum revolutum*.—*W. F.* 1, *Sidalcea candida*; 2, *Polemonium coeruleum*; 3, *Phuopsis stylosa*.—*H. B. M.* 1, *Menyanthes trifoliata*; 2, *Sisyrinchium angustifolium*; 3, *Veronica gentianoides*.—*W. J. C.* 1, *Periploca graeca*; 2, *Linaria bipartita*. The seeds are those of *Abrus precatorius* "Crabs Eyes"; a tropical plant.

PEAR TREE FAILING TO FRUIT: *An Old Reader:* You can summer prune the shoots, but we fear that this will not result in fruitfulness, unless the tree is root pruned. Seeing that the tree blossoms freely each year but sets very

little fruit, and always makes a considerable amount of wood growth, the roots have probably penetrated into the sub soil. In summer pruning, stop the shoots a few inches now and again in about a fortnight's time. Root pruning should be done in the autumn directly after the leaves have fallen.

PEAT MOSS LITTER: *N. E. C.* Manure containing peat moss is serviceable, and may be recommended for general purposes in the garden, but it is not so good as manure in which straw is used as a litter.

PINK-FLOWERED CHESTNUT: *N. E.* The bark you sent us is quite dead, and if the whole of it is in the same condition we are afraid that the tree is doomed. If, however, there is a considerable portion of the bark still healthy, remove all the diseased part and apply a coating of Stockholm tar to the wound.

POTATOS FAILING: *G. A.* We can find no trace of disease present in the seed tuber, but it was hard and over-ripe, which probably accounts for the failure.

POTATOS GOING "OFF": *T. W. S.* In one of the tubers you sent the mycelium of a fungus was present, which agreed with the characters of a *Phytophthora*. In the other tuber no organism was present in the discoloured flesh. The weak stems point to unsatisfactory condition of the seed tubers, which were probably over-ripe. It would be advisable to spray the plants with Bordeaux mixture as a preventive of blight disease caused by the *Phytophthora*.

TOMATO LEAVES MOTTLED: *W. F.* Tomato plants showing mottled leaves are not uncommon, but so far as we are aware this condition of the foliage does not have a serious prejudicial effect upon the crop. The precise conditions which give rise to mottling of the foliage are not known, but the general opinion is that want of aeration in the soil is the primary cause. It is supposed that in badly aerated soils certain chemical products arise which upset the normal physiological processes of the plant. At the Cheshunt Experimental Station it is known that badly aerated soils which have produced plants with mottled foliage, will produce normal plants after steam sterilisation.

TOMATOS ATTACKED BY WHITE FLY: *H. S.* Whatever fungous trouble there may be is quite overshadowed by the very bad attack of White Fly. The eggs of this pest are laid usually on the underside of leaves, and hatch in from 11-14 days. The very young larvae (small, louse-like insects) are active for from 2-4 days, wandering about the leaf. They then settle down on the underside of a leaf, usually close to a rib. This stage lasts from 10-12 days, when the insect casts its skin. In about 14-20 days after this change it again casts its skin, and subsequently lives from 5-36 days before changing to the pupal, or resting stage. With the exception of the very young larvae, the insect in all these stages somewhat resembles a small, rather transparent scale insect. The pupal stage lasts from 21-59 days, and the imago, the "White Fly" itself, may live about a month. Temperature regulates the duration of all stages, except the egg stage, which is not affected, cold increasing the length of the life-cycle. In the larval and adult stages the insect is protected by a waxy secretion, and in the pupal stage by long, waxy, bristle-like processes. This protection makes the insect a difficult one to kill by ordinary contact insecticides. Apart from fumigation with hydrocyanic acid gas—the most satisfactory remedy—repeated fumigations with Pyrethrum cones or nicotine preparations have been stated to destroy the flies, while some have had success with sulphur vaporisers. Frequent sprayings with a soft-soap wash (the more potash in the soap the better), or a paraffin emulsion, have also been recommended. These milder measures, however, are only likely to be successful when applied before the attack has become serious. Tetra-

chlorethane is suggested as an excellent remedy in small greenhouses, and especially in those attached to dwellings, as it is not a very poisonous substance like cyanide. At the same time, no one should attempt to work in a greenhouse where it is exposed, or even to enter it, except to open the ventilators. It does not damage Tomato plants or interfere with the setting of fruit. Certain kinds of greenhouse plants will suffer from it, and it should, therefore, be used with care in the first instance. The liquid (tetrachlorethane) is simply poured down the centre of the house in the evening at the rate of half a pint to 1,000 cubic feet, and the house is closed for as long as possible. If the house can be kept closed through the next day and night without airing, the operation will kill all the fly and all the scales, but not the eggs, and the operation should be repeated at the end of a fortnight in the summer, or at the end of three weeks in the spring and autumn. If the weather is such that the house has to be opened the day after the fumigant has been put down, some of the scales will survive, and a few flies will be seen a day or two after the fumigation, which must then be repeated at weekly intervals three or four times.

TOMATOS DISEASED: *E. R.* In the absence of specimens we cannot determine the disease the plants are suffering from, but, from your letter, we suspect that they are affected with both rot and stripe diseases. Rot or Tomato leaf rust may be checked by spraying with either one per cent. Burgundy mixture or one per cent. Bordeaux mixture. Liver of sulphur at the rate of one ounce to four gallons of water is also recommended, or, if preferred, you may use ammoniacal copper carbonate at the rate of one ounce of copper carbonate and five ounces of ammonium carbonate in sixteen to eighteen gallons of water. The copper carbonate and the ammonium carbonate should be mixed and dissolved in about a quart of hot water. When thoroughly dissolved, sixteen to eighteen gallons of cold water may be added. Stripe disease is caused by a small, yellow bacillus, and the plants are generally attacked from the soil, the bacterium being introduced into the outer tissues of the root or stem through wounds caused by biting insects. In the upper parts of the plant, wounds, and even the cut surfaces caused by pruning, may be the centres of infection. Certain varieties are more susceptible to the disease than others; Ailsa Craig has been found more resistant than some. In future sterilise the soil by heating, and do not use an excessive amount of nitrogenous manure, but mix plenty of potash with the compost. Where the upper part of a plant only is attacked the removal of the diseased part and the development of a lateral shoot will often lead to a complete recovery and to a clean crop of fruits.

TOMATOS AND PEACH STONES SPLITTING: *Urgent.* Improper watering of the roots is usually the cause of Tomatoes splitting. Certain varieties of Peaches are more prone to stone splitting than others. It may be due to sudden changes in the temperature, or dryness at the roots during the winter months, bad stocks, or planting the roots in unsuitable mediums.

WOOD WASP: *A. E.* The insect received from you is a specimen of the Giant Sirex or Wood Wasp (*Sirex gigas*). The female bores a hole through the bark of old or felled Coniferous trees and deposits her eggs therein. The larvae feed on the timber and remain therein during their larval, pupal and chrysalis stages. In the case of an early brood the adult insect emerges in early autumn, but in the case of late egg laying the chrysalis stage continues through the winter, the perfect insect appearing early the following summer.

Communications Received G. K. J. M. F. S. C. H. G. J. M. A. T. S. W. H. F. G. K. A. J. A. H. F. A. H. L. G. M. T. J. O. A. J. B. G. A. A. H. S. W. A. E. C. H. L. W. C. J. M. W. L. M. H. G. E. C. —J. P.

THE Gardeners' Chronicle

No. 1857.—SATURDAY, JULY 29, 1922.

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 62.5°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, July 26, 10 a.m. Bar. 30.3; temp. 65°. Weather—Fine.

The people of these islands have too great a love for nature ever to run the risk of letting their science pass entirely into professional hands. They will always find pleasure in their gardens and in the country-side, caring at least as much for the beauty which is to be discovered therein as for the scientific explanations of the manifold and intricate phenomena which the plants and animals present. To all who take this pleasure in the manifestations of Nature calendars, such as that of Mr. Blomefield, cannot fail to appeal. Though the elucidation of the rules according to which Nature's time-table is drafted must be left to the patient and prolonged investigation of trained researchers, everyone may observe the facts which illustrate the orderliness of natural phenomena and find pleasure in the exercise. As Sir Francis Darwin points out in his delightful preface to Mr. Blomefield's Calendar, even though seasons vary, the orderliness of the unfolding of flowers and of the advent of birds is not greatly affected. Not till the Larch is tipped with its emerald leafage does the Black Cap appear in the north of England, and only when the Oaks and Elms are green does the Wood Warbler make its appearance. With

astonishing seasonal punctuality, the Box tree and the ground Ivy (*Nepeta Glechoma*) open their flowers together—on or about April 3rd. The rules which compel the times and seasons of plants are as obscure as they are complex. People have been known to follow the ripening Strawberry northward in order to satisfy their gourmet's taste, yet there are plants, like *Spiranthes autumnalis*, which exhibit the paradox of flowering later in southern than in northern regions, and others, like *Calluna* and *Artemisia*, which flower simultaneously in north and south. In the face of facts such as these the efforts of the older phænologists to predict times and seasons by multiplying time and temperature were manifestly destined to fail. Nature is not to be "cribbed, cabined, and confined," or bound in by any such simple arithmetical sum. It is a pleasure to find that Sir Francis Darwin and Mr. Blomefield are able to testify to the accuracy of poets' observations. Shakespeare's Daffodils which come before the swallows dare and take the winds of March with beauty, are also Nature's Daffodils, the latest of which opens its flowers on April 4th, five days before the earliest advent of the Swallow. Those who lead lives in the country and those who, though their bodies are confined in towns, have left their hearts in the country, will find pleasure in every page of Mr. Blomefield's calendar. The records recall memories which defy the seasons. As you turn the pages you can hear the convincing song of Thrush, Wren and Redbreast in January, and see in the same months the pale perfoliate Honeysuckle coming into leaf. *Daphne Mezereum* in flower with the Gorse and Hazel, Winter Aconite and Stinking Hellebore, and as the first month of the year draws to a close and the Daisy and the Snowdrop blossom, the Missel Thrush commences its song. In February—the fill-dyke month of wet and wintry weather—Mr. Blomefield records the waking of the Hive Bee and—doubtful joy—the appearance of the house-fly, the first sight of the Pied Wagtail, the songs of the golden crested Wren, Yellowhammer, Blackbird and the flowering of no fewer than fourteen plants and earliest among these is *Daphne Laureola* (the Spurge Laurel), followed two days later (February 4) by the Field Speedwell (*Veronica agrestis*); in the second week, Butcher's Broom, Elder, *Pyrus japonica* and Primrose, with the spring Crocus a week later (February 20) and presently the Dandelion, sweet scented Coltsfoot (*Tussilago fragrans*), Lesser Periwinkle (*Vinca minor*), *Kerria japonica*, which amateurs always call the japonica "tout court," the Alder, *Ranunculus Ficaria* and the Yew. And so the pageant of spring advances, swelling to more than double its magnitude in March and yet double again in April—a multitude which will show no sign of waning until July is past.

New Assistant Director at Kew.—We learn that Major Chipp, B.Sc., F.L.S., M.C., has been appointed Assistant Director of the Royal Botanic Gardens, Kew. Some years ago Major Chipp was a member of the garden staff at Kew; he served with His Majesty's forces during the war, and has latterly held the position of Assistant Conservator of Forests on the Gold Coast. This appointment is of special interest, as Major Chipp has risen from the ranks in a horticultural sense, to occupy the high position at Kew, as did Dr. W. B. Hemsley, Mr. W. J. Bean, and the late Mr. R. A. Rolfe.

Bletchley's Bank Holiday Show.—The eighth annual show of the Bletchley Horticultural Society will be held on Bank Holiday, August 7, and bids fair to eclipse all former successes. It

will be held, as usual, in the beautiful grounds at Bletchley Park, once again kindly lent by Sir Herbert Leon, Bart., and Lady Leon. In addition to all the old attractions, new and popular features will be added.

American Plant Importation Regulations.—Mr. W. G. Lobjoit, O.B.E., Controller of Horticulture, has returned from his visit to America. As a result of the Public Conference held on May 15, and the subsequent private discussions with the Secretary of Agriculture and the Federal Horticultural Board, Mr. Lobjoit thinks it unlikely that the American Federal Horticultural Board will impose any further restrictions upon the trade in horticultural produce from this country. Officially, nothing has been settled, but the *Florists' Exchange* of June 17 contained a letter signed by Mr. H. C. Wallace, Secretary of Agriculture, in which he stated that it is proposed to permit the entrance without restriction, for a period of three to five years, of certain additional kinds of bulbs and tubers, particularly tuberous-rooted Begonias, Gloxinias, Galanthus, Chionodoxas, Muscaris, Scillas, and Eranthis. This concession, if made, would be in addition to the existing facilities should these remain unmodified.

Ken Wood, Hampstead.—The Ken Wood Preservation Council has paid to Lord Mansfield a deposit of £10,000 towards the purchase of nearly one hundred acres of the Ken Wood estate, which adjoins Hampstead Heath and Parliament Hill fields. The purchase price is £1,350 per acre, a lower figure than was originally asked. It would appear that after overcoming many difficulties, the Ken Wood Preservation Council has now almost achieved its object, and that London will have a large and beautiful tract of land added to one of its most popular open spaces.

Forster Memorial Park at Lewisham.—On Saturday, the 2nd inst., the Hon. Mrs. D. C. Lubbock opened the Forster Memorial Park, twenty-four acres in extent, which was presented to the Borough of Lewisham by Lord Forster, Governor-General of Australia, in memory of his two sons who fell in the war. The park, laid out by the Lewisham authorities at a cost of about £8,000, comprises about eleven acres of woodlands and thirteen acres of grass land. A brief dedicatory service was conducted by the Bishop of Woolwich.

Trial of Early Strawberries at Wisley.—The Royal Horticultural Society proposes to carry out a trial of early Strawberries in its gardens at Wisley during the coming season. Twenty plants of each variety to be tried should be sent to reach the Director, R.H.S. Gardens, Wisley, Ripley, Surrey, on or before August 15, 1922. Only early fruiting varieties should be sent.

Flowering Plants of South Africa.—Part VII., Vol. II. of *The Flowering Plants of South Africa*, just to hand, contains illustrations of ten plants, many of them very handsome and deserving of consideration by British cultivators. *Corycium crispum* (p. 61), a yellow-flowered, tuberous-rooted terrestrial Orchid, is the first Orchid to be figured in this work. As bulbous plants are fairly common in South Africa, it is not surprising to find them figuring largely in this publication; Part VII. gives illustrations and descriptions of *Ornithogalum Thunbergianum*, a species with flame-coloured flowers, and a black, diamond-shaped mark at the tip of each of the three outer segments; this should prove an attractive plant if cultivated in pots. *Gladiolus Pritzelsii* (p. 68) is a slender growing, yellow-flowered species, but has only two to four more or less complicate flowers on a spike. *G. alatus*, var. *namaquensis* (p. 63), is a more handsome plant, with deep pink upper segments, and small, bright yellow, pink-tipped lower segments—"in the veldt groups of plants are usually found together, each forming a corm which has developed as an off-shoot from the parent corm. This character renders the plant easy of propagation." *Aloe excelsa* (p. 62), a Rhodesian plant, that would need to be grown in a warm house here, is aubrescent, sometimes

* A Naturalist's Calendar, kept at Swaffham Bulbeck, Cambridgeshire, by Leonard Blomefield. Second edition. Edited by Sir Francis Darwin. Cambridge University Press, 1922. 3s. 6d. net.

growing upwards of 15 feet high, with a crowded rosette of leaves, which are spiny along the margin. The inflorescences are branched, and each ultimate raceme or head carries a large number of cylindric, rich carmine red flowers, and presents an appearance suggesting a red *Kniphofia*. *Gazania pygmaea* (p. 64) is a common plant in the veldt around Pretoria, which it carpets with its white, yellow-centred flowers in September; it is a low-growing, stemless plant, 3 to 4 inches high, and has narrow, linear leaves, pale green above and silvery beneath. *Ferraria antherosa* (p. 66) is an interesting but not very beautiful Irid, with dull orange-yellow flowers, large, leafy bracts and discoid corms arranged "one on top of the other." *Harveya squamosa* (p. 67) is a herbaceous parasite on the roots of plants not enumerated; the species belongs to the Order Scrophulariaceae, and its dense, erect raceme of cylindric, yellow-tubed and red-mouthed flowers, is quite handsome. Lastly, there is *Ochna pretoriensis* (p. 70), a bushy plant, bearing white, sweet-smelling yellow flowers in September; the flowers are followed in due course by black fruits in a setting of crimson sepals, therefore the plant is attractive when in flower and also when in leaf and fruit.

Importation of Onion and Leek Seed.—The importation of Onion and Leek seed into this country is subject to the provisions of the Destructive Insects and Pests Order of 1922, and all consignments should be inspected in the country of origin before shipment, and certified to be free from disease. Large quantities of this seed are imported from the United States, and as a result of representations made by the Controller of Horticulture during his recent visit to Washington it is understood that the American Authorities propose to arrange for the examination, while growing, of Onion and Leek crops intended for the production of seed for export. It is probable that the American Authorities will refuse to grant certificates for seed from crops which have not been inspected whilst growing, and importers should therefore take immediate steps to warn their growers in America to ask for the inspection of Onion and Leek crops now being grown for the production of seed for export to this country.

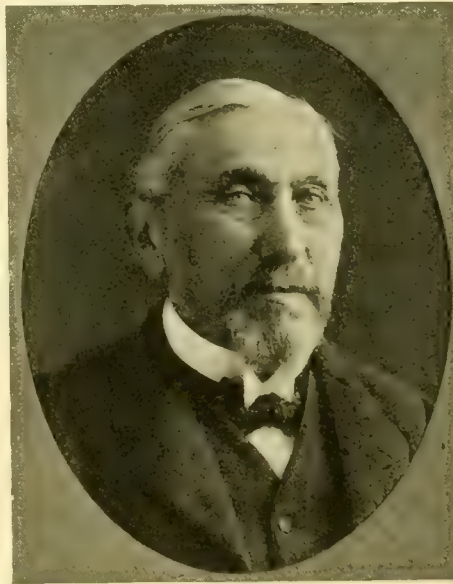
Export of Orchids to America.—The Ministry of Agriculture has received inquiries from time to time as to whether Orchids grown in other media than soil should have their roots washed clean before export to the United States, in order to comply with the Plant Import Regulations of that country. Mr. W. G. Lobjoit, the Controller of Horticulture, while in Washington, took the opportunity of consulting the chairman of the Federal Horticultural Board on the matter, and was informed that Orchids grown in a mixture of leaves, Sphagnum moss and fibre dust need not have their roots washed prior to export.

Standardised Baskets for Strawberries.—At a conference held at the Ministry of Agriculture on the 25th inst., a number of fruit package manufacturers and fruit growers, together with representatives of railway companies, agreed to adopt a standard size for baskets for the carriage of Strawberries. The new basket will be constructed on the basis of sixty cubic inches as the necessary space for one pound of Strawberries, and it is proposed to construct baskets to hold respectively three and four pounds of fruit. Such baskets will be officially labelled according to their capacity.

Marking of Foreign Produce.—At a meeting of the Parliamentary and Transport Committee of the Chamber of Horticulture, presided over by Mr. G. W. Leak, President, on the 20th instant, the Merchandise Marks Bill was examined and discussed from the horticultural trade point of view. This Bill has been read a second time in the House of Commons and is now before Standing Committee C, on which Committee the Chamber is fortunate in having several of its Parliamentary Committee in the House. The main principle of the Bill, giving power to require indication of origin where the make up gives a false impression, is regarded with satisfaction. This power is obtained through

the medium of the Board of Trade, which is empowered, after making the necessary inquiries, to issue an Order giving effect to such power, so that in the event of this Bill becoming law, the Chamber may make strong representations on behalf of the trade. In the meantime, the present Bill is being supported having regard to an amendment to Clause 14 (2), in which the Chamber asks for the marking of containers in the case of goods or produce on which it is not practicable to place a brand or mark.

Mr. P. C. M. Veitch.—The head of the firm of Messrs. R. Veitch and Son, Exeter, whose portrait we have much pleasure in presenting to our readers, is as well known for his geniality as for his wide knowledge of trees and shrubs. He is the son of Mr. Robert Tosswill Veitch, and the grandson of the James Veitch who founded the house of Veitch at Exeter. Mr. P. C. M. Veitch was born in the Cape of Good Hope, and his mother's name, Massyn, a Dutch corruption of Massena, shows that he has Huguenot blood in his veins. After education at Exeter under Dr. Ingle and Dr. Roper, and a period at Oundle Grammar School, Mr. P.



MR. P. C. M. VEITCH, J.P., V.M.H.

C. M. Veitch entered the seed department of his father's firm at Exeter at the age of sixteen years. During the busy seed season of 1866-7, he was with Messrs. Jacob Wrench and Sons, and in the following seed season with Messrs. J. Carter and Co., High Holborn, but in the summers of 1867 and 1868 he was engaged at the famous Coombe Wood nursery, and in the winter of 1868 at the Chelsea nursery. From the spring of 1869 to the autumn of 1870 he was employed in a German seed house, and in the following year was engaged in a French establishment. From 1871-1875, Mr. P. C. M. Veitch was with Messrs. J. Veitch and Sons at Chelsea, in their seed warehouse, and in the nurseries, and he attended the principal shows of that period, including the International Exhibition of 1873, at Florence, where he had charge of *Nepenthes* and other interesting stove plants. He was overtaken by an illness early in 1875, and was ordered to take a sea voyage, and Mr. (now Sir) Harry Veitch very kindly arranged that his trip should take the form of visiting customers in Australia and seeing something of the world in general. He was away for a period of three years, and during that time visited most parts of Australia, New Zealand, the Fiji Islands, New Caledonia and Borneo, and in the latter island, together with the late Mr. F. W. Burbidge, he ascended Mt. Kina Balu in search of *Nepenthes* and Orchids. Unfortunately, on two occasions, his collections of plants were lost, and in 1877 he

was himself shipwrecked. Soon after his return to England he joined his father at the Exeter nursery, and the firm became R. Veitch and Son. He especially devoted himself to the development of that section of the business concerned with Hamalayan Rhododendrons, Magnolias, Camellias, Nerines and all kinds of hardy and half-hardy shrubs, for which the Exeter firm is now famous. His interest in plants is, however, far wider than this would suggest, as he has raised such subjects as *Calceolaria*, Golden Glory and C. Veitchii, Magnolia Veitchii, several Nerines which succeed out of doors, Late Devonian Peach, and Glory of Devon and Exonian Peas. He was also the introducer to commerce of Rhododendron Dr. Stocker, Hydrangea Veitchii, Erica Veitchii, and Veitch's Climbing French Beam. Mr. P. C. Veitch is a member of the Fruit and Vegetable Committee of the Royal Horticultural Society, a past president of the Horticultural Trades' Association, and a member of the Committee of the Gardeners' Royal Benevolent Institution, and for services rendered to horticulture he was awarded the Victoria Medal of Honour in 1916. In addition to his horticultural activities Mr. P. C. M. Veitch is a member of the Council of the Devon Agricultural Association and is on the Agricultural Education Committee of his county, while his interest in sport may be gathered from the fact that he is president of the Exeter and County Cricket Club and past president of the Rugby Football Club. Since the regrettable loss he sustained by the death of his son Mr. J. Leonard Veitch—who was killed during the war after becoming major in the Devonshire regiment, and gaining the M.C.—Mr. P. C. M. Veitch has been assisted in his business by his daughter, Miss A. M. Veitch, B.A. All his friends trust that he may preside over the Exeter business for many years to come.

Appointments for the Ensuing Week.—Tuesday, August 1: Royal Caledonian Horticultural Society's meeting; Bournemouth Gardeners' Association's meeting; Turiff Flower Show. Wednesday, August 2: Royal Agricultural Society's Council meeting. Thursday, August 3: Taunton Deane Horticultural Society's exhibition; Chesterfield Horticultural Society's show; Slinfold Flower show. Friday, August 4: Bradford Hospital and Convalescent Fund's Show in Lister Park (two days). Saturday, August 5: Auchencairn Horticultural Society's show; Illogan Gardening Society's show.

"Gardeners' Chronicle" Seventy-Five Years Ago.—*Large Chestnut Trees.*—Perhaps the following account of two Chestnut trees may not be uninteresting. The first I shall notice grows in the nursery grounds of Mr. Allan, of Stirling. The diameter of the stem, about two feet from the ground, is four feet three inches; the main branches of the tree are twisted in a remarkable manner, and extend to about sixty feet in diameter; the tree may be about sixty or seventy feet in height, and is still in a healthy condition. The place where it grows was formerly part of the Royal Gardens, and is very steep, but is easily got at by means of winding walks through the grounds; and from the rustic erection under its spreading branches a beautiful view is obtained of part of the rich alluvial land in the neighbourhood of Stirling. Here, and there the Forth may be seen winding its course among luxuriant fields; the steamers and other vessels half hid among rich vegetation; the ruins of Cambuskenneth Abbey; the basaltic columns of the Abbey crag; the near view of the Ochil mountains; and, in the distance, the Saline hills, all combine to form a picture which the eye delights to look upon. The other tree grows in the wood of Bannockburn, and is of larger dimensions; the diameter of the trunk, about two feet from the ground, is five feet eight inches. The tree is still in a healthy state; it is not far from a spot called the "Bluidy fauld." *Peter Mackenzie, Gard. Chron., July 31, 1847.*

Publication Received.—*Plant Pests and Parasites.* By Horace J. Wright. "Country Life," Ltd., 20, Tavistock Street, W.C.2. Price 9d net.

NOTICES OF BOOKS.

Woodland Notes.*

THE title of this interesting volume is somewhat misleading, forasmuch as, according to *Webster's Dictionary*, a romance is "a tale of extravagant adventures, of love and the like," and the term is accounted to be a synonym of "fiction." Howbeit, Mr. Wilson's pages may be searched in vain for anything in the nature of fiction; they teem with notes upon the less obvious features and characteristics of forest trees of the northern temperate zone, and there can be few readers, however well versed in forest lore, who will fail to gain knowledge and fresh suggestion from their perusal. For instance, it has not escaped the trained observation of the far-travelled author that Asia suffered far less drastic denudation during the great ice age than did the rest of the northern hemisphere. Vegetation, which in Europe and North America was planed off and destroyed nearly so far south as the Mediterranean, suffered little harm in China and Japan. This, of course, profoundly affected the distribution of trees and plants which ensued upon the retreat of the land ice, so that "the net result is that the existing flora of the Chinese Empire and of Central Japan southward, is really a miniature of the whole flora of the northern hemisphere in pre-glacial times" (page 19).

The story of the Ginkgo or Maidenhair tree furnishes, perhaps, the most interesting chapter in the book, for it explains how this species—unique in its isolation from any family or group of existing vegetation—is the sole survivor of the forests which harboured the giant lizards of Triassic times. Abundant remains of several species of Ginkgo, some of them hardly distinguishable from those now flourishing, have been identified in the Permian rocks, older than the chalk. It is remarkable that this tree has never been discovered growing wild, although, having been closely associated with Buddhist institutions from earliest times, it has been most extensively planted beside both temples and dwelling-houses in China and Japan. The occurrence of Ginkgo in wild forest has been reported by more than one traveller; but Mr. Wilson remains firmly of opinion that such statements were made in error, and his intimate acquaintance with Chinese and Japanese forests entitles him to speak with confidence.

In treating of the Yew, Mr. Wilson estimates the age of the Ankerwyke Yew at "probably more than a thousand years old," but does not cite any evidence in support of that figure. Dr. John Lowe, who went very closely into the question of the ages of British and Irish Yews, was more sceptical about the reliance to be placed on tradition in connection with this and other old specimens. There is a printer's error on page 86, where the girth of the bole of a Cedar of Lebanon at Petworth is given as 149 feet instead of 14½ feet, as recorded by Elwes and Henry.

There is no British tree more popularly known than the Holly, but probably there are few, except trained botanists, who are aware that, as Mr. Wilson explains, it differs from almost every other forest tree, in that it forms no true bark. The usual process is that the layer of cells underneath the outer rind forms the bark that protects the tissues of the cambium; but in the Holly and the striped-bark Maples the outer cells continue to live and grow concurrently with the new inner tissue. Facts such as this, told in plain terms without technical verbiage, render this fully illustrated volume well worthy of attention from all persons interested in trees.

THE WREXHAM DELPHINIUMS.

I RECENTLY spent half a long afternoon with Mr. Samuel in the midst of his Delphiniums. It is a rare treat to see all his splendid varieties and to hear him talk about them and his ideals. Before he has finished with them he intends to do with the stiff, tightly packed spikes of the

past much the same that Bridgeman and Kent did to the old formal gardens of England. A "Samuelised" Delphinium spike will be something four feet long and of attenuated sugar-loaf shape, with each individual flower held by a strong pedicel well away from the main stem, and each of these pedicels getting regularly shorter and shorter as they near the apex. The lower flowers are to be three to four inches in diameter, with broad overlapping guard petals, and the interior ones, as Mr. Samuel expresses it, "frilled." It would appear to be immaterial whether there is an eye or not, for he pointed out an exquisite pale blue and mauve as his choice of the 1922 seedlings which had bloomed up to the date of my visit, which had no eye. To me it looked as if there was something wanting. I do not think I will ever care for



FIG. 26.—DELPHINIUM ADVANCEMENT.

a Delphinium without the bee-like centre, which I look upon as one of its chief characteristics. As a rule I am bound to admit Mr. Samuel admires good centres and gives them full weight in forming his judgment of a variety. In what I have written above I have tried to answer in a rough way what is always an interesting question, "What is the fellow after?"

To come to hard facts, it will interest many readers to know what is being done at King's Mills. The essential difference between what I saw this year and last has been produced by the "bursting up" (I again use Mr. Samuel's own expression) of the clumps. He found out last year it was inconvenient and aggravating to have all his eggs in one or two baskets, so any clumps that would divide up—even in the one-year-olds—has been "burst up." One result has been that I saw the splendid sight of a mass of a hundred and forty Jenny Jones's with their shapely spikes and rich colouring of purple and deep blue. Close by this were two newer beauties: Joy Bells, with still larger individual flowers (one I measured was a good 3¼ inches in diameter) of Pleroma violet and small blue

with a dark bee-like centre, and with the inner petals "frilled," that is, standing up after the type of a Crawley Star Dahlia; and, secondly, there was another dark-eyed beauty called Second Thoughts, with a looser-arranged spike and with three-inch flowers of Hyacinth purple with small blue colouring. Second Thoughts.—Yes: if a reader had Mr. Samuel's job of choosing out of the many hundreds of seedlings that are to be found in his garden he would realise something of what is behind this name. I know it full well after an apprenticeship with Lachenalias and Freesias. Every seedling raiser knows it. The famous rose Lady Pirrie was a second thought. It was marked to be discarded, and it was only upon the solicitation of Mr. Wallace of Eaton Bray, as he himself told me, that Mr. Dickson gave it another trial. After a time our eyes seem to get surfeited and our critical acumen goes, and we form wrong judgments. I only hope I have not made my good friend uneasy by my enthusiasm over one of his first-time-of-blooming cast-offs, which I chose from among others in a big vase on the tea table. Naturally the spike was but small, as befitted its age, and there was a gap or two on it, but the beautiful flat flowers with their three or four rows of deep blue petals just tinged with deep red purple lying prone one upon another round an ideal, deep brown non-protruding, centre, were to me very lovely, and, at any rate, ought to have secured for the variety another year's trial. It has gone the way of all flesh. Never mind, there are many lovely things left.

Of the very new ones my selections were: Dare Devil—a tall plant with a large dark eye and massive petals of deep rich violet with splashes of hays blue (*Ridgway's Colour Chart*, 1912). The inner petals were flat and not frilled. Chic, at a distance superb and most effective with large flowers of a pale cadet (the chart again) blue—nearly a Cambridge blue—with khaki eye evenly set on a shapely spike; Blue Darling (Mr. Samuel's pick of the 1921 flowers)—the individual blooms have the look of loosely formed, delightful pale blue rosettes with dark centres. Here and there a petal is tipped with black, which gave the flower that look of pleasing hauteur which patches gave to our great grandmothers. Climax has such a very long snake-like spike of Uppingham blue colouring that as a contrast to all the wide-bottomed ones it stood out as something distinct and with a character of its own. The individual flowers are semi-double and have a darkish eye. Advancement (Fig. 26) is noteworthy on account of its spike. The original plant of 1921 had been divided last spring—an important point to remember when I tell readers that the spikes of flowers as I saw them measured a good 3½ feet. As an American wrote of some second-quality seed that Mr. Samuel had sold him: "If your second quality produces such flowers as it has given me what on earth must the results of your first quality be like?" What length of spike, I wonder, will an undivided Advancement give? There is a small khaki eye, and Ridgway gives the colouring as Chinese violet with diver's blue on the exterior and in the centre of the blooms. Most Delphinium lovers know the Rev. E. Lascelles with its striking white eye; in The Bishop we have a glorified Lascelles. Wrexham—its name vouches for its quality—is a beautiful single with a dark eye and with rich small blue petals delicately tipped with Matthew's purple.

Just a few words in conclusion about old varieties, in order to say that Amazement, which most unaccountably was passed over last year by the R.H.S. Floral Committee, was better than ever. It is so very bright looking with its pretty pale blue, set off with just a sufficiency of what I can only call pale pink, to give it a most uncommon and distinguished appearance. If Jenny Jones ever has to take a back seat, I think it may be Wales that will take the front place. This is a grand variety with rich Mulberry purple and hays blue flowers, the petals of which somewhat curl back at their edges. They are carried on long pedicels and the spike has a wide base. It is a milestone on the road to the ideal which may not be so far away after all. *Joseph Jacob.*

* *The Romance of Our Trees*, by Ernest H. Wilson, M.A., V.M.H., Assistant Director, Arnold Arboretum, Harvard University. Doubleday, Page and Co., New York 1920.

The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the DUKE OF MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Temperatures.—Owing to the dull, wet, and sunless weather of late, a certain amount of fire heat has been necessary in all the houses, with the exception of the *Odontoglossum* house. Artificial warmth is always necessary during such periods, especially after bright, warm weather such as we had previously enjoyed; a damp, stagnant atmosphere is harmful at any time, and doubly so following bright and free-growing weather.

Cypripediums.—The warm-growing species of *Cypripediums*, which comprise *C. Rothschildianum*, *C. Stonei*, *C. Sanderianum*, and other similar kinds, with the hybrids raised from them, require the temperature of the warmest house, and liberal treatment at all times. The present is a suitable time to undertake a general overhauling of the plants, with a view to the providing of new rooting material to the specimens that are in need of it. The drainage should be perfect, and the compost such as was advised for the winter-flowering varieties. Ordinary flower pots provide suitable receptacles. As each variety of these useful plants passes out of bloom, it should be attended to, and when all are done, the plants should be thoroughly cleaned, and stood in a position where they may be shaded from strong sunshine. Water may be given directly after the repotting, especially if the compost is at all dry, to settle it around the roots; but care must be used in the application of water afterwards, until the new roots are growing freely through the compost. When established, copious supplies should be given whenever the roots become dry, and especially when the plants are in active growth. Light overhead sprayings of soft, tepid water, when the weather is favourable, are beneficial, and aid in keeping the plants clean and healthy. *Cypripediums* thrive in plenty of atmospheric moisture, and are very rarely attacked with thrip and other insect pests, where it is supplied.

Warm Cypripediums.—*C. Lawrenceanum*, *C. callosum*, *C. Curtisii*, and their lovely albino varieties, grow better at the warmer end of the intermediate house, but care must be taken that the position is not too dry. These beautiful and popular kinds if grown in too much heat are apt to damp off and gradually die away: there is much in the study of plants and their environments, as greater success may often be obtained in one part of the house than in another.

HARDY FRUIT GARDEN.

By H. MARKHAM, Gardener to the EARL OF STRAFFORD, Wrotham Park, Barnet.

Vines.—To be successful with Grapes in the open the shoots and leading growths should receive every care and attention at reasonable intervals. Keep the leaders neatly secured in their required positions where extension is required for filling up the allotted space; shoots bearing bunches should be stopped at two joints beyond the bunches, and stopped again as soon as the fresh laterals are sufficiently advanced. This second stopping should be done at one or two joints above the new growth. See that the ties near the bunches are sufficiently strong to keep them safe without breaking as the bunches get larger. As soon as the berries are the size of small peas, the bunches should be thinned, removing any of the inner berries and others not properly fertilised with the aid of proper Grape scissors. After the thinning is finished a gentle syringing with clean soft water will remove any grit or dust which may have settled in the bunches without doing any harm whatever to the remaining Grapes.

Raspberries.—Remove the nets and other protection as soon as the fruits have been harvested, cut out all the old canes and let the best and strongest of the young canes take their places. After sufficient have been tied to the wires or other supports, remove all the rest with the exception of any that may be required for increasing the stock. Give the roots a good mulch of rich manure, if obtainable, and a thorough soaking of water if the soil is not sufficiently moist. The old variety *Superlative* still holds its own at Wrotham, and crops very heavily.

Autumn Fruiting Raspberries.—If not thinned sufficiently remove any of the canes that are not wanted, destroying the weakest rods and those not likely to be fruitful. See that the roots are well supplied with suitable nourishment, and especially should this be done on light land and where the beds have been fruiting for some few years and are showing signs of weakness.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir C. NALL-CAIN, Bart., The Node, Codiote, Welwyn, Hertfordshire.

Trachelium coeruleum.—Where large plants of this popular greenhouse plant are required, seed should be sown now and the seedlings grown on steadily and repotted as needed up to 10-inch or 12-inch pots. The seed may be sown in 6-inch pots filled with a good open compost and germinated in a cool house. Shade the pans from bright sunshine until the seedlings appear above the soil, and as soon as the latter are large enough to handle, prick them out into a box, to be transferred to small pots when they have reached a suitable size and grown on in a cool house.

Seedling Ferns.—Seedling Ferns are often found in quantities under the stages of plant houses, and if some of them are potted now they will make useful specimens by the autumn. They should be lifted carefully and potted into small pots. The compost should be of an open nature, containing a mixture of loam and peat in equal parts, with a good dash of sand added to ensure a free drainage. After potting, they may be stood under growing Cucumbers or Melons, where they will be shaded from the direct rays of the sun. They will soon make plenty of roots under these conditions, the warm temperature and moist atmosphere being favourable to them.

Eydrangea.—If suitable young shoots are available, now is a suitable time to insert cuttings of *Hydrangeas*. They should be inserted singly in small pots, or three may be placed in one large 60-sized pot and grown on intact. The receptacles should be filled with a light compost, with plenty of sand added, and stood in a close propagating frame. Immediately roots form, they should be removed to a house or frame having a lower temperature. Cuttings inserted now will, provided every encouragement is afforded them to make good growth, produce excellent inflorescences next season. As the older plants pass out of bloom, they should have their flower growths cut hard back and be stood out of doors in a sunny position to thoroughly ripen them.

Regal Pelargoniums.—These plants have finished flowering, and should be stood in the open to thoroughly ripen the shoots. If it is desired to increase the stock of these plants, cuttings from the old plants may be inserted now. In selecting the cuttings, choose growths that are well ripened, as these will root readily in a cold frame, where they can be protected from heavy rains. No shading will be needed, as they will be found to root much better when exposed to the sun. Plants intended to be grown on again next season should not be cut hard back until such time as the wood is well ripened. Afterwards, they may be pruned hard and allowed to rest for several weeks before being repotted in readiness for another season.

THE KITCHEN GARDEN.

By JAMES E. HATHAWAY, Gardener to JOHN BRENNAND, Esq., Baldersby Park, Thirsk, Yorkshire.

Potatoes.—Early varieties should be lifted before the tops have died down and planting sets carefully selected, as these are far better if they are not allowed to become too ripe. Tubers from any plant that shows a tendency to disease should be rejected. The cold weather and heavy rains will have been favourable for the spread of Potato disease, but the plague has come too late to affect early varieties very much. Place the selected seed sets in boxes to harden, afterwards putting them in a cool, light shed.

Onions.—Autumn-sown Onions will now be ready for pulling, for if left much longer they will burst. They should be laid out on trellises to ripen, and will then keep up a supply till the spring-sown crop is ready.

Tomatos.—Plants out of doors which have set four or five trusses of fruits should now have the leading growth removed, to ensure the crop ripening, as fruits set later are of little or no use. Remove all side shoots and see that the stakes are in good order.

French Beans.—A batch should now be sown in cold frames and also in 8-inch pots, and grown on as cool as possible to provide late autumn supplies.

Carrots.—A sowing of stump-rooted Carrots should be made on a warm border and treated as previously recommended. These will supply small succulent roots, which are much in demand in the kitchen.

Herbs.—Many kinds of herbs will now be ready for gathering; these should be cut when dry, tied up in bunches, and hung, head down, on a wall in the sun to dry; turn the bunches round occasionally.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

Cucumbers.—Where Cucumbers are in daily demand and failing plants are removed before spider becomes troublesome, now is a good time to make a sowing of seeds for securing a full supply of fruits up to Christmas. Light, compact and efficiently heated pits are essential to the growth of good Cucumbers after September, but hot-water heating will not be needed up to that date. Sow the seeds as recommended in previous calendars in a moderate temperature to ensure short-jointed growth. The best compost for the young plants is rough turf, lime rubble, and burnt refuse, with a dash of bone meal and soot, and considering that the stems can be earthed up to almost any extent, it need not be more than nine inches deep to start with. As the plants will grow fast through August and September, they should not have less than 25 to 30 square feet of trellis to allow for their full development. Anyone who has tried close planting and failed will do well to give the plants more room, avoid the use of animal manure, and try extension training. As the plants grow and the roots rise to the surface, more rough, turfy compost must be added, little and often, but nothing in the way of stimulants will be needed until the plants come into full bearing. Water must be given in abundance, and weak soot water may be freely used for syringing purposes. To ensure fruit of good quality, the bottom-heat must be maintained by frequent renovation. Gross manure as a mulch should not be used, and the health of the plants preserved by inside cleanliness and liberal ventilation.

Melons.—Good seedlings of a free-setting variety may still be put into 12-inch pots for giving a supply of late fruits, the most important provision being the means of giving plenty of top and bottom heat when the crop is swelling and ripening. The best compost for late Melons is strong, friable loam, old lime rubble, a little soot, and a few handfuls of

bone meal, but on no account should it be rich enough to encourage gross leafage, as the growths must be healthy and woody. The laterals should be pinched and the flowers fertilised as recommended in previous calendars. Two fruits to a plant are ample, and these, if possible, should be set on the same day. Weak liquid feeding may be commenced later. Late Melons may be well syringed when shut up early with sun-heat until the flowering stage, when wetting the foliage should be discontinued, and each leaf carefully preserved from damage.

Frame Melons.—The fruits in frames should now be well advanced, if not actually ripening, and when the plants are grown on conical hills of soil, upon which moisture cannot lodge, each fruit should be elevated upon an inverted pot to keep it clear of woodlice and water. It is not a good plan to expose the swelling fruits to the full influence of direct sun, but once they have attained full size, heat and light should reach them indirectly. If the plants are thinly trained, a few laterals will assist the fruit and keep the plants in health. Melons vary considerably in the ripening stage, but if over-feeding has been avoided, good quality fruits of medium size will be produced. These should be cut and placed in a dry, airy room until needed for use.

THE FLOWER GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

Propagation.—This work will be in full swing in gardens where it has to be undertaken on a large scale. The supplies of the various cuttings are far better this season than they were last. Care should be taken to keep the frames containing the pots of cuttings close until the plants have rooted, affording shade during sunny days; but the frames should be opened wide for about half an hour first thing in the morning, in order to dry up the surplus moisture that will have accumulated. Before shutting up the frames, syringe the contents lightly.

Staking and Tying.—This work is calling for very particular attention after the recent heavy rains. Very free growth has resulted and is of a brittle character, and very prone to snap off during wind storms. Dahlias especially require this attention, and unless they are carefully supported and tied one heavy wind would probably cause irreparable damage. Growths should be thinned out as considered necessary, bearing in mind that a limited number of strong healthy growths will give better results than a number of poor ones. Where flowers of Dahlias are being grown for exhibition purposes, the individual blooms should also be supported to prevent them breaking. Whilst dealing with this group of plants it should be remembered that they suffer from the attacks of earwigs, and these pests should be trapped by means of inverted flower pots, or lengths of Broad-Bean stalks tied along the stakes, into which the earwigs will crawl. Such traps should be cleared of their occupants each morning. Delphiniums require careful staking and tying, as will also Hollyhocks, both being easily liable to damage in bad weather. Perennial Asters need similar attention, and should be thinned out to leave about five growths to the stronger-growing varieties, such as those of the *Novi-Belgii*, and *Novae-Angliae* sections, whilst for the plants of finer habit, such as those of the *cordifolius* and *ericoides* sections, up to ten growths may be permitted. This does not seem a large number, but it will be sufficient to form very beautiful plants, inasmuch as the stems thus left will be able to develop their side growths properly, and give a far finer show of flowers than numerous shoots will. Other free-growing plants, such as *Amellus* Asters, the larger *Achilleas*, etc., are best supported by working brushy tops from pea sticks among their growths, as this is a less conspicuous method than employing stakes and string. A considerable amount of ingenuity may be displayed in the supporting of plants, but it should always be borne in mind that as natural a habit of growth as possible should be encouraged.

REVERSION IN BLACK CURRANTS.

IN your issue of July 15, in an article by *Market Grower* on the "Market Fruit Garden," there appears a paragraph relating to reversion in Black Currants in which my name is mentioned in connection with a method of identifying the disease. *Market Grower* writes, "No doubt the method is accurate, but it indicates some bushes as being reverted which appear quite normal as far as the crop is concerned." Permit me to add a few words of explanation, as the statement by itself might lead to the assumption that the method is valueless. The first point is that under certain conditions, especially when the terminal growing point of the shoot has been destroyed, a few leaves of a reverted type may be produced from the secondary shoots which take up the growth. The leaf type, however, soon recovers, and such plants, not being truly reverted, bear normal crops.

The second point is that true disease reversion usually appears quite gradually, though the grower frequently does not notice it until it is

material remains in the plantation and the disease is liable to spread suddenly, with the result that the whole plantation becomes unprofitable. A. H. Lees, Long Ashton, Bristol.

CULTURAL MEMORANDA.

WATERING OUTSIDE FRUIT BORDERS.

ALTHOUGH a good deal of rain has fallen, the amount is quite inadequate to the requirements of Vines and Peaches, whose roots are in borders two feet to three feet thick with a foot or more of drainage beneath them. Late Grapes and Peaches need any reasonable quantity of water just now, and if tepid water can be supplied, so much the better. Where water is scarce, its application can be economical and its temperature raised by passage through a good layer of fresh stable litter; indeed, timely mulching, especially after heavy rains, often renders artificial watering unnecessary. The spread of spider, the premature dropping and ripening of Peaches, and the shanking of Grapes,



FIG. 27.—SUPERB COLLECTION OF VEGETABLES EXHIBITED AT ELSTREE SHOW BY MR. E. BECKETT, ALDENHAM HOUSE GARDENS (SEE P. 59).

well marked. The first sign of reversion in the leaf is the coarsening of the margin points, and following this is a reduction in the number of sub-main veins running from the mid-rib to the margin. In practically every case, by the time the number of sub-main veins has been reduced to four, the crop shows a distinct reduction. In working the method, however, care should be taken that the small sub-main veins arising from the apex of the mid-rib should be included. The criterion is that any vein to count must leave the mid-rib and run to a point in the margin, the said point not being one of the five main points of the leaf.

The third point is that reverted bushes nearly always bear some crop. The amount depends primarily on the amount of reversion, and the grower must himself decide how long it is worth while to keep such bushes.

There are, therefore, two methods which may be followed. In the first, every bush that shows the slightest sign of disease—reversion—is grubbed as soon as the crop is picked and is replaced by a healthy young bush. This method is drastic, but is reasonably safe, since disease never has a chance of spreading.

In the second method reverted bushes are allowed to stay for a year or two until the crop becomes not worth picking. They are then grubbed and replaced. Under certain conditions this method may be pursued with profit, but it is far more risky than the first, since infected

may often be traced to watering in dribblets, but the mischief does not end here, as the roots denied water near the surface descend in search of moisture into the subsoil. Vines and Peaches with roots growing down in the subsoil soon become unmanageable, and produce fruit of inferior quality; root-lifting is then the only way out of the difficulty. There is little danger of overwatering a well-drained Vine or Peach border at this season of the year. F. J.

INCREASING ALPINES.

At this season progress should be made with the propagation of Alpine and rock-garden plants, of which a large number, such as *Phloxes*, *Violas*, *Saxifragas*, *Androsaces*, *Veronicas*, *Lithospermums*, *Aubrietias*, *Achilleas*, etc., are raised from cuttings. *Saxifragas* of the *Kabschia* group should be increased by dibbling single rosettes, without the usual trimming process, into about half an inch of pure sand, moist, and placed "pudding fashion" on top of a pot of the compost, the "pudding" portion rising from the rim of the pot towards the centre. Put the rosettes in thickly, firming them as well as the sand will permit. These pots form charming ornaments for the Alpine house in early spring, the plants making one compact cushion of growth in a comparatively short while, and thereafter may be divided into single plants of fine, regular, sturdy growth. E. R.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 5, Tavistock Street, Covent Garden, W.C.2.

Editors and Publisher.—Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication or referring to the Literary department, and all plants to be named, should be directed to the EDITORS. The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.

PALMS OF THE RIVIERA.*

I MENTIONED in my last article the well-known *Livistona chinensis*, R. Br., still often called *Latania borbonica*, a name given it by Lamarck, who thought this Palm indigenous of the island of Bourbon, and, probably without having seen the fruits, referred it to the genus *Latania*. The genus *Latania* belongs to the sub-family *Borassinae*, and is botanically distinct from the genus *Livistona*, R. Br. Being engaged, as I mentioned in my last article, in the determination of the plants in the famous old park of the Villa Venetienne at Nice, recently acquired by the Count and Countess de Mileant, I have thought it useful to indicate, besides the name actually agreed to by science, the various synonyms by which the plants are known in the trade. It seems to me very desirable that traders should at least place in parenthesis the correct names of their Palms so that the public should become used to them. The new owners of the park of the Villa Venetienne are quite disposed to allow their park to be visited by any person who takes an interest in plants; the Countess de Mileant is passionately fond of natural history objects, and, having travelled extensively in many countries, especially in tropical Asia—from whence she has brought back many important collections—has the intention of adding to the botanical attractions of the park, as well as to the zoological collections.

Another species of *Livistona*, which is found a little more frequently in Riviera gardens, though not nearly as often as it should be, is *Livistona australis*, Mart. (Fig. 28). This Palm is also known under a synonym, viz., *Corypha australis*, R. Br., and up to now in the trade and by gardeners almost only by the last name. Though the genus *Corypha* belongs to the same sub-family of Palms—*Coryphiæ*—as the genus *Livistona*, it is not so fundamentally distinct botanically as the genus *Latania* mentioned above; still, there are quite notable botanical differences, all *Corypha*, so far as I know, flowering only once in their final state of development and then dying, while the *Livistonas*, which do not produce terminal inflorescences, but as most Palms do, lateral ones, continue to flower and fruit for many years. I may add that possibly no species either of *Latania* or *Corypha* would exist on the Riviera; at least all tried in my garden have failed, though, of course, trials of such plants from warm climates should be made in more sheltered situations, as, for example, a little east of Nice. *Livistona australis*, of which, as of many other Palms, the oldest specimens of the Riviera are found in the park of the Villa Venetienne, where some attain the height of fifteen metres, is said to grow up to twenty metres high in its native country, East Australia, where it is found both in the tropical and extra-tropical parts. This is a Palm of much quicker growth than *Livistona chinensis*, and of the same resistance to frost, if not of even greater resistance. Still, there lingers a belief to the contrary, which may be due to raising the Palm from seeds intro-

duced from very tender plants growing in tropical parts of Australia. It is obvious that in trying to acclimatise a plant in a cooler country, seeds should be selected from specimens growing in the coldest parts of its native country, and not the warmest. However, be this as it may, I have always found this beautiful tall, quick-growing Palm to be quite hardy here, even in places of the lowest temperature, and it is unharmed by cold, except where the rays of the morning sun reach the leaves when they have been exposed to frost, causing the foliage to be sometimes slightly blackened, but hardly ever destroyed. The trunk of *Livistona australis* is of medium thickness, like that of *Livistona chinensis*, and its leaves have longer

PLANTS NEW OR NOTEWORTHY.

COOPERANTHES.

COOPERANTHES is a bigeneric cross between *Cooperia* and *Zephyranthes*. The seed parent is the *Cooperia Drummondii*, a white-flowered bulb, slightly Primrose-scented; but, as the flowers open late one afternoon and fade before noon next day, it is not surprising that the plant is seldom cultivated. *C. Drummondii* is a much finer type than *C. Oberwettii*, and for this reason was used in making the *Cooperanthes* cross.

The other parent, *Zephyranthes*, is quite distinct, not only as regards time of opening



FIG. 28.—LIVISTONA AUSTRALIS.

petioles, which are furnished on the edges with closely set, small, jet black spines. The blade of the leaf, about the same size as that of *L. chinensis*, is much more frequently divided, but the partitions do not hang down gracefully like fringes as in the case of *L. chinensis*, while, of course, the undivided part of the leaf blade is much smaller than that of *L. chinensis* and is rather irregularly folded instead of forming a dome. Thus the total effect of the shape of the leaves is less ornamental than the strikingly ornamental leaves of *L. chinensis*. The colour of the upper surface of the leaves of *L. australis* is darker than that of *L. chinensis*, and has a somewhat metallic gloss. The fruits are about the same size as those of *L. chinensis*, and not ovoid but globular, and in ripening pass from green to red and at last to a violet-blackish colour, large bunches producing an ornamental effect. Dr. A. Robertson Proschowsky, Jardin d'Acclimatation, Les Tropiques, Nice, France.

of the flower, but in general structure. *Cooperia Drummondii* has foliage about 12 inches long by a quarter inch wide, covered with a grey bloom. The flower is erect, with a long, narrow perianth tube and the anthers pressed close against the style, but below the stigma. In *Zephyranthes* the flowers are semi-erect or nodding, and are more or less funnel-shaped, with a very short perianth tube; the anthers are free and the stigma trifid.

I cannot claim to have raised the first *Cooperanthes* hybrids, for, after my father's death in 1904, I discovered in his note-book a reference to three seedlings raised from *Cooperia* × *Zephyranthes*, but, not discovering the plants, attempted the cross myself. In 1909, two of the seedlings flowered, but, as I was separated from my work for a few years, these were lost sight of, and my present hybrids are the result of crosses made subsequently. In addition to the list of named

* The previous articles by Dr. Proschowsky were published in our issues for May 1, June 12, July 10, September 4, November 29, December 18, 1920; May 12, April 30, June 11, October 8, November 19, 1921; January 21, February 11, April 1, and June 17, 1922.

varieties given below, there are numbers of unnamed seedlings which are under observation, while a batch of plants raised during the past two years have still to flower.

It was with a view to introduce coloured varieties of *Cooperia* that experiments were undertaken, but when the first seedlings flowered and proved their superiority over both parents as regards a longer period of flowering, with a greater profusion of bloom, I worked toward a "super" race of *Zephyranthes*.

The monsoon in this part of India generally lasts from June 15 till the middle of September, and during normal seasons Bengal can count on receiving at least one shower of rain during the remaining months. *Zephyranthes* bloom only during the monsoons, giving three to four flushes of flower; *Cooperias* cannot be depended on, and do not produce more than three flowers from each bulb during the season. *Cooperianthes* are certain to produce flowers after every shower of rain during the "off" season, and in the rainy weather are good for three to four flushes of bloom. The plants are very hardy, form large bulbs and good foliage.

The photograph enclosed (not suitable for reproduction) gives but a poor illustration of the beauty of the *Cooperianthes*, of which there are erect and semi-nodding types. The erect forms are chiefly first generation hybrids, having *C. Drummondii* as their seed parent (C.D.), while the semi-nodding forms are derived from re-crossing the *Cooperianthes* with either *Zephyranthes*, or selfing (Z.R.). None of the hybrids has inherited the unfortunate evening opening tendency of the *Cooperia*.

YELLOW. Working with *Andersonii* and *sulphurea*, I have not obtained very many seedlings. Sydney, deep yellow fading cream, and Percy, pale creamy yellow, have both small-sized blooms. Evening Star, however, is a Z.R. type as large as *Z. robusta* and a deep creamy yellow in colour. Several other yellow seedlings differ too slightly from *Z. sulphurea* to warrant naming. *Z. Andersonii* has given *Alipurensis*, buff fading to yellow, and *Lancasteri*, yellow and brown. Both these are C.D. type, white or white, shaded pink. All these are Z.R. type, and differ in size, width of petals, etc.—White Queen, Ida, The Bride, The Governor, and Mrs. Geo. Girard.

PINK. These varieties are to be found in shades varying from the softest rose to a deep pink. The following take after the *Cooperia* (C.D.), and are arranged in shades, deepening from Alpha, Beta, Mary, Delta, Psi, to The Viceroy. Of the (Z.R.) type are *Alipore Beauty*, Mrs. F. G. Clarke, The President, Sweetheart, and Mrs. Lancaster.

RED. Only one red seedling has been raised (Z.R.) type, deeper in colour than *Z. robusta*. This has been named King Emperor.

I may add that though *Z. candida*, *Z. rosea*, *Z. carinata*, *Z. Treiaia*, and *Z. verecunda* were also used as pollen parents, none of the seedlings that have flowered up to date show signs of these parents.

I shall be very pleased to correspond with readers of *The Gardeners' Chronicle* and furnish information on this subject. My experiments in hybridising—I am using this term in the broad sense of the word—have not been confined to these bulbs alone. *Canna*, *Hedychium*, and many flowering shrubs have yielded variations distinct enough to be recognised. *S. Percy-Lancaster*, F.L.S., *Agricultural and Horticultural Society of India*, 1, Alipore Road, Calcutta.

SPIRAEA HENRYI.

This is one of the many beautiful Chinese shrubs discovered by Prof. Augustine Henry, and introduced by Mr. E. H. Wilson in 1900 when collecting on behalf of Messrs. James Veitch in Central China. It is recorded from Ichang and Western Hupeh.

Spirae Henryi (Fig. 29) forms a large, wide-spreading bush 8 or 9 feet in height, and with age 12 to 14 feet, perhaps more, in diameter. Although not altogether suitable for the average

shrubbery border, it is a fine shrub for a lawn specimen, and on the edge of pleasure grounds or woods. In such positions the long arching growths are wreathed with white flowers in June. The leaves vary from about 1 inch long on the flowering shoots to $3\frac{1}{2}$ inches on the barren shoots. The rounded corymbs of small white flowers develop at the ends of short leafy twigs, along the wide-spreading, vigorous shoots.

Seeds and cuttings provide ready means of propagation. The latter, made of the moderately firm young shoots, root readily under a bell-glass in July and August. In common with other *Spiraeas*, *S. Henryi* thrives in most soils. A. O.

CYNOGLOSSUM AMABILE.

"P. R." does well to sing the praises of *Cynoglossum amabile* in your issue of July 15, page 31, but is he correct in calling the plant a pretty perennial? It is certainly pretty and to all outward appearance it might well pass for a perennial, but, unfortunately, it appears to be annual, or at the most biennial. In this



FIG. 29.—SPIRAEA HENRYI.

respect it is like most other *Cynoglossums*, including our native Hound's Tongue, *Cynoglossum officinale*.

C. amabile is a Chinese Hound's Tongue introduced by that wonderful collector, Mr. G. Forrest. Plants from seed sown even less than a year ago are now in full bloom, producing masses of light blue flowers, beloved by bees. Unlike "P. R.," who remarks that he has not seen this plant in gardens, the writer has lately seen it planted freely in front of selected Delphiniums and Anchusas in "blue borders," and with just the desired effect. The flowers are of a pure and beautiful tone of blue of that rare quality so much desired in gardens of to-day. The tall, leafy spike of flowers, like those of the Forget-me-not, are well portrayed in the accompanying illustration (Fig. 30). *C. amabile* is a plant all may grow, and sooner or later it is sure to find its way into gardens all over the country. Herbert Cowley, Tunbridge Wells

EVELYN'S KALENDARUM,

The following notes, most of which are extracted from old articles of my own, may serve to elucidate those portions of Mr. Jacob's notes (p. 20) about which he expresses some dubiety. Though I do not

possess the second edition of Evelyn's *Kalendarium*, which I believe to be exceedingly scarce—probably as a result of the great fire of London—it is clear it must have been issued in 1666 or early in 1667, in which year Cowley died, July 23. And it appears from a remark of Evelyn's that Cowley had transcribed the calendar, no doubt as published in *Sylva*. It should be remembered that the poet Cowley himself wrote a rare book on gardening in 1662, and "The Garden" was published in 1667. The *Kalendarium*, it may be noted, was not solely Evelyn's; two gardeners, Rose, of Pineapple fame, and one Turner, having supplied him with material for its composition, and Dr. Sharrock, another authority on Horticulture, furnished lists of fruits.

The first edition of old Philip Miller's *The Gardener's Kalender*, directing the "necessary work to be done every month in the kitchen, fruit and pleasure gardens, as also in the conservatory and nursery," was published in 1734, price 4s. Fifteen editions in 8vo were published in Miller's lifetime, and one edition in 12mo after his death. The *Kalendar*

is included in the 3rd, 4th, 5th and 6th editions of *The Gardener's Dictionary* occupying 25 folio pages in the last-named.

The discrepancy regarding the dates given for the initial publication of Mawe's *Every Man His Own Gardener*, is obviously due to the volume never having been in the hands of the various authorities. It is said to be very scarce. There is no doubt, however, as to the date, the copy which I possess being dated 1767. It is a small volume in 12mo and in many respects a great improvement on Miller's, as the latter's was on Evelyn's. Without counting editions subsequent to Abercrombie's death, nineteen were published in his lifetime, so that counting from 1664 to 1806, when Abercrombie died, a space of 142 years elapsed.

There was, however, a gap between 1706 and 1734, part of which was filled up by the publication of a more interesting volume than any of the above. This was *The Gentleman and Gardener's Kalender*, "directing what is necessary to be done every month in the kitchen garden, fruit garden, nursery, management of forest trees, greenhouse and flower garden, etc.," by Richard Bradley, 1718. It passed through several editions, both as a volume and bound with other works of Bradley's. Besides the chatty gossip common to Bradley's books, it was illustrated with copper plates, and cannot justly be omitted in treating of early gardening calendars. R. P. Brotherston, Tynninghame Gardens, Prestonkirk.

ORCHID NOTES AND GLEANINGS.

COCHLIODA AND ITS HYBRIDS.

THE bright-hued *Cochlioda Noetzliana*, with *C. vulcanica* and *C. sanguinea*, are best grown in shallow pans suspended from the roof rafters of the *Odontoglossum* house. There are now many fine hybrids which have been raised from *Cochlioda* crossed with the species and hybrids of *Odontoglossum* and other genera, and it is a great difficulty to trace their ancestry. In a family so large and varied, individual plants naturally show much disparity constitutionally, some being more vigorous than others. They succeed under similar conditions

to *Odontoglossums*, and in a similar compost. They supply a colour which is not obtainable from any other source, and, as none is especially difficult to cultivate, the plants may be grown by all who are successful with *Odontoglossums*.

MILTONIA BLEUANA.

THIS handsome Orchid and other hybrids, of which *M. Roezlii* is one parent, enjoy slightly more heat than *M. vexillaria*; therefore, they are best grown in the warmest part of the house, whilst the species itself does best in a house where some few degrees more heat is maintained. As regards other cultural matters, they all succeed under the same conditions as *M. vexillaria*. J. B.



FIG. 30.—*CYNOGLOSSUM AMABILE* (SEE P. 67).

NEW HYBRIDS.

(Continued from June 17, page 323.)

Name.	Parentage.	Exhibitor.
Brasso-Laelio-Cattleya Ancona ...	B.-L. Jessopii x L.-C. Luminosa ...	Stuart Low.
Brasso-Laelio-Cattleya Mohawk ...	B.-L. Helen x B.-C. Mrs. J. Leemann ...	Clement Moore, Esq.
Laelio-Cattleya Ilona ...	L.-C. Lucille (Cowani) x C. Empress Frederick ...	R. G. Thwaites, Esq.
Laelio-Cattleya Joyce Tomlinson ...	C. Zephyr x L.-C. Fascinator ...	Mansell and Hatcher.
Laelio-Cattleya Morab ...	C. Mossiae x L.-C. Rubens ...	R. G. Thwaites, Esq.
Laelio-Cattleya Ruth Erbe ...	L.-C. Aureole x C. A. Dimmock ...	Clement Moore, Esq.
Laelio-Cattleya Southfield Gem ...	Martinetii x Gynemede ...	W. Waters Butler, Esq.
Odontioda Duke of York ...	Oda. Brewii x Odm. excellens ...	Sanders.
Odontioda Virgil ...	Odm. Rolfeae x Oda. St. Fuscien ...	Stuart Low.
Odontoglossum Colossus II. ...	eximium x Armstrongiae ...	Mrs. Bruce and Miss Wrigley.
Odontoglossum Duke of York ...	percultum x illustrissimum ...	Mrs. Gratrix.
Odontoglossum Gaia ...	nebulosum x harvengtense ...	Sanders.
Odontoglossum Lugano ...	luteo-purpureum x hellemense ...	C. Cookson, Esq.
Odontoglossum Margie ...	eximium x Magali Sander ...	Sanders.
Odontoglossum Purple Emperor ...	The Czar x Dusky Monarch ...	Charlesworth.
Odontoglossum Purple Queen II. ...	Delta x Corona ...	C. J. Lucas, Esq.
Odontoglossum Ravenwood ...	formosum x crispum ...	Wm. Salkeld, Esq.
Sophro-Laelio-Cattleya Hague ...	S.-L.C. blechleydora x C. Octave Doin ...	Stuart Low.

HARDY FLOWER BORDER.

MIMULUS BARTONIANUS.

I WAS very glad to see Sir Herbert Maxwell's note (p. 21) about *Mimulus Bartonianus*. I have grown it for the last five or six years, and I consider that it is one of the finest introductions amongst hardy herbaceous plants that we have had for a long time. I quite agree that it is infinitely superior to the old *Mimulus Lewisii*; I was very fond of that Californian species, but it never would winter satisfactorily with me, and I generally lost my stock of plants each winter. In order to keep up a supply, seed had to be saved and sown annually. *M. Lewisii*, however, need not now be considered when we have such a fine plant as *M. Bartonianus*. This hybrid *Mimulus* was raised a few years ago by Mr. H. O. M. Barton, of County Antrim, and I believe it was sent out by Mr. Thomas Smith, of Daisy Hill, Newry. It is really a remarkable plant, for it will flower continuously from June to October. The colour, too, is very pretty. Sir Herbert Maxwell, I observe, states that the flowers resemble those of *Incarvillea Delavayi*, but I used to say they had a likeness to *Regal Pelargoniums*. *M. Bartonianus* was raised from *M. Lewisii* x *M. cardinalis*, and it has proved to be thoroughly hardy, easily grown, and requires no special treatment.

I was always sure of a crop of seed of *M. Lewisii*, but I have never yet been able to save any of *M. Bartonianus*. It seems to me to be sterile. I have employed pollen of many other forms of *Mimulus* without effect. I anticipate that *M. Bartonianus* will have a great future as a bedding plant when its merits become known to growers. George M. Taylor, Edinburgh.

In your issue of July 8, page 21, Sir Herbert Maxwell refers to *Mimulus Bartonianus*. Surely this should read *Mimulus Bartoniana*. The plant was raised by the best amateur gardener in Ireland, Mr. H. D. M. Barton, of The Bush, Antrim, Ulster, whose success with *Primulas* is well known in this country. In addition to having the best known Himalayan, and most difficult Chinese species, Mr. Barton has raised many fine seedlings. A visit to his garden is a revelation of what can be done in a cold, damp climate. W. P. Moore, Willbrook, Rathfarnham.

ANEMONE CYLINDRICA.

THE genus *Anemone* comprises so many exquisite and in every way worthy plants that those of us who are devoted admirers of the Windflowers generally obtain any species which may possibly contain potentialities of beauty, in the hope that the novelty may be one with at least a large proportion of the charms of the vast majority of the *Anemones*. It is well, therefore, when we have had experience of some species not commonly grown but sometimes offered in catalogues, that we should act the part of friendly adviser to fellow flower-lovers and warn them to avoid expending their cash on worthless flowers. I know that *A. cylindrica* is only occasionally offered in catalogues, but I trust that plant-dealers will refrain from acquiring and distributing it, and, if ever offered, that the garden lover will shun its purchase, unless out of curiosity to see what *A. cylindrica* is like.

To the writer it seems to be one of the plants absolutely worthless in the garden. It is of interest, certainly, as showing how inferior a plant may be, although included in a genus which is, as a whole, of the highest charm for our gardens, but as a flower it is worthless and unattractive. A writer of high authority dismissed it with the verdict "A. cylindrica turns out to be a really worthless weed with flowers of a feeble yellowish green, carried singly on long, naked foot-stalks." It is now a good few years since I acquired it from the late Mr. Max Leichtlin, of Baden Baden, but I am sure that that real plant-lover would not have sent it had he known its poverty of attractions. I grew it for a few years so that I might know it well, but the rubbish-heap was its ultimate destination. S. 4nott.

THE ALPINE GARDEN.

AJUGA GENEVENSIS BROCKBANKII.

THE ultra-critical cultivator of rock plants will be inclined to pass over this note with an exclamation such as was wont to be applied by the late Mr. W. E. Gumbleton, who characterised a plant he did not care for by the expressive word "pooh"! But those who know it well and who have realised its value will be much less contemptuous and will assert that it is a good plant, not in the first or even in the second rank, yet worthy of appreciation by those who want an easily grown, deep blue-coloured plant which can be put into a fairly rough place without danger of being lost. It is ranked as a variety of *Ajuga genevensis*, but it is superior in respect of the deeper colour of its foliage and of the finer blue of the flowers, in good close spikes. It is excellent for a rough, moist or shaded spot. There it will spread quickly and give plenty of its little spikes some six or nine inches high, pleasing, but not showy, with its deep foliage and bright blue flowers. It is one of the best of the Bugles, and must, I think, have been selected originally by the late Mr. Brockbank. It is stocked in many nurseries, and can be grown in practically any soil. Its failing (according to some) is that it spreads very freely, yet it is not too dangerous in this respect, and can be kept in reasonable bounds by exercising a little care. S.

LINARIA ALPINA.

ENTHUSIASM is hardly a strong enough term with which to designate the feelings of the true admirer of hardy flowers as he looks upon a clump or mass of *Linaria alpina*, the Alpine Toad-flax, and studies its beauties collectively and individually. Colour and form and habit all combine to afford a picture of charm, impossible to gainsay. Yet this feeling of enthusiasm is not unmingled with pain, for, to many of us, this picture of beauty is given by plants of short life.

"Whom the gods love die young" may be written of many flowers, and *Linaria alpina* is among the number. Almost all growers agree that it is not an annual, it is true, but we are, perforce, by bitter experience driven to the conclusion that it lasts with us but a year or two, probably exhausting itself by seed-bearing, and leaving us to regret its loss and to endeavour to replace our lost plants by a younger generation. This is worth while, for it is not easy to do without these charming plants with their narrow, glaucous little leaves and exquisite flowers of glorious violet, tipped with glowing orange. A group of good plants a few inches high and full of bloom constitutes a floral picture of great beauty.

Of all the colours—for there are a few to be had—I prefer the ordinary one, but others like to have variety, and some delight in the possession of the rose-coloured one, *Linaria alpina rosea*. A few are the happy possessors of an albino variety, alba, with exquisite white flowers tipped with orange. Others have a delicate pale blue variety, and some few cherish the self-coloured one, unbrightened by the orange lip which warms up the blooms of the other varieties.

Linaria alpina is easily raised from seeds, and these may be sown very thinly either in pots or pans under glass, or in the open. I think the best plants are from those sown in the open where they are to bloom, the seeds being put in very thinly indeed, and the seedlings afterwards thinned out to about six inches apart. Seedlings raised in pots should be transplanted as soon as they can be handled, grown on and then planted out in their permanent places about the end of June.

I do not think that *L. alpina* is difficult to suit with soil. It stands best in very gritty soil or in the chinks of an old wall. It is not, however, a limestone plant, though it is not a lime-hater, and a compost of loam and grit and sand will suit it quite well. An old plant in British rock gardens, it is not at all too common, and may well be restored to some of its earlier popularity. S. A

THE HISTORY OF THE MOSS ROSE.

(Continued from page 48.)

If the reader will turn to the Preface to Vol. I. of the *Hortus Kewensis*, 2nd Edit., he will see it stated that throughout the whole of that work an attempt is made to trace back so far as possible how long each plant has been cultivated in British gardens, and to fix with as much precision as the nature of the subject would allow the date of its introduction. Those plants known to have been grown by Gerard in 1596 are indicated, and as the *Hortus Kewensis* was the only available standard for dates for a very long time, many subsequent writers and compilers fell back on that authority for their dates, accepting it without hesitation. This is where we get the starting point, not only for the Moss Rose, but also for those other Roses referred to by William Paul as being introduced in 1596, although it must be quite obvious that they had probably been grown for many years in this country before John Gerard had collected them into his garden.

Unfortunately, varietal or specific names before the date first mentioned are difficult to obtain or verify, but, at any rate, Roses were grown in England as garden flowers long before the dawn of our garden literature.

From Gerard to Furber, the evidence is purely on the negative side. It may be assumed that so devoted and capable a florist as John Rea would have appreciated the Moss Rose if it had been known and grown here in his day. Yet, although he mentions in his *Flora* (1665), in the Chapter IV. headed "Rosa," thirty-one different kinds, there is not the faintest indication of a Moss Rose among them. Samuel Gilbert, his son-in-law, London and Wise, Leonard Meager, William Salmon, Richard Bradley, and other English floricultural writers in the interval never once refer to anything like a Moss Rose, but only to its near relative or parent, the Provence Rose, of which there were several varieties; and we now approach what must be considered the first ascertained or direct mention of the introduction of the Moss Rose into England.

Major Hurst is dubious about the date of this occurrence, and prefers to think, on extremely slender grounds, that Philip Miller must have been the original importer, notwithstanding the fact, and a very plain one, too, which cannot be controverted, that the Moss Provence Rose was actually offered for sale in a catalogue of plants, etc., by Robert Furber, the eminent nurseryman, of Kensington, as early as 1724.

There are several considerations to be taken into account in dealing with this point, and I must confess inability to endorse the unwarrantable suggestion of Major Hurst when he states (*Rose Annual*) that it may be that its inclusion in Furber's catalogue was merely "an intelligent anticipation" of a promising novelty, introduced three years later by his colleague Miller. Both in the *Rose Annual* and in the *Journal of the R.H.S.*, Major Hurst tells us, on what ground I cannot understand, nor does he explain, that it seems safer to accept Miller's date of 1727.

This expression of opinion is, to my mind, a most unjustifiable aspersion on the integrity of an eminent nurseryman like Furber, and, if it means anything at all, it is equivalent to saying that Furber was so inventive a genius and possessed such a fertile brain that he could not only invent the name of Moss Provence Rose, but also had the wonderful intuition that when a Moss Rose, a flower never previously heard of, should be introduced, it would not be a Moss Belgick Rose, nor a Moss Frankfort Rose, nor, indeed, a Moss Rose of any of the other twenty-eight varieties included in his catalogue, but that it would be none other than a Moss Provence Rose. Truly, not only "an intelligent anticipation," but a marvellous preconception of a floral novelty, if, indeed, it were a fact that Furber had not already acquired the flower which he offered for sale.

And how could the Moss Provence Rose have been a creation of Furber's imagination? He was offering it, with other Roses, for sale. To have been in a position to do so, he must not only have acquired a plant, but have bloomed it to ascertain what it was, and also to have propagated it and worked up a stock long before 1724. Why, then, are we to give preference to Miller's date of 1727?

I have seen the suggestion, which will be examined somewhat fully when we come to the Moss Rose in France, that it was grown in or near Carcassonne. There is no pretence that it originated in Boerhaave's garden at Leyden. It must, therefore, have been a subject of commerce before Miller saw it there. Miller was in charge of a Physic Garden, and not a dealer or importer of novelties for sale. The Chelsea garden was not run on business lines, where new and rare plants were introduced and propagated for trade purposes. Furber, on the contrary, was, and had been a dealer and importer of such things for many years before, but there is a stronger reason to be advanced in support of the claim that to him must be attributed the credit of the first introduction.

In the absence of older mention, it must be conceded that Boerhaave's reference in his *Index alter Plantarum*, etc., of 1720, is the first botanical or horticultural one. It is No. 12 Rosa, and reads: "Rosa; rubra; plena; spinosissima; pedunculo muscoso." Thirty-nine Roses are mentioned, some having details appended as to origin and references by previous writers. I have no knowledge where Boerhaave's Moss Rose—he does not tell us—came from, or how it originated, and all the writers of that century are agreed in that respect; and Miller's own comment upon it, when he relates that Dr. Boerhaave gave him a plant is: "From whence it originally came, I could not learn" (Miller's Figures, etc., 1760).

Major Hurst remarks (*Rose Annual*) that it is significant that Furber's Latin description of the Moss Rose is identical with that of Boerhaave of 1720. What other Latin description could Furber have used? It was the only botanical description of it then current, and every writer of that period used it until somebody enlarged it by adding the qualification "provincialis." It is far more significant that Furber, who, in his *Catalogue*, gave the English names of the twenty-nine Roses he offered for sale, in one column, with their Latin equivalents, in another, should have designated this particular variety, the Moss Provence Rose. Why the Moss Provence Rose? Did he coin the name himself? If not, who did? Whence did he get it. Was it ever used in English prior to 1724? We know it was accepted afterwards. How can the name have been the result of Furber's imagination, and then, curiously enough, corresponded with the actual flower when it was subsequently introduced by his colleague Miller? Boerhaave's Latin descriptive name gave no indication that the novelty with "pedunculo muscoso" was of the Provence Rose type, although, at least, seven other Roses in the Dutchman's list have the adjective "provincialis" as part of their description; it might have been a moss variety of any other kind so far as his name went. The supposition is plainly untenable, and there is not an iota of evidence in its favour.

I hold no brief to claim credit for Furber if he does not deserve it. All I want, so far as the documentary material will enable me to judge, is to arrive at the truth.

Miller's *Gardeners' and Florists' Dictionary* of 1724 is not universally accepted as being the great man's own unaided work. It is sometimes erroneously referred to as the first edition, a claim that properly belongs to his *Gardeners' Dictionary*, in folio, dated 1731. The octavo, in two volumes, published in 1724, is considered to have been compiled by a Society of Gardeners, to whom Miller acted as secretary. And some colour is given to this view by the fact that the preface contains the following guarantee of the book's excellence: "We whose names are underwritten do approve and recommend this book intitled the

Gardeners' and Florists' Dictionary, etc., as highly useful and necessary for all lovers of gardening. Tho. Fairchild at Hoxton; Rob. Furber at Kensington; Rob. Smith at Vauxhall; Sam. Driver at Lambeth; Moses James at Standgate; Obadiah Low at Battersea; Christ. Gray at Fulham; Benj. Whitmil at Hoxton; Fran. Hunt at Putney; Will. Gray, junr., at Fulham; Gardeners and Nurserymen."

The chapter on Rose trees is largely a compilation, for numerous quotations are made from Bradley, Liger, and Mortimer. In the aggregate, 37 varieties are dealt with, in numerical order. Upon a careful scrutiny of this chapter, it is evident that Major Hurst commits a verbal inaccuracy when he writes of the Moss Rose (R.H.S. *Journal*, p. 32), "For Miller (1724) states that it is included in Robert Furber's catalogue of plants cultivated for sale at Kensington." Neither Miller nor the compiler of that chapter on Rose trees, if it were another, even mentions Furber in that connection. Furber's catalogue, entitled *A Catalogue of Curious Trees, Plants, etc.*, was an independent addition or appendix to the *Dictionary*, not an integral part of it. It is not uncommon to find nurserymen's catalogues bound up at the end of horticultural books, even in those days. And so there seems to be no valid reason why Furber's catalogue, as the advertising medium of a nurseryman, should not have been brought close up to date by the inclusion, not of "an intelligent anticipation," but of the recent and most up-to-date introductions into his nursery stock.

According to contemporary evidence, Furber's claim is not challenged by any British gardener or nurseryman. No one else takes credit for its introduction previously. Robert Furber was a reputable and prominent man in his profession. He had a high-class and influential clientèle, as can be easily understood when we scan the names of the subscribers to his very valuable and rare series of large folio plates of Fruits and Flowers which he published in 1730 and 1732, and which it is self-evident that not only Major Hurst, but other modern writers on the Rose, cannot have consulted during the course of their researches. *C. Harman Payne.*

(To be continued.)

FORESTRY.

DOUGLAS FIR versus WHITE PINE.

THE praises of the Douglas fir have been so often sounded that one feels considerable diffidence in introducing a discordant note into the almost universal chorus of approval with which it has been received by planters in this country. But while nothing can be said against it as a fast-growing tree which, on the whole, has adapted itself well to our British climate, the idea that its timber will ever supplant that of the American White Pine (*Pinus Strobus*) for the best classes of constructional work—as has sometimes been assumed—is, I think, out of the question. In fact, with the single exception that, like that of the White Pine, the timber of this tree, which is imported as Oregon Pine, or Columbia Red-wood, can be got in large sizes, it has no other qualification to recommend it for the purposes for which White Pine has hitherto been used in the finer kinds of constructional work, and it has one or two serious defects which put it out of court in competition with that timber for the best work. The most serious objection to it is that it tends to shrink after the work is finished, and as this goes on for a considerable time afterwards, it is a very serious drawback to its use in high-class work. It has also a slight tendency to warp, or "wind."

For the best internal work in building construction, hitherto there has been no Coniferous timber which has met the requirements of the architect so satisfactorily as that of the White Pine, and, as it seems to me, the only timber which is likely to become a substitute for it is its near relative, the

Siberian Pine (*Pinus Cembra*), of which there is sufficient in Siberia to meet the requirements of the world for a long time to come, were it possible to get it out of that country.

Many years ago I saw in the yard of the Granton Timber Company here a large cargo of Oregon Pine, which had just been discharged from a large iron sailing ship, consisting of planks 40 feet in length and 24 inches by 9 inches on the side. The planks were die square throughout, without a knot, and, as seen on the radial face, the layers of wood ran perfectly straight from end to end of the planks. I have never seen anything else to compare with it in this respect, but of course this is a quite different aspect of the matter from the other. *A. D. Richardson, Edinburgh.*

COLONIAL CORRESPONDENCE.

MATRICARIA SAUVEOLENS.

I FOUND this plant growing luxuriantly along the roadsides and paths in Auckland, New Zealand, eleven years ago, but failed to meet with it either at Wellington, Napier, or Gisborne. Requiring a plant lately to illustrate a point when addressing a squad of Boy Scouts, I visited a road where the plants formerly grew in great profusion, and was disappointed at finding only one miserable specimen, about three inches high, growing in a little used foot-path; this I used, and the Scouts agreed to look out for others; but our combined efforts have only succeeded in locating about a score of plants, two only being above three inches high. *P. Fuller, Auckland, New Zealand.*

PICEA SITCHENSIS.

PICEA sitchensis (the Sitka Spruce, or Tideland Spruce) forms about one-third of the Conifers growing within a hundred yards of the shore line on the west coast of Vancouver Island; the other two-thirds are made up about equally of *Tsuga plicata* (Cedar) and *Tsuga heterophylla* (Hemlock). In the winter of 1919-1920, for a distance of some 10 miles on each side of Amphitrite Point, at the western entrance to Barclay Sound, a blight attacked a noticeable proportion of the Piceas, killing some large trees and mortally injuring many others, and to-day those that were least hurt are only just showing a few bright green leaves on their otherwise bare branches.

Perhaps, as showing that they belong to the same group as *P. sitchensis*, a young tree each of *P. Engelmannii* and *P. pungens* growing in a sheltered part of the garden lost the leaves on the lower two-thirds of their branches, while *P. excelsa* growing under the same conditions was untouched.

Neither the Hemlocks nor the Cedars growing among the Spruce were the least injured, nor were some twenty other species of evergreen Conifers from different parts of the Northern Hemisphere growing in the vicinity; therefore, this is one instance where *P. sitchensis* almost failed to adjust itself to conditions which were quite satisfactory to other species of similar character, and it is just possible that through old age it has lost the ability to resist the influence of blight and that its days are numbered, "though each day may be as a thousand years."

We are acquainted with "blight" only from its effect on vegetation; in this case the conclusion arrived at when the damage was first noticed was that the trees were blasted simultaneously and without regard to their exposure to wind from any one particular direction, reminding one of Byron's poem on "The Destruction of Sennacherib," wherein he wrote: "The angel of death spread his wings to the blast, and breathed on the face of the foe as he passed."

In a letter to the writer, Mr. W. F. Gibson, a saw-mill owner of Ahourat, states that six years ago blight struck the same species of Spruce in Stanley Park, Vancouver, B.C. *George Fraser, Uclulet, B.C.*

VEGETABLES.

TURNIPS.

IN most gardens the demand for succulent turnips never ceases, and to cope with this demand several sowings of seed must be made during the season. Our first outdoor sowings are usually made in a warm, sheltered position, but the summer crop is grown on a north border in good, cool, rich soil, while for supplying roots during the winter and early spring months, an open position is preferable.

Tender, well-grown Turnips are as highly valued in winter as at any other time, and for keeping up a supply, two or three sowings of suitable varieties should be made at this season, the first now, a second early in August, and another about a fortnight later, and from such sowings we have experienced no difficulty in maintaining a regular and constant supply.

In winter time, to keep the roots fresh and sweet, I prefer to pull the most forward when they are about the size of a cricket ball and bury them in trenches. The trenches are made deep enough to allow the tops of the bulbs to be covered with two or three inches of soil (the tops being left intact); in this way roots keep very sound and fresh, and the only further protection afforded is a slight covering of long litter should frosts be very severe. *H. Markham.*

WINTER CUCUMBERS.

To be successful with Cucumbers during winter, properly constructed houses should be provided, well furnished with hot water pipes to provide top and bottom heat. The house should be thoroughly cleaned inside and out, special attention being given to the glass, so that the maximum of light is afforded the plants during the dull days of winter.

Having prepared the beds of fermenting material, such as leaves or long stable litter, mounds of good loamy soil should be placed thereon. A suitable compost consists of three parts turfy loam and one part leaf soil, to which is added some mortar rubble or road grit. The Cucumber plants should not be planted until the mounds have been in the house for a few days, so that the soil is first thoroughly warmed through. To maintain a succession, seeds should be sown during the first weeks of September, October and November; those sown in September should provide plants for fruiting in November.

Sow two seeds in each three-inch pot, in a light compost that has been previously warmed through. Place the pots in a propagating frame, or plunge them in a warm bed of leaves, and when the young plants appear, draw out the weakest in each pot. At this stage place the pots on a shelf near the roof glass, and when the plants have filled the pots with roots, pot them into five-inch pots. From thence the plants will require carefully staking and watering, and a temperature of about 75° at night, with a rise of 10° from sun heat. When the plants are ready for planting, which should be about a month from sowing the seed, they should be well watered with tepid water, and firmly planted in the ridge of soil. Skilful training, stopping, and the thinning of the shoots will be necessary in order to expose all growth to sun and air. Avoid overcropping.

When new roots appear on the surface of the mounds, top dressings of loam and decayed droppings, or old potting soil, will prove beneficial to the plants. A temperature not lower than 70° at night, with a rise of 15° from sun heat, will suit them very well when established and fruiting. To promote atmospheric moisture, damp the walls and paths down, and syringe lightly on sunny days. A little top ventilation is necessary, but the house should be closed early, after damping down, to promote a growing atmosphere. Avoid a too high temperature saturated with moisture, as such conditions encourage leaf blotch disease. Spraying with one ounce of potassium sulphide in three gallons of water, adding two ounces of soft soap, will act as a preventive to disease. *C. H. Harris, Red Lodge, Capel.*

MR. W. WATSON AND KEW.

No more able or more appropriate pen than that of Sir Frederick Moore—late keeper of Glasnevin Botanical Garden—could have done anything like justice to the great work done by Mr. W. Watson, A.L.S., V.M.H., who has just retired from the Curatorship of the Royal Gardens, Kew (see p. 30). To those who, like myself, can compare Kew now with what it was 40 years ago, the changes and improvements that have been brought about in that period have been truly marvellous. Forty years ago Kew was little more than a by-word amongst gardeners in large nurseries and private places. I remember, in 1880, when working in a then famous nursery, being told that if I ever entered Kew, I should be ruined as a gardener. I should become a mere "botanical" gardener and learn a few "crack-jaw" botanical expressions which would never be helpful in growing plants. There was some reason in the criticisms levelled at the Kew of 40 to 50 years ago, owing perhaps to the horticultural side being submerged in the botanical. With the advent of Mr. Watson to Kew in 1879, matters gradually began to change in every way for the better.

Mr. W. Watson was above all things a gardener, with the true horticultural instinct of growing plants as well as they could possibly be grown, and then displaying them to the best advantage. One must not, of course, look at Kew for thousands of one species, or for variety of plant such as is customary in large market gardens or nurseries, because Kew, after all, is non-commercial, and aims only at displaying a few worthy specimens of plants under glass representing the flora of the world in a comparatively small space. In the open, however, where more scope is available, what magnificent landscape pictures are presented to the horticultural (as distinct from the botanical) public from one year's end to the other! Owing chiefly to the influence of Mr. Watson, the keynote of Kew for many years past has been change, change, change. Old beds or borders are suppressed and new ones take their place. Mounds and dells and miniature lakes spring out of level patches and are furnished with appropriate vegetation. The wilderness that used to exist in the pleasure grounds has been tamed into a beautiful garden replete with the choicest and most ornamental trees and shrubs from all quarters of the temperate hemispheres. The ridiculous old wire fence that used to separate the "botanical" garden from the rest of the gardens has disappeared, and its tri-lingual admonition "not to smoke on this side of the fence" has disappeared for ever. Nature is copied and improved by care and cultivation, until one feels that there is no place in the world so peacefully glorious as Kew.

Good gardeners who used to "sniff" at Kew in the old days, now look upon it as the Mecca of horticulture, and visits are paid with the obvious intention of learning something new in the way of gardening. All of which shows that Kew is the most progressive gardening establishment in the world; while it also stands unrivalled for its botanical treasures and teaching. Indeed, one might say that unless a "botanical" garden has a good "horticultural" or practical gardening basis, it is not likely to be of very much value to either gardener or botanist. And it is just because the horticultural side of Kew has been so ably developed under the guidance of Mr. Watson that it carries such a great weight also as a botanical establishment. Practice and science—in other words, gardening and botany—have marched hand in hand during the past 40 years, and similar work is being carried out by all Kew men in the various botanical and horticultural gardens throughout the British Empire. It matters not to what part of the world one goes, wherever a botanical garden exists, it is almost certain to be in charge of a man trained at Kew under the late Curator. And we may expect his spirit to live for years to come in those who are now to carry on his work, and who are likely to do their utmost to make Kew even better in the future than in the past.

Improvements have also taken place in the status and working conditions of the staff. Never again will a young gardener be paid 16s. for a 72-hour week; nor the labourers 17s., as in my time. Nor will a foreman be "scrapped" with a wretched "bonus" on attaining the age of 65. Thanks largely to Mr. Watson's influence, the latter are now all Civil Servants, and will, in due course, enjoy a pension, which they will thoroughly deserve. The young gardeners have more time to themselves now and, consequently, better opportunities than their predecessors of 20, 30, or 40 years ago, and they also must thank Mr. Watson for fighting their battles with the authorities for the privileges they now enjoy. I hope Mr. Watson will live for many years to enjoy his well-earned rest, and I am sure I am only echoing the views of the hundreds of gardeners who have known him and worked with him during the past 43 years of his public life. *John Weathers, Park View, Isleworth*

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

R.H.S. and Kindred Societies.—My Council has had under consideration the charges sought to be imposed on kindred societies for the use of the R.H.S. Hall—which, as you know, was built by public subscription and intended to further horticulture—and has made arrangements to hold its shows elsewhere in 1923. *Courtney Page, Hon. Secretary, N.R.S.*

Trees Damaged by July Gales.—I wonder if you have had reports from other parts of the coast regarding the excessive damage done to the foliage of trees and shrubs where exposed to the sea, by the gale of July 5, and following day? On the east coast here, at such places as Felixstowe, Aldeburgh, and Southwold, the whole of the trees, on their south side, are absolutely brown, the worst being Chestnuts and fruit trees, while on the sheltered side (or where sheltered) they are unharmed. I enclose a few sprays which I took from the cliffs at Felixstowe this morning (July 19). They are not the worst, as, of course, the upper parts of the trees suffered most, but they will be sufficient to show the damage. You will notice *Sycamore*, *Willow*, and *Arbutus*; even such hard things as *Elms* and *Laburnums* are just as bad. What I should like to know is if the damage is caused by the force of the wind, or through the salt spray. From what I noticed I think it is the force, but I should be interested to hear if other readers have ever experienced such damage. *R. C. Notcutt, Woodbridge.*

The Spetchley Primroses.—In the spring I found myself in London again after a few years' absence, and I went to the fortnightly meeting of the R.H.S. at Vincent Square. I was much impressed by the many new and beautiful varieties of *Narcissi*, but more especially was I struck by the magnificent exhibit of *Primroses*, which so far surpassed anything I had ever seen that I wondered whether I had forgotten the great beauty of the garden *Primrose* during my sojourn amidst tropical vegetation. However, on walking round the hall I saw that the *Primroses* elsewhere staged were like those I formerly grew myself in England, and I then realised that the Spetchley strain was of outstanding excellence. It was not only the wide range and combination of new and beautiful colouring, but the perfect form of flower, coupled with such excessively floriferous plants of vigorous constitution. Surely there can be no other race of hardy plants which has attained to such a high degree of development! To have carried the cross fertilisation and selection along such successful lines, an infinity of care and attention must have been expended, combined with rare judgment and keen intelligence. I was told that this strain was the unaided effort of a plant-loving amateur Mrs. Berkeley of Spetchley who had devoted some twenty-five years to this labour of love. Many plants have been developed upon lines which have turned them into monstrosities, even many of the new

Roses and Carnations have lost their fragrance and constitution in the desire for new colours and variety. These Spetchley *Primroses*, whilst losing nothing of the incomparable beauty of the English *Primrose*, have taken on an infinite wealth of new charm and superb variety. I inquired of the man in charge of the exhibit if any of the individual plants had been named, and he gave me a list of those which had been selected for multiplication and to which saints' names had been given—a truly fitting way of differentiating such heavenly colours. Should I, as I hope, be in England next spring, it would be a great privilege to see these *Primroses* in their growing state, when they would be, if possible, an even more glorious sight than they were at Vincent Square. Would it be possible to obtain permission to see these *Primroses* in their home at Spetchley Park? *J. Manston, Claridge's Hotel.*

Dianthus Allwoodii.—Having invested in eight varieties of *Dianthus Allwoodii*, I am asking for information before propagating them for next year's display. A great many believe the plants to be *Pinks*, and look forward to a wealth of blooms something similar to what that beautiful old flower produces. Having grown these eight varieties on a border facing south, each plant 2 feet apart from its neighbour, I am very much disappointed with the results, and have therefore tabulated a few points and remarks which may prove useful to others:—*Betty*, 5 plants, 1 ft. 4 in., single; *Hugh*, 3 plants, 1 ft. 8½ in., double; *Marion*, 3 plants, 1 ft. 6 in., double; *Jean*, 5 plants, 1 ft. 3 in., double; *Harold*, 3 plants, 1 ft. 11 in., double; *Joan*, 5 plants, 1 ft. 5 in., double; *Susan*, 4 plants, 1 ft. 4 in., semi-double; *Ruth*, 3 plants, 2 ft., double. The heights given are those to the top of the flower spikes; but the plants are sprawling on the ground and need sticks for support. All the "grass" or foliage shoots are 7 to 8 inches high, and, of course, these may give flower spikes later. The plants have been well grown. I want to learn other readers' views about these varieties before going to the trouble of growing them another season. *Mark Mills.*

Dunkeld Larches.—With the exception of those relating to the measurements, etc., of the tree which was struck by lightning in 1909 (not 1916), and cut down later, which are, of course, of more recent date, the particulars given by Mr. A. D. Webster at page 56 occur, largely word for word, in *Hunter's Woods, Forests and Estates of Perthshire* (1883). Mr. Webster states that the larger of these trees "was considered the finest specimen Larch in existence"; but if he will consult *Hunter's* work he will find that the largest of the *Monzie* (not *Menzie*) *Larches*, to which he refers, as closely approaching the *Dunkeld* trees, and which, according to *Hunter*, are "said to have been brought or sent by Mr. Menzies, of Culdres, who brought the ones at *Dunkeld*," had in 1883 a girth at 5 feet from the ground, which exceeded that of the larger of the *Dunkeld* trees by 1 foot 4 inches, and the ultimate girth of the latter by 1 foot 2 inches, the girth given by *Hunter* for the *Monzie* tree being 16 feet 3 inches, and the height as "fully 100 feet." But while Mr. Webster's note adds nothing new, there is one thing which, to my mind at least, seems perfectly clear. It is that if the *Dunkeld Larches* were really brought from London in a portmanteau in 1738, it is absolutely certain that the *Arniston Larches* come next to the *Dawyck* ones in point of age. They were supplied on February 8, 1736, that is, before that year was six weeks old, and of the fourteen plants charged for in the account, two were 4 feet and 5 feet respectively. If the *Dunkeld Larches* were planted in 1738, it does not matter whether it was before or after this date, for if the legend about their being carried from London in a portmanteau and afterwards planted in a greenhouse be true, they must have been younger plants than at least the two largest of the *Arniston* plants. If this be the case, then *Midlothian*, not *Perthshire*, would seem to be the county which can lay claim to the second oldest *Larches* in Scotland. *A. D. Richardson, Edinburgh.*

ROYAL HORTICULTURAL.

JULY 25 and 26.—Although the exhibition held on these dates at the Royal Horticultural Hall was not so large as those usually experienced, it was an interesting one, and included many novelties. Sweet Peas, border flowers, Roses, Orchids and Carnations were the subjects chiefly shown. The attendance was not so large as usual.

Orchid Committee.

Present.—Sir Jeremiah Colman, Bart. (in the chair), Prince Shimadzu, Messrs. Jas. O'Brien (hon. secretary), Fred. K. Sander, S. W. Flory, Chas. H. Curtis, J. E. Still, H. T. Pitt, T. Armstrong, Pantia Ralli, J. T. Barker, Frederick J. Hanbury, and Gurney Wilson.

AWARDS.

AWARD OF MERIT.

Odontoglossum Topaz (regale $\times$ *Lambearium*) from R. GERRISH, Esq., Milford Manor, Salisbury (gr., Mr. W. Sorrell). The plant shown represented not only one of the finest hybrid *Odontoglossums*, but also a grand example of cultural skill. The plant bore a strong spike of flowers of large size and broad in all the parts, the broadly ovate labellum being a great floral feature. The ground colour of the petals is white with a central maroon blotch; sepals Primrose yellow with dark maroon blotches; lip broadly ovate white, with deep purple base and yellow crest.

Odontoglossum Tagus (*Othello* $\times$ *Doris magnificum*), from R. GERRISH, Esq. A very richly coloured hybrid of the dark class. Sepals and petals white, heavily blotched with Tyrian purple. Lip broad and flat white with purple base and zone. It is a good example of the influence of small, but distinct species, the little *O. Hunnewellianum*, through the *O. Adrianae* in *O. Othello* enlarging the lip in a remarkable degree, as we have already recorded.

Disa Julia A. Stuckey (*Italia* $\times$ *grandiflora*) from Messrs. FLOREY and BLACK, Slough. A selection of this new hybrid was shown, the plants flowering in small sixty pots and bearing flowers superior to those of *D. uniflora* (*grandiflora*) which, however, in the main they resemble. The broad lateral sepals are brilliant dark scarlet, the very large dorsal pink with purple lines. It is a fine example of the hybridists' improvement of desirable garden plants.

GROUPS.

Messrs. CHARLESWORTH AND CO., Haywards Heath, were awarded a Silver Flora Medal for an excellent group in which were noted the handsome *Odontoglossum Agapetum* (amabile $\times$ *Maillardianum*), a grand outcome of the firm's favourite of their fine form of *O. Maillardianum*. *O. luridum* (Harryanum $\times$ *Olympia*), a grand light yellow, heavily blotched, the showy *O. Penelope* and *O. majesticum* (eximium $\times$ *periclitum*), a fine flower with peculiar window-like opaque blotches on the segments; the rich scarlet *Odontodia Sheila*; some good white-petalled *Cattleya Hesta*; *C. Warscewiczii* Mrs. E. Ashworth with blush-white flowers and some fine *Laelio-Cattleyas*.

Messrs. J. and A. McBEAN, Cooksbridge, were awarded a Silver Banksian Medal for a group of *Miltonias*, all splendidly grown, the spikes of the *M. Charlesworthii* bearing ten or twelve flowers each, a remarkable effort for *Miltonias* of the *M. vexillaria* section, several forms of which were also shown, and notably *M. vexillaria* The Bridge, a noble white of the Queen Alexandra class. Other forms of *vexillaria* were Candide, white; and H. Milner, blush-white with light violet flush on the sepals and petals.

Messrs. STUART LOW AND CO., Jarvisbrook, Sussex, sent *Laelio-Cattleya Aphrodite* var. Eclipse (C. Mendellii Low's variety $\times$ *L. purpurata*), a very remarkable form of good type, but bearing on the broad white petals a heavy band of purple colour and differing from any variety yet shown; and *Brasso-Laelio-Cattleya Everest* var. Venus (B.C. Mrs. J. Leeman $\times$ *L.C. Camhanniana*), a fine cream-white flower with rich crimson-purple lip with gold lines in the centre.

Floral Committee.

Present.—Messrs. H. B. May (in the Chair), John Heal, G. Reuthe, W. Howe, Amos Perry, W. B. Gingell, A. Turner, Chas. E. Shea, D. B. Crane, Chas. E. Pearson, W. P. Thomson, J. T. Bennett Poë, W. G. Baker, G. W. Loder, E. A. Bowles, W. J. Bean, R. C. Notcutt, Reginald Cory, W. B. Cranfield, John Jennings, H. A. Darlington, G. W. Leak, Wm. Cuthbertson, R. W. Wallace, C. Williams, and J. W. Barr.

AWARDS OF MERIT.

Delphinium Nymph.—A delightful variety with very shapely modest sized spikes of large, finely expanded, semi-double flowers of a clear and attractive cream colour, with pale sulphur yellow petaloid stamens. Shown by Messrs. PRICHARD AND SONS, Christchurch.

Campanula R. B. Loder.—A charming little bell flower about five inches high, bearing six to nine little bells on a stem, each about a half-inch in diameter, soft blue, and with one corolla fitted closely inside the other. It is, therefore, semi-double, but not inelegantly so. The parentage was not given. Shown by Messrs. M. PRICHARD AND SONS.

Eryngium prostratum.—A quaint little plant, quite diminutive, the leaves lying on the ground and the flower heads rising about one inch above. The latter are dull blue, with a silvery involucre. Shown by Mr. AMOS PERRY, Enfield.

Lilium sulphureum.—This is a strong growing hybrid from *L. regale* and *L. sulphureum*. As shown it was nearly 5 feet high, with an abundance of narrow leaves and a head of eleven trumpet-shaped flowers. The latter are white with sulphur coloured throat, and purplish red on the outer sides of the outer three segments. We prefer *L. regale* to the hybrid. Shown by Mr. AMOS PERRY.

Gladiolus primulinus Firecrest.—A gorgeous hybrid with the elegance and hooded character of *G. primulinus*, but the colour is bright velvety scarlet with splashes of deeper hue towards the ends of the segments. Shown by Major CHURCHER, Alverstoke.

Lavender Lady Violet.—An interesting Lavender with creamy white leaves, each with a pale green centre. A few of the leaves have the grey-green colouring of the type. Shown by Mrs. V. CHARRINGTON, How Green, Hever-Kent.

Lavender Prudence.—A beautiful variety with stiff spikes of large deep lavender blue flowers that stand further out from the stem than in the usual form. Very fragrant. Shown by Mrs. V. CHARRINGTON.

Carnation Jessie Murray.—A white ground, fancy variety of fine shape and size. Each petal is marked down the centre and at the end with violet-rose; fragrant. Shown by Messrs. LOWE AND GIBSON, Crawley Down, Sussex.

Pyrus Aucuparia var. *moravicus*.—A handsome tree of rather stiffer habit than the type, and apparently the leaflets are narrower. The fruits are deep yellow and when freely borne render the plant very effective. Shown by Messrs. R. VEITCH AND SON, Exeter.

OTHER NOVELTIES.

In addition to the seedling Lavender which received an award of merit, Mrs. CHARRINGTON, How Green, Hever, exhibited a number of other seedlings including those named Patience and Lettice. These, we understand, were recommended for a certificate of appreciation, but unfortunately they were not on view in the hall. It appears that these Lavenders were to be placed before the Scientific Committee, but as that body does not meet until 4 p.m., there should have been time for them to be first placed in the hall so that the visitors might have had the opportunity of appraising their merits. Some excellent pot-grown Cannas were submitted by Mr. H. J. JONES. The varieties *Ami Max Kolb*, vivid crimson-scarlet and *J. B. van der Schoot*, yellow, with bright vermilion spotting, were exceedingly beautiful. A selection of very good *Antirrhinum* seedlings from their trial beds at Raynes Park were shown by Messrs. J. CARTER AND CO., and these were recom-

mended for trial at Wisley. Good seedling *Godelias* were also sent by Messrs. CARTER AND CO. *Kniphofia Rouge et Souffre*, from Messrs. M. PRICHARD, bears gorgeous spikes of vermilion-scarlet and soft yellow flowers. It was of exceedingly striking appearance, and seems worthy of a better fate than being "passed." In the hall Messrs. ROBERT VEITCH AND SON showed well flowered sprays of such half-hardy shrubs as *Notospartium Carmichaelia*, *Pentstemon cordifolius*, *Gaya* (*Plagianthus*) *Lyallii*, *G. glabrata*, *Hydrangea avernifolia* and the large-flowered *Lonicera Hildebrandtii*.

GROUPS.

An excellent collection of Sweet Peas was staged by Messrs. SUTTON AND SONS, with their usual skill and perfect taste. The pink-flowered sorts were especially delightful, and these included *Doris Usher*, *Frielled Beauty*, *Giant Attraction*, *Picture* and *Mrs. Arnold Hitchcock*. There were also equally well-grown spikes of such brightly coloured sorts as *Tangerine*, *Charity* and *Edward Cowdy*. Adjoining these superb Sweet Peas Messrs. SUTTON AND SONS had an interesting collection of annual *Scabious* in pots. These plants bore plenty of graceful flowers, and were in named sorts. *Black Prince*, *Sutton's Mauve* and *Sutton's Pink*, with a bordering of *Pom Thumb* in various colours. A smaller collection of *Dianthus* included the beautiful variety *Salmon Queen* (Gold Medal).

A smaller collection of Sweet Peas from Mr. J. STEVENSON was also of great merit. *Heidis* many standard sorts he displayed several sterling novelties. *Poppy*, which is said to be absolutely sun-proof, is a glowing orange-red; *Cynthia*, a delightful soft-lavender; *Diana*, a darker toned bi-colour, and *Wild Rose*, of fascinating shading, are the names of only a few of the noteworthy novelties (Silver Flora Medal).

In a corner space Mr. H. J. JONES arranged especially good herbaceous *Phloxes*; *Jules Sander*, which was shown in quantity, is an excellent bright rose-coloured variety, while *J. J. Ryan*, bluish lilac, and *Rhineland*, pale terra-cotta, are of more than average merit (Silver Flora Medal). Near by Messrs. L. R. RUSSELL, Ltd., had a collection of hardy trees and shrubs, which included a splendid standard double-flowered *Pomegranate* in bloom, well-coloured bushes of *Acer aureum*, the old favourite *Erythrina Crista-galli* and a beautifully golden *Jasminum aureum variegatum* (Silver Banksian Medal).

A long stretch of tabling was filled by Mr. M. PRITCHARD with a number of interesting hardy border plants and alpine. *Lavatera Olbia rosea*, in mass, was exceedingly effective. There were many border *Pinks*, *Mesembryanthemum roseum*, *Platycodon Mariessii*, various half-hardy *Crimins*, herbaceous *Phloxes* and *Campanulas*. Of the last-named *Campanula Zoysii* is a very distinct and charming little plant, which flourishes in the moraine (Silver-gilt Banksian Medal).

Lavatera Olbia rosea was also well shown by Messrs. B. LADHAMS, LTD., who included in their large exhibit vases of *Alströmmeria revoluta*, *Stokesia praecox*, *Nepeta okranica* and *Scabiosa caucasica* varieties (Silver Flora Medal). Mr. AMOS PERRY had desirable vases of Lavenders, especially *Lavendula spica alba*, *Eryngium Zabelli*, *E. planum*, *Betonica spicata rosea*, *Polygonum Brunonis*, very reminiscent of *P. amphibium*, and *Spiraea crispiifolia*, a neat species of truly crisp habit both in the sturdy flower spike and the fern-like leaves (Silver Banksian Medal).

Excellent *Delphiniums* were displayed by Messrs. BLACKMORE AND LANGDON. Many vases of *Gen. Sir D. Haig* were especially effective (Silver Banksian Medal). Messrs. BARR AND SON showed many spikes of *Lilium sulphureum* and *Watsonia Ardenae* (Bronze Banksian Medal). Mr. F. G. WOOD had masses of *Statice incana* with various border flowers and alpine (Bronze Banksian Medal).

Herbaceous *Phloxes* in variety, with various interesting shrubs, were set out by Messrs. J. CHEAL AND SONS. The latter included *Hedysarum multijugum*, *Rhamnus Alaternus*, and there was a good lot of *Astilbes* (Silver Flora Medal).

Cytisus acutensis was a prominent feature in a collection by Messrs. WATERER, SONS, AND CRISP, who also showed *Phloxes*, *Delphiniums*, *Sidalcea Rose Queen*, and various *Campanulas* (Silver Banksian Medal). Mr. W. A. COLLIER had several vases of the elegant, frilled *Chrysanthemum maximum* Marian Collier, while Mr. CHAS. TURNER had an excellent strain of the same species (Bronze Banksian Medal). Messrs. MAXWELL AND BEALE showed dwarf *Lavenders*, with many border flowers and alpine (Bronze Flora Medal). Mr. W. YANDELL had a large collection of *Violas*.

Various border flowers and Alpines were shown by Mr. G. REUTHE, who included several late *Rhododendrons* and a little collection of *Liliums* (Silver Banksian Medal); Mr. W. WELLS junr. (Bronze Flora Medal), Messrs. W. H. ROGERS AND SONS (Bronze Banksian Medal), the Misses HOPKINS (Bronze Banksian Medal), and Messrs. MAXWELL AND BEALE (Silver Banksian Medal).

Carnations were shown in quantity, and of good quality. Messrs. ALLWOOD, BROS., had beautiful vases of *Jessie Allwood*, *Edward Allwood* and *Destiny* (Silver Flora Medal). Mr. C. ENGELMANN included such sorts as *Tarzan*, *Nigger* and *Circe* (Silver Banksian Medal). Messrs. STUART LOW AND CO. had a large quantity of *White Pearl*, and also showed the Hon. C. KNOLLYS and various *Roses* (Silver Banksian Medal). Messrs. J. B. GROOM AND SON had an interesting exhibit of their new hardy variety, *Mrs. G. R. Groom*, which appears to be exceedingly free flowering. It is stated to be a cross between a *Malmaison* and a *Perpetual* variety, and equally suited for pot culture or for the open border. The colour is a warm salmon rose, much like that of *Mary Allwood*, and it is pleasantly clove scented (Silver Banksian Medal).

Roses were better than might have been expected, in view of the recent inclement weather. Messrs. G. BUNYARD AND CO. had many good yellow sorts, such as *Christine*, *Golden Emblem*, *Margaret Dickson*, *Hamill* and the beautiful single varieties *Isobel* and *Sheila Wilson* (Silver Flora Medal). The Rev. J. H. PEMBERTON included goodly vases of *Ruth*, *Mermaid* and *Isobel* in his collection (Silver Flora Medal). Messrs. D. PRIOR AND SON had baskets of *George Dickson* and *Mrs. G. Marriott*, with vases of many other desirable sorts (Silver Banksian Medal). Messrs. F. CANT AND CO. included their good new varieties *Henry Nevard* and *Mrs. Alfred West* in their collection of beautiful *Roses* (Bronze Flora Medal).

In addition to their new variety, Messrs. LOWE AND GIBSON had a good collection of border *Carnations*, of which Mr. George Marshall and Jas. Griggs were excellent, and they also showed a few spikes of *Gladiolus* (Silver Banksian Medal).

Fruit and Vegetable Committee.

Present: Messrs. C. G. A. Nix (in the chair), J. Cheal, Owen Thomas, G. P. Berry, S. B. Dicks, W. F. Giles, F. Jordan, W. Harriss, E. A. Bunyard, J. Bates, W. H. Divers, P. C. M. Veitch, A. Bullock, and the Rev. W. Wilks.

Beyond the usual fruits for naming, the Committee had only a dish of *Blackberries* and a small collection of culinary *Cherries* to occupy their attention.

The *Cherries*, which were from Messrs. G. BUNYARD AND CO., were illustrative of several types of culinary fruit, but it was not complete, and Mr. E. A. Bunyard expressed the hope that he would be able to submit a better collection in the future. In the committee room there were dishes of such sorts as *Early May*, *Gros Gobet*, *Flemish Red*, *Montmorency* (short stemmed) and *Triaux*, and these were supplemented, in the hall, by fruiting branches of several of the sorts. The varieties *Triaux* and *Early May* were very prolific.

The dish of *Blackberries* was of the variety *Best of All*, and showed by Mr. CHARLES TURNER. It appears to be very free fruiting. The long, quite black "berries" were very juicy, but lacked flavour, which may be due to the excessive rains and absence of sunshine.

BIRMINGHAM HORTICULTURAL.

July 21 and 22.—This Society's annual floral fête was held in the Handsworth Park, although opinions were divided as to the advisability of holding a show during the present summer, seeing that last year's efforts resulted in a loss of about £1,500 when the venue was changed from Handsworth to Cannon Hill Park. The committee and officers have had a most anxious time, and are to be congratulated upon getting together such a wonderfully varied and good exhibition. The plant groups were a fine feature. Cut *Carnations*, *Sweet Peas* and hardy herbaceous flowers were excellent, and *Roses* have never been equalled at any previous show held under the auspices of the Society, the extensive display of new and well-known varieties of these favourite flowers from Messrs. DOBBIE AND CO. being of outstanding merit and well worthy of the highest award—a silver challenge cup offered for the best exhibit in the show.

The entries in the competitive classes set up a record, there being 650—a hundred more than last year, whilst in the non-competitive section, including sundries, there was similar gratifying progress. The attendance of visitors on the first day of the show was very satisfactory, and it is reported that most of the 10,000 tickets available for sale were sold prior to the opening of the show.

GROUPS AND PLANTS.

There were four splendid groups, each arranged on a circular space down the centre of the main tent. The first prize was won by Messrs. J. CYPHER AND SONS, Cheltenham, whose display was noteworthy for the artistic arrangement of *Orchids*, *Ixoras*, *Kalanchoes*, *Francoas*, *Clerodendrons*, and highly-coloured *Codiaeums*, over which tall *Humea elegans* waved their graceful flowering sprays; 2nd, Sir GEORGE H. KENRICK, Whetstone, Edgbaston (gr. Mr. J. V. Macdonald), whose group included the familiar arch decorated with choice foliage and flowering plants. The body of the group contained some beautifully flowered *Ixoras* and well-coloured *Codiaeums*, *Nandina domestica*, *Selaginellas* and *Begonias*; 3rd, Mr. W. R. MANNING, Dudley; 4th, H. GREEN, Esq., Gravelly Hill (gr. Mr. G. W. Marsh).

E. J. KEELING, Esq., Small Heath, won first prize for six well grown specimen *Coleus*, and C. T. BARLOW, Esq., Handsworth (gr. Mr. F. J. Davies) took the lead in a class for six *Fuchsias*—all remarkably well grown and profusely flowered. The class for tuberous-rooted *Begonias* only attracted one exhibitor, Mr. L. H. MARTYN, who was awarded 2nd prize.

CUT FLOWERS.

Dinner tables decorated with flowers are always a feature at Birmingham. The first prize this year was awarded to W. J. GRESSON, Esq., Stoke Severn, Worcester (gr. Mr. T. Parry), for a light arrangement consisting principally of *Francoa*, *Gloriosa* and *Streptocarpus*, relieved with narrow reddish-coloured *Codiaeum* leaves and sprays of *Selaginella*; 2nd Sir GEORGE H. KENRICK, whose flowers included *Orchids*, *Gloriosa*, *Oleander*, *Pancratiums* and *Eschscholzia*; 3rd, Mr. C. GREGORY, Chilwell. In a decorated dinner table class reserved for ladies, Mrs. J. V. MACDONALD beat Mrs. W. E. BALL, of Edgbaston. The best *epergne* of flowers was arranged by Mrs. E. COLLETT, of Handsworth.

ROSES.

The leading class was one for a collection of cut blooms, arranged on a space of 20 feet by 5 feet, for which a silver challenge bowl, value twenty guineas, presented by Alderman W. A. Cadbury, and £15, were offered as first prize; this award was won by Messrs. GUNN AND SONS, Olton, for a wonderfully fine display, which included a number of pillars about 9-10 feet high clothed with first quality blooms, and backed by large masses of *Padre*, B. W. Walker, Modesty, *George Dickson*, *Lyon*, *Queen Alexandra* and *Ophelia*; 2nd Mr. ELISHA HICKS, Hurst, Berks, whose general arrangements followed on pretty much the same lines as those of Messrs. GUNN AND SONS. He had effectively clothed pillars of *Mrs. Herbert Stevens*, *John*

Hart, *Madame Abel Chatenay*, and handsome clusters of *Mrs. Henry Morse*, *Los Angeles*, *Golden Emblem*, and *Queen Alexandra*; 3rd Mr. JOHN MATTOCK, Oxford. An extra prize was recommended to Mr. THOMAS ROBINSON, Nottingham.

The best of five exhibits of twelve bunches of garden *Roses* distinct, came from Mr. ELISHA HICKS, who had handsome examples of *Melody*, *Henrietta*, *Charles E. Shea* and *Los Angeles*; 2nd Mr. JOHN MATTOCK, whose best bunches were *K. of K.*, *Ophelia* and *Queen Alexandra*; 3rd Mr. CHARLES GREGORY, Chilwell, Notts. The last-named exhibitor excelled in classes for (1) a bowl of *Roses* and (2) twenty-four *Roses* with beautifully fresh specimens of *George Dickson*, *Mrs. H. Morse*, *Queen Alexandra* and *Mrs. H. R. Darlington*. Messrs. HUGH DICKSON, Ltd., Belfast, were second in the last-named class and first for (1) 18 *Roses* and (2) 12 *Tea Roses*.

Of the two contestants in the class for 12 self *Carnations*, Mr. H. WOOLMAN, Shirley, took the lead with large, fresh blooms. The other exhibitors were Messrs. A. R. BROWN, Ltd., Kings Norton. The same two exhibitors were placed as named in the class for 12 yellow ground fancy *Carnations*, but in the class for 12 fancy *Carnations* other than yellow or buff grounds, Messrs. A. R. BROWN were the only exhibitors, and they were deservedly awarded first prize for rather small but perfect blooms.

The best display of *Sweet Peas* on a space of 20 feet by 4 feet, for which a 20-guinea challenge cup and £8 were offered as first prize, came from Messrs. E. W. KING, Coggeshall, who had splendid flowers. Another challenge cup, value 6 guineas, and £2, offered for 24 bunches of *Sweet Peas*, was well won by the Misses RUSSELL, Barton Court, Canterbury (gr. Mr. C. H. Rundle), whose stout-stemmed, substantial flowers were of great merit; Sir R. GRAHAM, Netherley, Carlisle (gr. Mr. F. C. Hallett), was second, and W. E. WARDER, Esq., Earlswood (Mr. W. HODSON) was placed third.

The winning exhibit of 24 bunches of hardy border flowers (annuals and shrubs excluded) came from THE CHALK HILL NURSERIES, Reading; 2nd, H. WATSON SMITH, Esq., Stourbridge (gr. Mr. H. Davis); 3rd Mr. E. J. KEELING, Small Heath.

The three sets of 12 vases of *Violas* were of exceptional merit, and there was very little difference between the first and second prize stands, which were beautifully clean, fresh, well set up, and of good substance; 1st, Mr. W. T. DESMOND, Moseley; 2nd, Mr. J. R. BASTOCK, Moseley; 3rd, Mr. W. J. CONDRI, Harborne. The class reserved for a tastefully arranged display of *Violas* on space of 9 feet by 3 feet, was disappointing. 1st, Mr. J. R. BASTOCK; 2nd, Mr. H. J. TANNER, Sparkhill; 3rd, Messrs. A. R. BROWN, LTD., Kings Norton.

AMATEURS' EXHIBITS.

The best display of cut flowers arranged on a space of 9 feet by 3 feet, was shown by H. WATSON SMITH, Esq., Stourbridge (gr. Mr. H. Davis); 2nd, Mr. E. J. KEELING. The most successful exhibitors of *Roses* were Gulliver Speight, Esq., Market Harborough, who won first prize for 18 varieties, and second prizes for (1) 12 varieties, and (2) 6 varieties; C. B. WORSEY, Esq., Edgbaston (gr. Mr. A. Davis), who was 2nd in the first-named class and first for 12 varieties; C. DIXON, Esq., Sheffield, who showed the best half-dozen varieties.

The Misses RUSSELL, Canterbury, had the winning stand of 12 border *Carnations*, and beat five contestants in the class for 12 vases of *Sweet Peas*. J. A. KENRICK, Esq., Berrow Court, Edgbaston (gr. Mr. A. Cryer), won first prizes for (1) a group of plants, (2) three *Ferns*, (3) six *Begonias*, (4) collection of *Ferns*, and (5) 12 *Streptocarpus*. Sir GEORGE H. KENRICK showed the best 6 table plants.

FRUIT.

In the classes reserved for soft fruits, C. T. BARLOW, Esq., had the best *Black Currants*, and Miss J. SMITH led with *Red Currants* and *Loganberries*. W. J. GRESSON, Esq., sent the

winning exhibit of Gooseberries, and Sir R. GRAHAM (gr. Mr. C. F. Hallett) showed the best lot of Strawberries.

VEGETABLES.

W. J. GRESSON, Esq. (gr. Mr. T. Parry) was awarded first prizes for two collections of vegetables, as well as first prizes in single dish classes for Runner Beans, Carrots, Onions, Cucumbers, Cauliflowers and Tomatos.

NON-COMPETITIVE.

Large Gold Medal.—To Messrs. DOBBIE AND Co., Edinburgh, for Roses; to Mr. C. ENGLEMAN, Saffron Walden, for Perpetual Carnations; to Messrs. BAKERS, Wolverhampton, for hardy flowers; to Messrs. WEBB AND SONS, Stourbridge, for Sweet Peas.

Gold Medal.—To Messrs. RYDERS, St. Albans, for vegetables and cut flowers; to Messrs. STUART LOW AND Co., Enfield, for Orchids and Carnations; to Mr. C. H. HERBERT, Acocks Green, for Pinks; and to Mr. C. VICKERS, Leicester, for bouquets.

Silver Gilt Medal.—To Mr. H. H. ELLISON, West Bromwich, for Ferns and Cacti; to Messrs. ISAAC HOUSE AND SON, Bristol, for Scabious and Gaillardias; to Messrs. BOWELL AND SKARRATT, Cheltenham, for rock plants; to Messrs. JARMAN AND Co., Chard, for Centaureas and Roses; to Messrs. LOW AND GIBSON, Crawley Downs, Sussex, for Border Carnations; to Messrs. T. B. GROVE AND SONS, Sutton Coldfield, for hardy flowers; to Mr. W. WELLS, JUNR., Merstham, for hardy flowers; and to THE CHALK HILL NURSERIES, Reading, for hardy flowers.

Silver Medal.—To Miss S. S. THOMPSON, Handsworth, for Cacti; and to Messrs. MAXWELL AND BEALE, Broadstone, for Rock plants.

NEW HORTICULTURAL INVENTIONS.

LATEST PATENT APPLICATIONS.

18,857.—Bailey, J. J.—Wall Brackets, etc., for plants, etc. July 10.

19,316.—Gales, E. F.—Pliers to fasten plants to stakes with wire or metal clips. July 14.

19,504.—Stevenson, R.—Treatment of hard Clover seeds, etc. July 15.

19,303.—Tailby, N.—Horticultural, agricultural, etc., spraying apparatus. July 13.

19,265.—Tideman, P. G.—Soil-cutters, etc. July 13.

18,540.—Bull, G. F.—Rotary cutters of lawnmowers. July 6.

SPECIFICATIONS PUBLISHED THIS MONTH.

182,038.—Trough, W.—Garden frames.

182,147.—Burdick, C. L.—Spraying apparatus.

181,595.—Campbell, E. M.—Garden labels and the like.

ABSTRACT PUBLISHED THIS MONTH.

Spraying Powder.—Patent No. 180,468. A new portable plant for spraying insecticides and similar powders on to fruit trees, etc., has been designed and brought out by Mr. S. Ballard, of Grovesend Fruit Farms, Colwall, Malvern, Worcestershire.

It comprises a wheeled truck on which is mounted a small petrol or paraffin engine. The truck may be drawn by hand or animal power, or may be propelled by gearing from the engine. The exhaust gases from the engine are conveyed through a pipe ending within a larger pipe in an ejector nozzle, the pipe being continued slightly diminished in diameter and terminating in a branch piece, to which flexible hoses are attached. Powder contained in a hopper is kept agitated by a vane wheel, which may be driven by gearing from the engine, and passes down through a rotary feed box fitted with a revolving brush or roller and having an adjustable outlet to ensure an even feed, and enters the pipe adjacent to the nozzle of the pipe through a branch pipe. A pressure chamber fitted with a gauge may be interposed between the engine and the injector nozzle, so that the engine speed may be regulated to produce an even pressure.

This list is specially compiled for *The Gardeners' Chronicle*, by Messrs. Rayner and Co., Registered Patent Agents, of 5, Chancery Lane, London.

ANSWERS TO CORRESPONDENTS.

BLUE HYDRANGEAS: *A. J. B.* Hydrangeas often develop inflorescences in which the bracts are perfectly blue. This colouring is sometimes due to the particular nature of the soil, and in other cases it is induced by feeding the plants with a special preparation.

CARNATION RUST: *N. McE.* The plants are attacked with Carnation rust. Spray the plants with potassium sulphide, but if the disease is very severe burn the diseased plants and obtain fresh stock.

GALLS ON CONIFERS: *G. J. M.* The galls on the Conifers are the result of the working of the Pine chermes, *Chermes abietis*. This insect is one of the aphids, but the group to which it belongs has a much more complicated life history than most aphids. The founders of the colony hibernate during the winter, but on the approach of spring they begin to feed and subsequently lay eggs in the axil of the young leaves. This causes the base of the young leaves to thicken, forming cavities, in which the young larvae feed. They thus form a sort of false cone. In June the scales of the cone separate and the pupae crawl out. These soon change to the winged state and fly away to infest other trees.

HEATING AN AMATEUR'S GREENHOUSE: *Biscuit Reading.* You could utilise an oil lamp or oil stove for the heating of your greenhouse, but this would not be so satisfactory as the use of hot water by means of boilers and pipes.

MAPLE LEAVES WITHERED: *E. J. R.* The shoots are not affected with disease due to fungus or insects, but apparently are suffering from the effects of drought. Doubtless, last season's dry summer has been partly responsible.

NAMES OF PLANTS: *G. H. 1.* Probably *Cistus salicifolius*; 2, *Pentstemon heterophyllus*; 3, *Glaucium flavum tricolor*; 4, *Phacelia tanacetifolia*; 5, *Sedum hispanicum*.—*L. C.* *Arum Draconculum*.—*L. S. A. 1.* *Senebiera didyma* (Swine's Cress); 2, *Arrhenatherum elatius* (Oat Grass); 3, *Sisymbrium officinale* (Hedge Mustard).—*A. C. P.* *Salvia virgata*, var. *garganica*.—*H. H. S.* and *W. N.* We cannot undertake to name florists' flowers. —*A. G. 1.* *Iris graminea*; 2, *Polygonum capitatum*; 3, *Asarum europaeum*; 4, *Sedum altissimum*; 5, *S. spurium*.—*L. S. A. 1.* *Linaria purpurea*; 2, *Hordeum murinum* (Wall Barley); 3, *Veronica lobeloides* (often named Blue Gem).—*F. E. W.* Probably *Aconitum vulpularia*, and *Salvia verbenaca*. The Rose was too withered to recognise. —*S. C. H.* *Phormium tenax* (New Zealand Flax).—*A. T. S. 1.* *Cistus oblongifolius*; 2, *Centranthus ruber* and *C. r. alba*; 3, *Anchusa italica*; 4, *Juniperus communis*; 5, *Tamarix aestivalis*; 6, *Clematis tangutica*; (un-numbered), *Verbascum Thapsus*.—*G. S. 1.* *Alströméria peruviana*; 2, *Hypericum Androsaemum*; 3, *Olearia Haastii*; 4, not recognised.

RASPBERRY FRUITS FAILING TO MATURE: *C. H. L.* The trouble is due entirely to drought. The Raspberry develops numerous surface feeding roots and during the hot summer of last year and the spring of the present year the conditions were too dry, with the consequence that these feeding roots were in many cases killed. In order to obviate the trouble next season, apply a mulch of manure to the roots early in the season.

TOMATOS: *H. T.* The disease on the leaves is known as Tomato rust, caused by the fungus *Cladosporium fulvum*. Spray the plants with Bordeaux mixture. The fruits with hard, yellow patches at the base are not affected with fungous disease. The trouble is said to be purely a physiological one and due to a lack of potash in the potting compost. Use wood ash or sulphate of potash in the soil for Tomatos.

Communications Received.—*A. C. B.*—*A. R.*—*J. G. J.*—*E. R.*—*H. B.*—*Anonymous.* *G. R.*—*C. B.*—*Constant Reader.*—*W. G. D.*—*A. R.*—*C. E. O.*—*C. L.*—*N. Q. R.*, Reading.—*Woodcroft.*—*J. M. W.*—*T. J. B.*—*W. L. W.*

MARKETS.

COVENT GARDEN, Tuesday, July 25, 1922.

Fruit: Average Wholesale Prices.

s. d. s. d.	s. d. s. d.
Apples,	Grapes
—Cleopatra .. 15 0-17 0	—Alicante .. 1 9- 2 0
—Sturmer Pippin 16 0-18 0	—BlackHamburgh 1 6- 3 0
—Others .. 12 0-14 0	—Canon Hall .. 3 0- 8 0
English, half bus.	—Muscat .. 1 6- 6 0
—Julians .. 3 0- 4 0	Lemons
—Suffields .. 3 6- 4 3	—Messina, 300's 10 0-12 0
—Grenadiers .. 4 0- 5 0	—Murcia .. 14 0-18 0
—Early Victorias 3 6- 5 0	Melons
Bananas, singles 15 0-25 0	English and
—doubles .. 20 0-27 6	Guernsey .. 3 0- 7 0
Cherries	—Cantaloupe, .. 6 0-18 0
—Bizarreau .. 4 0- 5 0	Nectarines .. 4 0-18 0
—Early Rivers 12 0-14 0	Nuts
—Florence .. 10 0-15 0	—Brazils .. 44 0-46 0
—Morello, half .. 10 0-14 0	Oranges,
—Napoleon .. 10 0-20 0	—Murcia .. 22 0-28 0
—Turks .. 12 0-18 0	—South Africans 18 0-21 0
—Other Black .. 6 0-10 0	—Navel .. 18 0-22 0
—English & sive. 23 0-25 0	—Seedlings .. 18 0-21 0
—Red .. 10 0-14 0	—Peaches, per doz. 4 0-24 0
Figs, per doz. 4 0-12 0	Pineapples .. 2 0- 5 0
Gooseberries	Raspberries
English, Green, 4 lb. Chips .. 2 6- 3 0	Spanish Gages, .. 10 0-18 0
—half sieve .. 3 0- 7 0	—Plums .. 12 0-14 0
—Ripe .. 5 0-10 0	Strawberries
—Large Sulphurs, per lb. .. 0 6-1 2	—chips .. 2 0- 3 0
South African, half bushel .. 4 0- 4 6	Walnuts Green
Grape-Fruit .. 35 0-40 0	

REMARKS.—The lower values now prevailing in most departments should stimulate demand for the better supplies now becoming available. English Tomatos are plentiful, and, with large quantities arriving from Holland, prices are considerably lower. Better weather conditions should tend to improve inquiries for Cucumbers, which are moderate in price. Choice fruits are quoted lower, the demand for Peaches, Nectarines, Grapes, Melons and Figs being weaker. English Apples increase in supply daily; for them there is a fair demand. The few Early River Plums, moderately ripe, have sold well. Cherries are not so plentiful, but still ample for the demand at present prices. Gooseberries, both dessert and cooking, move fairly freely, although values are not very high except for a few choice, large, dessert berries. The Australasian Apple season is almost finished, the last cargo having arrived. Green vegetables are plentiful and cheap. French and Runner Beans are also selling at low prices. The competition of field-grown Mushrooms is keeping down the prices of indoor-grown Mushrooms. New Potatoes are in ample supply, and very moderate in price.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated.)

s. d. s. d.	s. d. s. d.
Adiantum	Heliotrope, 48
cuneatum,	per doz. .. 9 0-12 0
per doz. .. 10 0-18 0	Hydrangeas,
—elegans .. 10 0-12 0	—White, 48 per
Aralia Sieboldii 10 0-12 0	doz. .. 10 0-15 0
Aracarias .. 30 0-48 0	Marguerites,
Asparagus plu-	per doz. .. 12 0-15 0
mosus .. 12 0-15 0	Nephrolepis, in
—Sprengeri .. 12 0-18 0	variety .. 12 0-18 0
Aspidistra, green 48 0-72 0	—32's .. 24 0-38 0
Aspidium,	Palms, Kentia .. 24 0-30 0
per doz. .. 12 0-18 0	—60's .. 15 0-18 0
—32's .. 24 0-30 0	—Cocos .. 24 0-36 0
—nidus .. 12 0-15 0	Polyanthus Roses
Cacti, per tray,	48's. per doz. 12 0-18 0
12's, 15's .. 5 0- 6 0	Pteris, in variety 12 0-21 0
Crassulas 48's	—large 60's .. 5 0- 6 0
per doz. .. 24 0-30 0	—small .. 4 0- 4 6
Crotons, per doz. 30 0-42 0	—72's, per tray
Cyrtomium .. 10 0-15 0	of 15's .. 3 6- 4 0
Fuchsias	Verbenas, 48's,
48 per doz. .. 9 0- 11 0	—Miss Willmott 12 0-15 0
60 " " .. 4 0- 6 0	

REMARKS.—In the flower department there is no great demand for any special line, and many kinds show a further reduction in price. Carnations are again the most plentiful, and there are some very cheap grades amongst Roses. Asters are getting more numerous, and a return of summer-like weather would bring in abundant supplies of these blooms. Other kinds also show a further increase. Delphiniums are finishing, but there are large supplies of *Statis incana*, *S. latifolia* and *S. sinuata*. Lavender is also arriving in excellent condition, and the supplies appear sufficient for the demand. *Lilium longiflorum* is again falling in price; pink and white *L. speciosum* are good in quality. The general conditions throughout the market show no improvement on last week, practically all supplies exceeding the demand.

GARDENING APPOINTMENTS.

Mr. P. W. Ambrose, for nearly seven years Gardener to Lady Mirthy at Haddon Castle, Saundersfoot, Pembrokeshire, as Gardener to the Governors, Imperial Service College, Clewer Manor, Windsor, Berkshire (Thanks for 2s. 6d. for R.G.O.F. Box.—Eds.)

Mr. A. Ballard, previously Gardener at Barford House, Warwick, as Gardener to Mrs. Noble, Kingswood House, Hare Hatch, Twyford, Berkshire.



THE

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 62.1°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, August 2, 10 a.m. Bar. 30.2; temp. 63°. Weather—Fine.

The mode of manufacture of organic nitrogen compounds by plants has been the subject of much experiment and more conjecture, but has nevertheless remained one of the major mysteries of the plant world. It has, of course, long been known that the nitrogen found in the complex organic compounds contained in plants—the amino compounds and the proteins—is derived from inorganic sources. The roots of plants absorb nitrates, and in some cases salts of ammonia. Nitrates may be traced in the plant to the leaves, but of the chemical change whereby the nitrogen of these nitrates becomes combined with carbon and other elements to form organic nitrogen compounds, nothing certain was known. Recently, however, Profs. Boly, Heilbron and Hudson have published in the *Journal of the Chemical Society* (June, 1922) the results of a series of investigations which appear to elucidate the phenomena of nitrogen assimilation. Their previous researches had led them to conclude that in the assimilation of carbohydrates by the green parts of plants exposed to sunlight, the raw

materials involved in this process—carbon dioxide and water—are decomposed with the formation of formaldehyde and oxygen. The latter substance is given off by the plant, but the former substance undergoes further change with the result that sugar appears in the green leaf. From this substance all the various carbohydrates and similar carbon compounds—starch, cellulose, etc.—of the plant are derived. According to the new researches already referred to, the formaldehyde thus formed photosynthetically is in an active state, that is, able to enter readily into combination with other substances. It is claimed that in the leaf it reacts with potassium nitrate to produce substances which may be described as forerunners of proteins. On this view the formation of the organic nitrogen compounds of the plant is no less dependent on radiant energy than is that of the sugars. In the absence of light, plants are still able to combine simpler nitrogen-containing organic compounds into the more complex proteins, but apparently it is only in the green leaf that the synthesis of these simpler compounds is effected. The most novel aspect of these researches lies in the evidence which they adduce for one and the same product of photosynthesis—formaldehyde, as the starting point for two divergent and fundamentally important lines of chemical construction—one, the line which leads to the appearance of sugar, the other that which leads to the production of proteins.

Presentation of the Forrest Collection to Kew.

—We learn from the current issue of the *Kew Bulletin* that the important and valuable collections of dried plants made by Mr. George Forrest during the period 1916-1919, when he was engaged on his botanical explorations in N.W. Yunnan and S.E. Tibet—chiefly on the ranges which divide the three great rivers, the Yangtze-kiang, the Mekong, and the Salween, draining these regions—have been very generously presented to the Royal Botanic Gardens, Kew, by the syndicate under whose auspices Mr. Forrest carried out his explorations. Out of the 6,000 numbers collected during those years, an almost complete set has been presented to Kew, all labelled with Forrest's numbers and determined at the Royal Botanic Gardens, Edinburgh. Previous collections by Forrest are already well represented in the Herbarium, and the present consignment, which keeps up to the former standard in excellent selection and preservation, will form a valuable addition to the national collections from these mountains.

R.H.S. Teachers' Honours Examination in Horticulture.—For the Teachers' Honours Examination in School and Cottage Gardening, held by the Royal Horticultural Society, on April 22 and June 23, 1922, seven candidates presented themselves, of whom one has satisfied the examiners in section (a) and two in section (c). The examiners, Messrs. A. Simmonds, A. D. Turner and A. J. Cobb unanimously reported that the practical work was below the standard that they expected of the candidates, and pointed out that without experience in practical work no candidate can expect to satisfy them. They urged that all candidates should show a sound knowledge of general horticulture before being allowed to specialise in any particular branch. The Council has therefore decided that the examination shall for the present be concerned with the general principles of horticulture and with their application to practical work, and that no candidate shall be allowed to specialise. The following are the successful candidates:—Section (a): A. E. Sims, 3, Green Side, Ripley, Surrey; Section (c): R. Lock, Gaunts Common, Wimborne, Dorset; J. C. Thompson, The Holme School, Leybourne, West Malling, Kent.

Examination for the N.D. Hort. Diploma.

The Royal Horticultural Society's National Diploma in Horticulture has been awarded to the following as a result of the written and practical examinations for the Diploma held this season:—Section 1: General Horticulture.—Miss D. F. Cavalier, c/o Major E. Macdonald, Littlecote Hall, Burgess Hill, Sussex; S. J. Channing, Norton Manor Gardens, Sutton Scotney, Hants; Miss C. Choules, 5, The Avenue, Hornchurch, Essex; H. Gethen, Mondamin, West Mersea, Essex; Miss M. H. Henning, The Cottage, Park Hall, Hayfield, Derby; Miss K. L. Syer, Charlton, East Sutton, Maidstone, Kent. Section 1 (b): Fruit and Vegetable Growing.—C. J. Gleed, 31, North Walls, Winchester, Hampshire; H. F. Maidment, The Gardens, Somerset Farm Institute, Cannington, Bridgewater, Somerset. Section 1 (c): Fruit Growing.—J. W. Hall, 13, George Square, Edinburgh; D. G. Henry, 18, Pitt-street, Portobello, Midlothian. Section 6: Public Park Gardening.—F. Baker, Parks Department, Mesnes Park, Wigan, Lancs.; L. E. Morgan, Queen's Park, Victoria Avenue, Crewe. Section 7: Horticultural Inspection.—C. H. Oldham, Ivy Dene, Chandlersford, Southampton. The following have also passed the preliminary examination, and will be eligible to take the final examination when they have completed the necessary six years of practical experience in gardening:—W. G. Ayres, The Nook, Enham Village Centre, Andover; S. Baker, 14, Victoria Parade, Kew Gardens, Surrey; W. E. Cole, 1, London Road, Reading; Miss W. A. Crafer, Oakcroft, Parkgate Road, Saughall, Chester; F. H. J. Fanner, Drayton Manor Nurseries, Chichester; I. Dowling, 20, Rising Brook, Stafford; Miss V. G. Hartley, Hockerill Training College, Bishop's Stortford; Miss D. M. Harger, Studley College, Studley, Warwickshire; H. B. Impett, Higher Lane, Fazakerley, Liverpool; J. R. Lewis, c/o Mrs. Bennett, 130, Church Road, Burgess Hill, Sussex; Miss L. D. Millen, Leiper's Building, Crossford, Carlisle, Lanarkshire; Miss L. I. Milne, Ballyoukan Lodge, Pitlochry, N.B.; J. S. Mitchell, 49, Belvedere Road, Bexley Heath, Kent; W. R. Pearson, 43, Clarence Road, Moseley, Birmingham; J. T. Peers, Clayton Manor Lodge, Clayton-le-Dale, Blackburn; A. J. Purser, 1, Hewlett Place, Cheltenham; Miss A. Redfern, Park Hall Cottage, Hayfield, Derbyshire; Miss N. Surman, Walmor College, Chester; R. Wightman, 46, Victoria Road, Aldeburgh, Suffolk.

Preservation of Plums.—The Plum crop in this country during the last few years, and particularly in 1919 and 1920, was small and few householders were able to obtain a sufficient supply to enable them either to preserve the fruit by bottling or to turn it into jam. This year in most districts of England, heavy crops of Plums are expected, especially of those varieties which are eminently suitable for bottling and for jam making, and prices are likely to be low. As the season commences early in August, and is of short duration, advantage should be taken of the opportunity to secure a large supply of Plums, in order to preserve them, either by bottling, canning or jam making, for use until the Plum season comes round again. Bottles are in plentiful supply, and the process of bottling is quite simple. A useful leaflet giving a full account of the process of bottling is issued by the Ministry of Agriculture, single copies of which can be obtained free of charge on application to the Ministry's Office, 10, Whitehall Place, S.W. 1.

Potato Trials in Midlothian.—On the 26th ult., a public demonstration was held at East Craigs, Corstorphine, the Scottish Board of Agriculture's Plant Registration Station, on the varieties of Potatoes under observation this season, and there was an attendance of over one hundred Potato growers from all parts of Scotland. The station is adjacent to the newly-established Scottish station for research in plant breeding, and is about five miles west from Edinburgh. The Plant Registration Station, which is intended to supply, *inter alia*, information to agriculturists and others regarding

the susceptibility or immunity of Potatoes to Wart Disease, and as regards type, season, cropping properties, etc., is in the charge of Mr. Thomas Anderson, B.Sc., the Director of the Seed Testing Station. A Synonyms Committee has also been appointed to deal with new varieties sent in, and to recommend for registration such as are immune and are likely to be acceptable. Notwithstanding the Board's repeated warnings, however, the number of old varieties sent in for immunity test this season was larger than ever before, and included British Queen (seven varieties under different names), Up-to-Date, Sharpe's Express, President, Ally, Eclipse, Great Scot, Northern Scot, and others, and eight varieties were mixed up in combinations like Eclipse, Great Scot and British Queen, and Ally, Arran Chief and Up-to-Date. Mr. Anderson explained that the Seeds Act of 1920 required sellers of seed Potatoes to disclose the variety, and to state whether or not the stock was pure, and that at the instance of the Farmers' Union and the Seed Trades' Association the Board had decided to include all varieties in their inspection this season. The area to be inspected amounts to 40,000 acres, and it was necessary to give the temporary inspectors a thorough training before they could be entrusted with the work, for which there is material at East Craigs. There were also exhibited commercial stocks of common varieties for information purposes; maturity and cropping tests for the comparison of varieties, and to obtain information as to the best methods of comparing new varieties with old ones; and plots of varieties submitted for registration and for immunity tests, the latter being conducted at another station. A reference collection for the instruction of the inspectors, and samples of the "rogues" found in the course of inspection last year, many of which have been found not to belong to any known variety, were also exhibited. The Potato plots were looking well, but owing to the backward season the crops were late.

Official Seed-Testing Charges for England and Wales.—As from August 1, 1922, the following increases will be made in the fees charged by the Official Seed Testing Station for testing samples of seeds:—Grasses and Clovers (old fee) 4s., (new fee) 5s. per sample; mixtures of Grasses and Clovers (old fee) 4s., (new fee) 10s. per sample. Mixtures of Perennial and Italian Ryegrass, and mixtures of Alsike and White Clover, when stated to have been grown together, will not be regarded as mixtures, and will be tested for 5s. per sample. Special facilities will be offered for carrying out tests on payment of the ordinary fee, plus an additional charge of 50 per cent. thereof, and the cost of telegraphing the result of the test if a telegram is asked for. These facilities will only be granted to samples which are plainly marked with the word "Rapid." No other form of words will be recognised. All other fees, including the farmer's fee of 6d. per sample, will remain unchanged. A leaflet giving full particulars of the fees and conditions of testing can be obtained post free on application to the Chief Officer, Official Seed Testing Station, Huntingdon Road, Cambridge.

Plagianthus Lyallii.—From Messrs. Robert Veitch and Son we have received splendid sprays of *Plagianthus Lyallii*, the beautiful form which they exhibited at the Royal Horticultural Hall on July 25. Three years ago they exhibited it at the R.H.S. under this name and received an Award, and when specimens were submitted to Kew the authorities considered it to be the type plant. The Exeter firm considers their form to be "quite distinct, with its hirsute, silvery leaves, while the old form has shiny green leaves and is distinguished by the name *glabrata*." Our large plant is 14 ft. high and very upright. It is a mass of pure white bloom, and this, with the silvery leaves, gives it a delightful appearance."

New Secretary of the Kew Guild.—Mr. A. Osborn, who for many years has acted so ably as Honorary Secretary of the Kew Guild, and Editor of the *Kew Guild Journal*, has resigned these positions owing to pressure of business.

Fortunately the Guild Committee has prevailed upon Mr. A. C. Bartlett to take up these duties. Mr. Bartlett resides at Kew Road, Kew, and is in close touch with the gardens and present Kewites by virtue of his residential proximity, but as he travels about a good deal in the course of his business as a tree expert and landscape gardener, and attends the principal metropolitan exhibitions, he also meets many old Kewites. As Mr. Bartlett has always been an ardent "Guilder" and possesses considerable journalistic ability, the appointment is in every way a suitable one. Mr. Bartlett hopes that old Kewites in various parts of the world will send him interesting notes of their doings and experiences for use in the *Journal* of the Kew Guild.

M. Alexis Callier.—Those who visited the exhibitions of the Société Royale d'Agriculture et de Botanique de Gand, at Ghent, during the latter half of the last century, will remember that for a considerable period Comte Oswald de Kerchove was the President of the Society and took a very prominent part in everything connected with the great quinquennial exhibitions



M. ALEXIS CALLIER.

of his time. After the Comte de Kerchove's death the responsibilities of office were placed upon M. Alexis Callier, who carried them out to the great satisfaction of all concerned and made an admirable successor to the Comte. M. Alexis Callier has remained President throughout the disturbing period of the war, and his many friends are delighted to know that he is entering into the arrangements for the exhibition to be held in 1923 with all the zeal and graciousness that characterise his activities. He is extremely popular in Belgium, and very many British horticulturists who remember his courtesy and courtliness are looking forward to meeting him and his confrères at the next "Ghent Quinquennial."

Report on the Condition of Outdoor Fruit Crops.—In our issue for August 12, we hope to publish our annual, tabulated report upon the condition of the outdoor fruit crops in England, Ireland, Scotland, Wales, Isle of Man, and Channel Islands. This will be accompanied by the usual summaries and a leading article dealing with the most important features of the general report.

Empire Forestry.—*Empire Forestry*, the journal of the recently formed Empire Forestry Association, contains in its first number, issued in March, an interesting summary of the magnitude of the Empire's forest resources. Canada owns 932,420 square miles of forests, of which about one-third are merchantable; British India

possesses 126,310 square miles of merchantable forest; Nigeria 50,400, and Australia 37,840 square miles. Of these vast forest areas about 75 per cent is the property of the State.

Philadelphus argyocalyx in the Arnold Arboretum.—Described by Wootton in *Bull. Torr. Bot. Club*, in 1898, *Philadelphus argyocalyx* has flowered this year for the first time in the Arnold Arboretum. We learn from the *Bulletin of Useful Information*, issued by the Arnold Arboretum, Jamaica Plain, Mass., U.S.A., that the specimens of this handsome plant which have flowered recently were gathered in 1916, on the Sacramento Mountains, New Mexico, at an altitude of 8,500 ft. It is a small shrub with small elliptic leaves; the flowers are solitary, an inch across, and the calyx, like the lower surface of the leaves, is covered with a thick mat of snow-white hairs. It flowers late, at the same time, or only a little earlier than the hybrid *P. insignis*, which blooms later than any other *Philadelphus* in the collection at the Arnold Arboretum.

Sleepy Disease of Tomatos.—A detailed and interesting account of the Sleepy Disease of the Tomato, contributed by Dr. W. F. Bewley, Director of the Experiment and Research Station, Cheshunt, Herts, to the *Annals of Applied Botany*, has been reprinted and issued in booklet form. The accounts of experiments conducted at Cheshunt in the endeavour to find a cure for this disease are supplemented by informing illustrations. Dr. Bewley considers the Sleepy Disease or "wilt" of Tomatos may be caused by one of two fungi, *Fusarium lycopersici* or *Verticillium albo-atrum*. The fungi attack the roots of the plant and grow up through the vascular bundles into the stem, leaves, and sometimes into the fruits. Experiments show that *F. lycopersici* grows best in an average temperature of 27.8°-28.9° C., but if the temperature remains constantly much below this, little infection results. On the contrary, *V. albo-atrum* develops well at temperatures from 15.6°-24.0° C., and is most active at 21.1°-22.8° C., but above an average temperature of 25° C., little infection occurs. It will be found that wilted plants soon die under conditions of low temperature, but may recover if the average temperature is raised above 25° C., and will then carry on a crop so long as the high temperature is maintained. Most varieties of Tomatos cultivated in this country appear to be susceptible to *Verticillium*, but *Manx Marvel* has proved to be practically immune and *Bide's Recruit* highly resistant. Varieties resistant to *Fusarium* wilt disease have been raised in America and an attempt is being made at Cheshunt to raise a strain resistant to *Verticillium*. Further investigations concerning soil sterilisation in connection with wilt disease are also being made by Dr. Bewley.

Scholarships for the Sons and Daughters of Rural Workers.—We learn from the Ministry of Agriculture that, in accordance with the Corn Production Acts (Repeal) Act, 1921, a scheme has been approved for awarding scholarships in higher agricultural education to sons and daughters of agricultural workmen or of other rural workers, including bailiffs, foremen, and small-holders, whose financial circumstances are comparable to those of agricultural workmen. The scholarships are of three kinds—Class I., which will enable the holder to attend the degree courses in agriculture at certain University Departments (including the School of Rural Economy, Oxford, and the School of Agriculture, Cambridge); Class II., which will be tenable for two years at certain University Departments of Agriculture and Agricultural Colleges, and Class III., which will allow students to attend courses of one year's duration, or less, in agriculture (or horticulture, or dairying or poultry keeping) at Farm Institutes or similar institutions. Ten scholarships in Class I., ten in Class II., and a limited number in Class III., probably not exceeding 100, will be awarded this year if a sufficient number of suitable candidates is forthcoming. Candidates for Class I. and Class II. scholarships must be 17 years of age or over, and must satisfy a selection committee that they have sufficient ability to pass the entrance examination to the

university or college at which the scholarship will be tenable, and also that they are in a position to derive educational benefit from the course of training. Class III. awards are intended for boys and girls whose educational opportunities have been more limited. Candidates for these scholarships must be over 16 years of age and must have spent at least a year in all on a farm or in a horticultural establishment. Evidence may be required as to the means of the candidate's parents or guardian. Applications should be lodged with the Secretary, Ministry of Agriculture and Fisheries, 10, Whitehall Place, London, S.W.1, not later than August 31, 1922. Forms of application and all other information regarding the scholarship scheme can be obtained from the Ministry.

Appointments for the Ensuing Week.—Monday, August 7.—Swanage Horticultural Society's show; Boston and District Horticultural Society's show; Keynsham and District Horticultural Society's show (two days); Chippenham and District Horticultural Society's show; Seaham Harbour Horticultural Society's show; Drayton Horticultural Society's show; Lichfield Horticultural Society's show; Ringwood Society's show; Bletchley and Penny Stratford Horticultural Society's show. Tuesday, August 8.—Northampton Municipal Horticultural Society's show (two days); Leicester Abbey Park Society's show (two days). Wednesday, August 9.—Royal Horticultural Society's Committees meet; East Anglian Horticultural Society's meeting; Sheffield Chrysanthemum Society's meeting; Tighnabruach Flower Show. Thursday, August 10.—Yorkshire County show at Huddersfield; Cheshire County show at Stockport; Lancashire County show at Manchester; Bristol and District Gardeners' Association's meeting; Market Bosworth Horticultural Society's show; Hornsey and District Chrysanthemum Society's meeting; Port William Flower Show. Friday, August 11.—Paisley Florists' Society's meeting; Brechin Flower Show. Saturday, August 12.—Ringwood Society's meeting; Aberdour Flower Show; Auchencrow Flower Show; Dumbartonshire Sweet Pea show at Helensburgh; Dysart Flower Show; Fossoway Society's show; Meigle and District Flower Show; Stonehaven Flower Show.

"The Gardeners' Chronicle" Seventy-Five Years Ago.—*Examination in Botany at University College.*—The following examination paper was used in University College, London, for the senior class of Botany, Midsummer, 1847: (1) What is protoplasm? and what its chemical difference from the cell-wall? (2) Describe briefly the structure, station and supposed origin of starch, and the use of it in the vegetable economy. (3) What are hairs? (4) Can hairs be used advantageously in distinguishing plants from each other? Give examples. (5) Describe the nature of the fibro-vascular tissue of a leaf, its origin, its position, and its use. (6) What is the use of leaves to plants? (7) How does it happen that some plants, although incapable of forming leaves, nevertheless perform their functions perfectly in their absence? (8) What is albumen? How does it originate? What physiological purpose does it serve? (9) What is vitellus? and in what natural orders does it occur? (10) What are the most usual properties of Leguminous plants? (11) How would you distinguish Marants from Gingerworts? (12) State briefly the botanical differences between Myrtleblooms, Citronworts, Tutans and Rueworts, all of which have dotted leaves; and mention the usual properties of each. (13) Suppose that Allspice (*Eugenia acris* and *Pimento*) were mixed with Pepper (*Piper nigrum*), and the two were roughly pounded together, by what mark would you expect to detect the mixture? (14) Let Pepper and Larkspur seed be pounded together, could you then detect the mixture? and how?—*John Lindley, Ph.D., F.R.S., Professor. Gard. Chron., August 7, 1847.*

Publication Received.—*Planning the Suburban Garden.* By Norman Humphrey. St. Clement's Press, Ltd., Portugal Street, King's-way, W.C.2. Price 1s.

GARDEN NOTES FROM S.W. SCOTLAND.

THE coldest, darkest July within my recollection has been of advantage in one respect—that of prolonging the bloom on shrubs and herbs. For clear, sheer, fulgent yellow, *Trollius patulus* has not many rivals. *T. yunnanensis* is its equal in that respect, and rises to a greater height, the other not exceeding a foot in height. Both species demand cool, moist soil, and both belie the popular name of the genus, Globe Flower, by laying out their five great golden sepals flat to the sun, not cup-wise like our native species. In this genus, display is undertaken by the sepals, the true petals being either linear and inconspicuous, as in our own British Globe Flower, or absent altogether.

How comes it that the true scarlet Turk's-cap (*Lilium pomponium*) is so difficult to come by? It is said to be a fairly common wilding

Cordylina australis, which some Antipodean visitors here hailed lately as the New Zealand Cabbage, has flowered extravagantly this year. The enormous panicles are borne at a height which makes it difficult to photograph them, but we managed to get a picture of the top of a plant growing at the foot of a terrace (Fig. 31). The flowers are said to be very fragrant, but are carried so far aloft and are so formidably fenced around with bayonets that one has to take that on trust. *Herbert Maxwell, Monreith.*

P.S.—Since writing the above note, *Aster Lipskii* has been submitted to fresh examination in the Edinburgh Botanic Garden, with the result that it appears to have acquired a "ghost name," arising from the defacement of a temporary wooden label. It belongs to the series of *A. Farreri* and *A. Delavayi*, and is probably identical with *A. Vilmorini* from Szechuan. *H.M.*

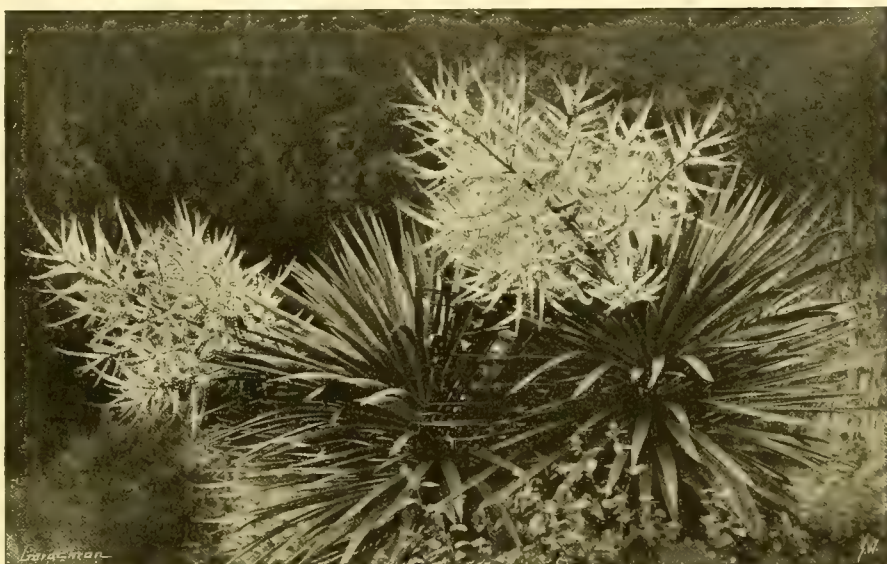


FIG. 31.—CORDYLINA AUSTRALIS FLOWERING AT MONREITH.

in the Maritime Alps, but no nurseryman seems to stock it now, and anyone who inquires for it is apt to be supplied with the red variety of *L. pyrenaicum*, a Lily not to be despised, but of marked inferiority to the other. The Pompon Lily is not difficult to cultivate if it is allowed plenty of sunshine and some lime in a stiff loam; but he who has it thriving will do well to let it alone, for it does not relish disturbance and increases very slowly. I moved a good clump of it which was being overgrown by a *Fatsia* some years ago, and it has never since yielded the same liberal galaxy of scarlet globes as before.

Among late-flowering *Rhododendrons*, *R. pholidotum*, one of Mr. Forrest's discoveries in Yunnan, deserves attention. The flowers are not large, but they are borne so profusely as to make the only specimen here—a bush 3 feet high—a fine sheet of light carmine. This species likes an open situation; but *R. crassum*, which is just opening its great fragrant blooms (July 27), is of more woodland habit, preferring partial, but not overhead, shade. It is one of the Maddeni series, and has proved to be quite hardy here.

The immense family of *Aster* harps so persistently on the symphony of violet and yellow that any new species must possess some outstanding merit to entitle it to distinction. I have no hesitation in pronouncing *Aster Lipskii* to be a valuable acquisition. That is the name under which the plant came to me from the Edinburgh Botanic Garden, where, I am informed, it came from some Continental garden before the war. The solitary flowers are freely borne on stiffly upstanding stems 2 feet high, the rich purple ray florets encircling a disc of soft rosy orange. In habit and general appearance it is near *A. Farreri*, but is of finer colour.

THE BULB GARDEN.

CROCUS SPECIOSUS.

ONE need make no apology for urging readers interested in hardy bulbous flowers to secure some of the autumn-flowering *Crocuses* whenever dealers will undertake to deliver them.

Of all the autumn-flowering *Crocuses*—as distinct from the *Colchicums*, or Meadow Saffrons, so often called erroneously "Autumn *Crocuses*"—the Blue Crocus, *C. speciosus*, is among the very finest. It flowers in September and October, and gives us big, handsome flowers of a fine purplish blue, lined or feathered with deeper lines, and exceedingly handsome. The flowers of most *Crocus* species have beautiful interiors, and only reveal all their charms upon close inspection.

C. speciosus has provided us with several forms and varieties. For instance, *C. speciosus Aitchisoni*, from Afghanistan, etc., is a large-flowered, later and very beautiful form. Then there is a choice variety, called *C. s. Artabir*, of a lighter colour, but with deep coloured featherings outside. A great beauty, too, is *C. s. albus*, pure white, but, unfortunately, it is liable to be stained by autumnal weather unless protected.

When it is mentioned that this Autumn Crocus is as easily grown as our spring *Crocuses*, its value will be recognised by all lovers of such flowers. In clumps or lines in the border; in the grass; or in groups in the rock garden, this Blue Crocus is simply magnificent. Bulbs should be planted about an inch deep in rather light, but rich soil, and in a sunny, sheltered place. *A.*

The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Cypripedium bellatulum.—Many fail to grow the bellatulum section of *Cypripedium* successfully, or retain the plants in a healthy condition over a series of years. This also applies to *C. niveum*, *C. Godefroyae*; in fact to the whole section, and also to some of the hybrids which have either of these species as a parent. Others, again, are just as free in growth. The plants succeed best when grown close to the roof-glass, where they are free from drip, and out of the way of the syringe, and a warm, moist atmosphere is necessary to their well being. During the growing season they need liberal supplies of water at the roots, but during the winter, when they are at rest, much less moisture will suffice, although even at that season they must not be allowed to suffer for the want of it. Watering overhead is not to be recommended, and, in most cases, is decidedly harmful. The most suitable time for repotting these plants is soon after they have passed out of flower, but disturbance at the roots should not take place unless the condition of the compost and drainage make this necessary. A similar mixture to that advised for other kinds, with a little more loam fibre added, makes a suitable compost for these plants.

Schomburgkias.—The different species of *Schomburgkia*—*S. tibicinis*, *S. Kimballiana*, *S. Sanderiana*, *S. Humboldtii*, *S. Thomsoniana*, *S. Galleottiana*, and the rare *S. chionodora*, which have hollow, horn-like pseudo-bulbs, require much sunshine at all times. These plants have now commenced to grow, and should be placed in the lightest positions available in the hottest house. They thrive equally well either in pots or baskets, but are more easily managed under pot culture, except *Humboldtii*, which is more at home when securely fastened to upright teak rafts and suspended close to the roof-glass. *Schomburgkias* prefer a shallow rather than a deep rooting medium; this should consist of hard, coarse *Osmunda* fibre only, and potting should be done with considerable firmness. Abundance of water is necessary all through the growing season, but when the new pseudo-bulbs are fully made up, considerably less moisture should be given. Grow the plants where they may enjoy uninterrupted sunshine and plenty of fresh air at all times. To ensure their flowering regularly it is essential that the new growths should become thoroughly matured, also that the plants be afforded a long and decided rest. The ripening or maturing of the growths of Orchids is one of the greatest aids to the production of satisfactory flowers. When the new growths commence to push out their bunches of roots, see that cockroaches and woodlice do no harm. Species with fusiform pseudo-bulbs, as *S. undulata* and *S. Lyonsii*, will thrive under similar conditions, but prefer a great depth of material to root in. *S. crispa* succeeds best in the Cattleya or Mexican house if given a very light position.

THE KITCHEN GARDEN.

By JAMES E. HATHAWAY, Gardener to JOHN BRENNAND, Esq., Baldersby Park, Thirsk, Yorkshire.

Winter Greens.—All kinds of Winter Greens, including Coleworts, should be planted out in large batches as the ground becomes available.

Spinach.—Sow seeds of Prickly Spinach in a well-sheltered position; draw the drills 15 inches apart, and thin out the seedlings as soon as large enough to handle to about 6 inches apart.

Leeks.—A batch of Leeks planted now will come in extremely useful in late spring; set the rows 15 inches apart.

Onions.—Where Onions are required for pulling green in the autumn, Sutton's Improved Queen and Paris Silver Skin are good for present sowing. Treat the crop in the same way as for early sowing.

Endive.—At least two batches of both types of Endive should be sown during this month, in drills 15 inches apart, and as soon as large enough the seedlings should be planted one foot apart on a south border.

Lettuce.—Sow seeds of black-seeded types of Lettuce to supply plants for winter use. Thin the seedlings freely and encourage them to grow as sturdily as possible.

Tomatos.—Plants intended for winter cropping should be potted on as soon as ready and given every encouragement to make sturdy growth.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

Pot Strawberries.—The cool, showery weather during July suited newly layered runners, the whole of which have rooted without the aid of watering. Growth has been so rapid that the majority of the plants will have been detached, and those layered direct into their fruiting pots can be placed where they are to remain until the crowns are ripe in the autumn. The latest plants may not be so far advanced, but they should be detached as soon as the roots reach the sides of the pots. If mildew and red spider have been troublesome, the young plants should be dipped in a sulphur mixture before potting takes place. The great point to aim at always is to get a good start and maintain it. The potting compost should be fibrous loam to which has been added some lime rubble, a little bone-meal and soot. Stand the plants on a bed of cinders, open to sun and light and free from worms, so that roots as well as crowns enjoy the most favourable conditions. Watering from this time forward is an important operation, as Strawberries from the beginning to the finish should never feel the want of water. Frequent changes of position being favourable to growth, they may be placed moderately close together at first and gradually given more room as the foliage increases. Remove runners and weeds as necessary. An occasional syringing with soft water cleanses the foliage, but careful watering by hand will keep the foliage fresh and healthy, no matter how hot the weather. Pot-bound plants may be lightly fed through late August and September if the roots show through the apertures.

Early Orchard House.—As the bulk of Peaches and Nectarine trees in pots will now be cleared of their fruits, provision should be made for another year by potting and getting them thoroughly established without loss of time. The first thing to be considered is the compost; as all stone fruits need lime, the loam should be dry, rather heavy, and of a calcareous nature. Bone-meal, lime rubble, burnt earth and a dash of soot are desirable additions. The pots should be clean, dry, carefully crocked and sufficiently large to admit the potting stick, as the compost must be thoroughly rammed. The ball of roots should be well soaked in tepid water the day before they are turned out, as no after watering will suffice to moisten it. Remove all crocks and inert soil, shorten straggling roots and loosen others with a sharply pointed stick. When placed in the pot, resting upon some of the roughest compost, the top of the ball of roots should be quite two inches below the level of the rim of the pot to allow room for top dressing, and for liberal supplies of water. If the newly potted trees are rearranged in the house, so much the better. The structure may be kept rather close and moist by frequent damping and spraying when the weather is hot and the outside air dry. This treatment, however, should not be carried to excess, and later, when the foliage becomes crisp and the laterals commence fresh growth, ordinary treatment for a week or so may precede removal to the open air.

HARDY FRUIT GARDEN.

By H. MARRHAM, Gardener to the EARL OF STRAFFORD, Wrotham Park, Barnet.

Early Peaches.—The earliest Peaches are almost ripe, and, as the very early fruits are best gathered a little under-ripe, the trees should be examined at intervals and the most forward fruits removed very carefully, placed on soft material in shallow boxes, and taken to a dry, well-ventilated fruit room; or the boxes may be stood on a stage in a cool glass-house. In either position the fruit will ripen right through and the flavour will be much better than if they were left on the trees to ripen. See that all Peach fruits on the trees are thoroughly exposed to the sun so that they may develop high colour; keep a sharp look-out for earwigs, and, should they appear, place pieces of hollow Bean-stalk at intervals behind the branches; examine these daily and shake out the trapped insects into a pail containing hot water and paraffin.

Nuts.—Many of the bushes are bearing fairly good crops of nuts. Remove all suckers springing up at the base, and any soft growth, so that the bushes do not become crowded with useless wood. Keep the land frequently hoed around the bushes to destroy weeds.

Black Currants.—Our crop of Black Currants is much below the average. In our rather light soil much artificial feeding at the roots is necessary to keep the bushes in fairly good condition. This we afford after all the fruits have been gathered, and where the bushes are too thick we thin out some of the wood. A cool, rather deep loamy soil suits these fruits best. Feeding and mulching are necessary on light, porous land, and should be practised as freely as possible. We find Baldwin, a variety that is much grown in Kent, one of the best varieties. Boskoop Giant gives the largest berries and is very useful if the fruits are gathered before they are too ripe.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir C. NALL-CAIN, Bart., The Node, Coddicote, Welwyn, Hertfordshire.

Cineraria.—To ensure fine specimens of *Cinerarias*, the plants should be kept growing actively and never allowed to become pot-bound in their early stages. Greenfly is very partial to this plant, and on its first appearance means should be taken to destroy it, or the plants will be ruined; a good preventive is to spray the plants fortnightly with *Quassia* extract. Grow the plants in cold frames, for preference under a north wall. Where this position is not available, shading must be resorted to, for *Cinerarias* dislike the direct rays of the sun.

Calceolaria.—If seed of *Calceolaria* was sown as advised in a previous calendar, the seedlings will be ready for pricking off into boxes or pans filled with a light, open compost. Stand the seedlings in a cold frame, keep their surroundings moist and afford shade from bright sunshine. Guard against over-watering the young seedlings; at the same time they should never be allowed to suffer from lack of moisture.

Roman Hyacinths.—To obtain an early supply of blooms the bulbs must be secured at the earliest possible date, so that they have a good opportunity to become well rooted before being placed in heat. When grown in pots those about five inches or six inches in diameter are generally found the most convenient size. Use a fairly rich, open compost for these Hyacinths, and place five or six bulbs in each receptacle. Where large supplies of flowers are required for decorating purposes the bulbs may be grown in boxes, allowing them to touch each other. After potting or boxing, stand them in a cold frame and plunge the pots in leaf-mould, ash or coconut fibre. They must, however, be removed immediately top growth takes place.

Freesias.—To obtain good results from these beautiful subjects the corms should be potted

up during the month of August. They should be shaken from the old soil and graded, the largest being selected for potting. If it is found necessary to increase the stock the smaller bulbs may be grown on in boxes. Freesias delight in a fairly rich, porous compost over good drainage. Use 5-inch or 6-inch pots, and allow from eight to ten bulbs to each pot. After potting, stand them on a bed of cinders in a cold frame and cover the pots lightly with finely-sifted leaf-mould. For general purposes the old variety *F. refracta alba* is useful, but some of the new and beautiful hybrids should be included if possible.

THE FLOWER GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

The Shrubberies.—At this season of the year it is desirable to examine the shrubberies for the purpose of marking plants to be moved later on; in a well-kept shrubbery no plant should be allowed to encroach on another. Where space permits, the surplus shrubs and trees should be found positions in the woodland or wild garden, where they may have plenty of space to develop, thus relieving more choice subjects. Especially is this attention required in the case of trees in shrubberies, for it is not an infrequent occurrence to find that a young standard, overtopped by a larger and possibly more robust neighbour, has inclined from the perpendicular in its search for air and light, or has developed only on the side where good conditions prevail. Growths on the stems of standard trees should be removed, and, in the case of grafted plants, suckers from the base should be immediately got rid of. When marking shrubs or trees for removal, make careful note of their height and width, so that before the time arrives to move them suitable positions may be found for them, and they may be taken direct to their new quarters.

Various Operations.—There are many other items calling for attention, especially weeding. Keep the hoes going on all suitable occasions. Feeding will also benefit many plants that are in full flower, such as Roses, Sweet Peas, Dahlias, Gladiolus, etc., and liquid manure should be applied to them whenever the weather is dry. Hedges should be trimmed, grass verges attended to and clipped, paths swept and rolled, and lawns mown frequently; after the rain we have had light rolling of lawns will prove of benefit to them, firming the soil, and promoting a fine, close growth of grass. Trailing plants, especially of bedding subjects, of such kinds as Violas, Verbenas, etc., should be pegged down from time to time, and now and again the other bedding plants should be trimmed when required.

Ornamental Grasses.—It will be recalled that reference was made at an earlier date to the large collection of hardy Bamboos at Aldenham. There is another feature of the Bamboo garden that is worthy of mention at the present period. In order to lessen somewhat the bareness of the site when the young Bamboos were first planted, a number of other plants were set out, such as some of the more rampant-growing herbaceous plants. Included with these, and intended to act as a complement to the Bamboos, were a large number of ornamental Grasses of perennial character, and these have flourished exceedingly. From large clumps of Pampas Grass of different varieties these range downwards, and include *Agrostis*, *Avena*, *Hordeum*, *Arundo*, *Carex*, *Cyperus*, *Elymus*, *Eulalia*, *Glyceria*, *Luzula*, *Phalaris*, *Stipa*, and last, but not least, the pretty little *Festuca glauca*. The collection is interesting and beautiful. Where space permits, it might be reproduced in other gardens. A few such collections may exist, but they are few and far between.

Pentstemons.—These are fast coming into flower, and the spikes should be carefully supported, as they are somewhat brittle. These beautiful plants are well worthy of the most careful attention, for, with their fine colours and habit, they certainly rank amongst the finest of garden plants. Hoe round them care-

fully from time to time, and as side growths are made loop them up with raffia.

Phloxes.—These are doing well after the rains, and their brilliant colouring is now showing. Should the weather prove hot and dry, give them plentiful supplies of water and liquid manure, hoe the ground around them well, and mulch the surface.

NOTICES OF BOOKS.

The Massachusetts Library.*

WHEN the Massachusetts Horticultural Society issued Part I. of the Catalogue of its most extensive library, we drew attention to the fact because of its great value as an authoritative work of reference in matters bibliographical. Pritzel is, of course, a volume of prime importance in its way—but its value is more botanical than horticultural; and since the date

this place to be able to acknowledge our indebtedness to it on numberless occasions. It is a most invaluable book for the literary worker in horticulture, and it has no equal. The only exception that might come at all into rivalry with it is another great American Library Catalogue, i.e., the very handsome work in two large quarto volumes, entitled *Catalogue of the Library of the Arnold Arboretum of Harvard University*, 1914, but this, although containing quite a considerable number of works on floriculture and gardening in general, is more particularly devoted to books on dendrology and kindred subjects. Nevertheless, this most important catalogue should, with the other, find a place in every horticultural library of any pretensions in this country, either private or public.

A library catalogue that contains a list of books arranged only under the authors' names is but half a catalogue. It is useful when the seeker after knowledge is acquainted with the names of the authors for whose works he is seek-



FIG. 32.—ERYNGIUM PROSTRATUM; R.H.S. AWARD OF MERIT, JULY 25 (SEE P. 72).

of its publication many rare works on botany and on horticulture have been discovered in out-of-the-way corners, and therefore the position once occupied by Pritzel is to an extent modified. The library of the greatest and oldest American horticultural society is known and esteemed the wide world over for its extent and value. It contains no fewer than 22,000 volumes, and what is still more remarkable, the Society possesses a collection of trade catalogues that may well be described as unique. We have perhaps yet to learn the real value of the old nursery and florists' trade catalogues. None but the independent research worker in horticulture can properly appraise at its full value the information often only to be found in such little considered horticultural literature. The American Society's library contains 11,000 items in this category, dating back to 1776.

The first part of the Massachusetts Horticultural Society's *Library Catalogue* is a list of authors' names and titles, with other necessary detail as to size, date and place of publication, and it was published in 1918. We are glad in

ing. But if, on the other hand, he is interested in any special subject and does not know by whom that subject has been treated, it becomes a *sine qua non* for the catalogue to have a second division or a subject index.

This necessity has been foreseen by the Library Committee of the Massachusetts Horticultural Society, so that now, after a two years' interval, the book-lover and horticultural journalist can rejoice in the possession of that which completes and perfects this very handsome volume of bibliographical lore.

Part II. is simply entitled "Subject Catalogue." It consists of about 200 pages and contains: Table of contents, subject catalogue, corrections and a most comprehensive index; and when bound up together the two parts form one volume of the greatest possible utility to those who may have occasion to consult it.

To those persons already in possession of Part I. the new volume is essential. We assume it can be supplied in separate form at any rate the two parts are issued in one volume, so that any of our readers who have not already procured the first part can now obtain the complete work in one volume.

The terms upon which it can be supplied can, of course, be ascertained by application.

**Massachusetts Horticultural Society's Library Catalogue*. Part II.: *Subject Catalogue*. Massachusetts Horticultural Society, Horticultural Hall, Boston, Mass., U.S.A.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 5, Tavistock Street, Covent Garden, W.C.2.

Editors and Publisher.—Our correspondents would oblige delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication or referring to the Literary department, and all plants to be named, should be directed to the EDITORS. The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.

MR. KINGDON WARD'S SIXTH EXPEDITION IN ASIA.*

No. 21.—SUMMER FLOWERS.

THE start on July 23 was tardy, and a three-hours halt in the middle of the day while waiting for fresh transport curtailed the march, so that we eventually camped in the forest where on our former journey we had lunched. We passed masses of pink-flowered *Primula blattariformis* with its tall, one-sided spikes, growing on shady banks where the road swung round a ravine. Higher up, species of *Andenophora* and *Campanula* appeared. Camp was pitched close to a marsh, golden with large-flowered *Trollius* *T. yunnanensis*, no doubt—and here, too, was an *Orchid*, a *Habenaria*, deliciously fragrant. Rain came on, and the forest was chilly and dismal.

Next morning dense mist came rolling up from the heated valley as usual, and before long down came the rain in spasmodic showers. Our road led us up a narrow forest-clad valley behind the Mu-li cliffs, which towered above us on the right. Many *Primulas* were still in flower here—forms of *P. likiangensis* and *P. septemloba*, the small purple-flowered *Soldanelloid*, and, in bogs, the crimson *Candelabra*, now on the wane; but *P. secundiflora* and *P. pseudo-sikkimensis* were already over, their tall stems cumbering the streams. We found a few plants of another *Muscarioid* in the forest—a poor creature; and on the limestone peaks, near the summit, a pretty *Nivalis* with silver-dusted leaves, now much larger and finer than when we first knew it in June, was still growing strongly. The common *Nivalis* of the meadow, *P. sino-plantaginea*, was long over—indeed, its seeds were almost ripe; but the fragrant violet-flowered *Muscarioid* was still in flower under the bushes and in the high alpine valleys was flowering aresh.

The forest, enveloped in swirling mist, was most gloomy; its dripping glades were now full of fantastic toad-stools, many of which my men gathered for food, though they seemed to be quite tasteless. There was one horrible thing with a greenish-yellow lace-work cone balanced on a stalk, which poisoned the air for yards. The men seemed to know instinctively which kinds to avoid, though they gathered three or four species; but this unwholesome-looking fungus would have kept the most confirmed Durian eater at arm's length without further question.

A pretty lemon-yellow *Cremanthodium*, with long, fringing petals, nodded from the cliffs, and the rocky path was lined with a tall *Campanula* dangling its slender columns of pale blue bells. We had found one plant of this species on the Mu-li side of the cliff, and had searched in vain for more, but here it grew in abundance.

We lunched in the rain, and then the sun came out. There were patches of meadow milk-white with a very large-flowered *Parnassia*

mingled with *Trollius*, but the meadows here are poor in flowers compared to those of the wetter western ranges. The plants grew barely 3 feet high, whereas on the Mekong-Salween divide or on the North-West frontier of Burma they grow twice as tall.

That night we camped by the pass amongst scrub *Rhododendron*, that we might climb the limestone cliffs from behind next day. From this side the cliffs present a row of barren spires pricking the sky, but below there is a wide, grassy valley with the usual lakelets, where Yak graze in the summer. There were many golden-flowered *Saxifrages* in bloom, all very much alike, though two species were noteworthy. One of these had unusually large flowers, each plant—and they grew separately—ending in a single flower. The other was a chocolate-coloured affair springing from a close rosette of tiny, silver leaves, the flowers being white, overlaid with chocolate and orange spots; it grew on the most arid-looking limestone boulders.

On July 26 we moved on to Glacier Lake Camp, and settled down for a week's plant hunting; but we found very few fresh plants, and still fewer of any horticultural merit, though we climbed every peak and explored every valley. The best finds were two more species of *Cremanthodium*—one with slender, nodding heads of palest purple flowers; an alpine *Aster* with charming flannelly foliage; a woolly, scree *Labiata* with shell-pink flowers, hiding coyly beneath the arched leaves (I found this species at A-tun-tzu in 1913); a big, woolly *Saussurea*, which will probably refuse to grow at home; a lavender-blue *Codonopsis*, lacking the purple throat of the one found on the Litang-Yalang divide; a striped, pale blue and white trumpet *Gentian*, its flowers nestling amongst moss-like foliage quite a charming species; this; and another dwarf *Meconopsis*, with golden instead of white anthers. Although this little blue *Poppy* was not really very like the one previously described, yet had it not been for the yellow centre I believe one might have passed it by for days, taking it to be the plant we had already seen in abundance. The fact that they grow in different situations both suggested individuality and denied comparison. Our former friend haunted grassy slopes, facing south as often as not, the new one kept to the bolder crevices, peeping up from under rocks. It was rather a bigger plant, and, what was more striking, bore far more flowers, all springing from the axils of the leaves on single-flowered scapes—there was no central axis at all. If further differences need be cited, besides some quality of colour in the petals, the capsules furnished convincing proof of distinction. Both dwarfs belong to the section *Primulina*.

The sky-blue, prickly *Poppy* was now at its best, and showed up well against the white limestone rocks, where it was infinitely more abundant than on the slate and schistose ranges. In size it varies so considerably—as, also, to some extent in habit—that for long I was puzzled as to whether there are two or one species; even now I am undecided, though inclining to the belief that a distinction cannot be maintained, even though the dwarf form is almost invariably associated with purplish or pinkish flowers and more rounded, shorter capsules. Any other than sky-blue flowers are quite the exception, but where the plant is so extremely abundant other shades are found. There are nearly always a few basal one-flowered scapes in addition to the central compound scape, and sometimes these predominate to such a degree that the plant comes to look like a *Primulina*. All these four blue *Poppies* that we found ought to prove quite hardy, but a plant's constitution is more or less of a gamble. There are few external guides to lead one to prophesy without trial, and of these altitude is the least reliable of all.

Primula bella was still in flower, and in a few places *P. dryadifolia*, which last grows in thick beds of damp moss under the *Rhododendron* bushes. On the crevices were a few *Lactucas*, *Crepis*, *Aconitum*, *Larkspurs*, and *Pedicularis*, but it was clear there was not to be found here that wealth of alpine which

carpet the Mekong-Salween divide; the poverty of dwarf *Rhododendrons* alone was an index to the larger penury. We had to work hard for our plants, and even then be content with little. The best we could hope for was that in such a different country our plants would be correspondingly interesting, as I truly think many of them were. At the same time, one could recognise many A-tun-tzu species. On the other hand, we were between seasons, about the worst time we could be on the Alps looking for new flowers. The early summer flowers, which depend for their life on the melting snow in April and May, were already over; the late summer flowers, recalled to life by the July rains, were barely opening. August and September, when the rainfall had been tempered with a little honest sunshine, would, I felt sure, prove a better season, and we would again see the rocky ranges carpeted with quite a different association of flowers. Consequently, though the weather was now improving, I was not altogether sorry when the Grand Lama sent up a request that we would return to Mu-li, as he was about to depart for a new seat of government. On August 2, therefore, we broke camp several days before our time and descended leisurely, camping for a day behind the Mu-li cliffs and ascending to the summit—a lucky trip which yielded one of the most lovely *Gentians* I have ever seen, but not, I fancy, a true *Gentiana*. The plant lies prostrate on the steep limestone rubble, sending out arms like a starfish. The stems are covered with tiny leaves, from amongst which spring the flowers, the narrow tube of the corolla being enclosed by a bladder calyx, while the large limb, of the clearest turquoise blue, spreads out above, the throat being stuffed with a pompon of hairs.

A scree *Crucifer* was shedding its seeds, but we had not seen it in flower and were left guessing. Dwarf bushes of *Caragana*, *Rhododendron*, *Cotoneaster*, and a few other shrubs crunched amongst the rocks on the sheltered side of the peak, while *Campanulas*, *Saxifrages* and small *Caryophyllaceae*, with species of *Saussurea*, *Pedicularis*, *Primula*, and the prickly *Poppy* clothed the summit. Drenching rain and dense mist spoilt a view which would have been striking.

On August 4 we returned to Mu-li and found a delightful *Muscarioid* *Primula* springing up amongst dwarf *Rhododendrons* on the south-facing slopes; never have I come across a *Primula* with such a wonderfully sweet fragrance—penetrating as it was, there was nothing sickly about it. The big heads of soft violet flowers, too, bulky rather than long, and the large rugose—navy, almost bullate—leaves were striking features. The stems often grew in a corkscrew fashion, probably owing to the fact that they had to make their way through a thick growth of unyielding scrub. This species appeared to be one of which we had found a few ill-grown plants across the river some three weeks earlier.

On August 6, the Grand Lama, who had been a good friend to me ever since my arrival, left Mu-li with the rest of the hierarchy, and from then onwards our troubles began *P. Kingdon Ward*.

ORCHID NOTES AND GLEANINGS. }

DENDROBIUM FORMOSUM AND ITS ALLIES.

THE section of *Dendrobium* known as *Formosae*, and commonly called the *Nigro-hirsute* *Dendrobiums*, by reason of their stems being clad with short black hairs, is well known in gardens. The type species of the class, *D. formosum*, Roxb. *Fl. Ind.* III, p. 485 (1832), was introduced to British gardens by plants collected by Gibson in the Khasta Hills and sent to Chatsworth in 1837, where it flowered in May of the following year. Since that time it has been imported from a wide range in Burmah, Moulemein, and other parts of India, where it was generally found growing on trees in sunny situations, and often on the coast line within a short distance of the sea.

* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 24, August 20, September 3, October 8, October 29, 1921; January 7, January 21, March 11, March 25, April 8, April 22, May 6, May 20, June 3, June 17, July 1, July 15 and July 22, 1922.

Major-Gen. E. S. Berkeley, who sent many interesting notes on Indian Orchids to the *Gardeners' Chronicle*, and who did much to get this section better known, found a very fine form of it growing in the Mangrove Swamps of the Andaman Isles in 1881, and this was described by Reichenbach as *D. formosum* Berkeleyi. It appears that the several varieties of the species grow on low hills. In their native habitat the season of rest is short, the hot months of January and February, and part of March, stopping all possibility of growth, often reducing the plants to a low condition, and giving that period of inactivity which under cultivation we provide by a low temperature and dry conditions. March, April and May are recorded as increasingly hot, and the other seven months of the year have rain and early morning dew at some seasons. These are conditions which have to be modified to suit cultivation in glass-houses in our climate, but whereas many growers fail to keep their plants vigorous for more than two or three years, others grow them successfully for very long periods, the only explanation being that errors in treatment of the failures takes place, and hence the notes on the climatic conditions in their own habitats should be helpful, especially if considered with successful records in our gardens.

In the gardens of the late Mr Leopold de Rothschild, at Gunnersbury House, Acton, Mr. Jas Hudson, his gardener, always had a fine show of *D. formosum* and its variety, *giganteum*, during August, September and October, the plants being grown in shallow baskets suspended from the roof of an airy, sunny and warm intermediate house. He also grew some in summer in a Fig house, which did equally well. Plants of these were frequently shown from Gunnersbury at the Royal Horticultural Society's meetings, and on September 11, 1900, he showed a fine specimen with seedlings growing on it from seeds imported on the roots of the plant, one of which was also in bloom and another showing flowers.

In Sir Frederick Wigan's collection at East Sheen, plants were also flowered, raised from seeds contained in a capsule on an imported plant.

In Sir Geo. Holford's collection at Westonbirt the species was grown to unusually large-sized specimens, one of the best examples being that shown by Mr. H. G. Alexander before the Royal Horticultural Society, November 4, 1902, with stout stems two feet in height and bearing over sixty flowers, each bloom four inches across and of the purest white with a rich yellow disc to the lip.

The species varies considerably in size and the depth of yellow colour on the lip, the largest Moulmein variety known as *giganteum* being the most frequently imported, but some of the smaller forms are of better shape, and all are worthy of the best attention which can be given them.

Thousands have been imported, to perish, and as we know that such mortality is not necessary, it will be well to try to point out probable causes of failure. There is no doubt that the majority of the departed were grown in pots and placed on the staging among other plants. If pots must be used, the shallow kind, for suspending, afford a good chance of success, but shallow baskets with a moderate quantity of peat and Sphagnum, allowing air to reach the roots, are better. Major-Gen. Berkeley advocated blocks, but plants so grown require more attention than those in baskets.

The main point is to watch the plants for the appearance of new growth, after a short rest, and give them a liberal supply of water when roots are active. Where rain water is stored, a marked advantage is gained by using it.

D. Jamesianum, Rehb. *Gard. Chron.* 1869, p. 554, which has been referred to by some authorities as a form of *D. formosum* or *D. infundibulum*, in the true plant is amply distinct, its leafy stems bearing pure white flowers with orange-red disc to the lip. Like all the section, the flowers last long in good condition, which make them much sought after for decoration both in gardens and in their native habitat.

D. Jamesianum was discovered by Col. Benson in the mountains west of Prome, and sent to Messrs. J. Veitch and Sons in 1869, and afterwards imported from Burmah and other localities, where it was found growing on rocks and trees at a high elevation. It will grow in a lower temperature than *D. formosum*, but a genial warmth during active growth is essential.

D. Jamesianum var. *Donnesiae*, shown by Mr. Bradshaw before the Royal Horticultural Society (A. M., March 26, 1895) as *D. Donnesiae*, is the extreme highland form, with very dwarf habit of growth and flowers equal to those of *D. Jamesianum*. It was suggested that it was a natural hybrid between *D. formosum* and *D. infundibulum*, which is not considered possible by those who know the

when mature, with reddish orange lines of tufted hairs on the lip.

D. Lowii, Lindl., *Gard. Chron.* 1861, p. 1046, is a native of Borneo and a very distinct member of the section, requiring more heat than most of the others. Flowers buff-yellow, with lines of red hairs on the lip.

D. seabrilingue, more commonly known in gardens as *D. hedyosmum*, is of dwarf habit, generally not more than six or eight inches in height. The ivory white flowers are delightfully fragrant. The only proved hybrid of the section is *D. formoso-lown*, flowered in the Burford Collection in 1898. *J. O'B.*

CATLEYA DUPREANA.

A MASSIVE flower of their fine strain of *Cattleya Dupreana* from Messrs. Charlesworth



FIG. 33.—DISA JULIA A. STUCKEY VAR. SUPERBA: R.H.S. AWARD OF MERIT, JULY 25 (SEE P. 72).

distribution of the species, and as batches of it were imported by Mr. H. A. Tracy and Messrs. Low and Co., its position as a variety is well established.

D. infundibulum, Lindl. (1858), is a more slender species of the same class, native of mountains in Moulmein and Burmah.

D. longicornu, Lindl. (1831), *Bot. Reg.* t. 1315, native of the lower Himalaya Zone, is allied to *D. infundibulum*. It flowered in the Horticultural Society's gardens at Chiswick in 1828.

D. Draconis (*D. eburneum*, *Bot. Mag.* t. 5459) is of *D. formosum* habit, with stout pseudo-bulbs bearing white flowers with red lines on the lip. It was a very common species in gardens at one time.

D. cariniferum, Rehb. in *Gard. Chron.* 1869, p. 611, is of the same class, and has flowers with the sepals distinctly keeled, ivory white

and Co., Haywards Heath, shows it to be one of the finest hybrid *Cattleyas* in size, form, and colour. It was raised between special forms of *C. Warneri* and *C. Warscewiczii*, the quality of the parents being well shown in the hybrid. The flower is nearly 8 inches across the broad expanded petals, which, like the sepals, are bright rosy mauve. The large labellum well indicates *C. Warneri*, the front being deep purplish crimson, the light-coloured disc having some crimson markings. Some authorities class all the large-flowered section as forms of *Cattleya labiata*, and some confusion has been caused when the hybridists' records are made on those lines. In this case there is a vast difference in favour of *C. Dupreana* as compared with *C. amabilis* (*labiata* × *Warscewiczii*), and so, also, with crosses between *S. Warscewiczii* and others of the *labiata* section, the *C. Warneri* cross is generally the best.

WINTER-FLOWERING STOCKS.

Few flowers make so strong an appeal for favour as Stocks, but most people associate these flowers with the summer gardens on account of their delicate colouring and beautiful scent. Given the right varieties—which may now be ascertained by referring to any seed catalogue—Stocks may be grown in pots to flower in any cool greenhouse in late winter and early spring, and a well-grown batch of plants not only attracts attention, but at the same time proves most decorative and useful.

Seeds may be sown at any time during August, in pans of light, sandy soil passed through a fine sieve. Place the seed-pans in a cold frame and cover them with a sheet of glass and paper to conserve the moisture. As soon as the seedlings appear, remove the glass cover and raise the pans close up to the roof glass to induce sturdy growth. Stocks should not be hurried or forced, as the finest plants are always those grown under the coolest and most natural conditions. Great care should be taken to preserve the young plants from the dangers of overwatering, as they have a vexing habit of damping off wholesale if kept too wet.

When the plants are large enough to handle, prick them off singly into small pots, using a compost of two parts loam, one part leaf soil, and one part old mortar rubble. Stocks are very partial to the latter material, and there is no need to use sand if this can be obtained. Continue to grow the plants in a frame on a bed of cinders. When they have made a good start, remove the lights. Stocks are very quick-rooting plants, and before they become pot-bound should be shifted into 5-inch pots, using a slightly rougher mixture, with the addition of a little bone-meal and soot. Keep them in the frame until there is danger of harm from frost, and then put them on a shelf in a greenhouse for the winter. Afford just enough water to keep the plants growing, and allow as much fresh air as the weather permits.

Early in the New Year, examine the plants, and, if the pots are well filled with roots, pot them into 6-inch pots, using soil similar to that recommended for the previous shift.

I should have stated that, when pricking out the seedlings into the small pots, the small plants should be used, as these are those most likely to give double flowers. Those with large fleshy leaves will most likely prove single-flowered, but this really cannot be determined until flowering time. Indeed, it is always necessary to grow more plants than are needed, to allow for a few which come single and have to be rejected. Some varieties do best if the points are pinched out during the early stages of growth, and the plants are allowed to branch out, while others make a better display if grown to one stem only. The latter will need a neat stake and tie after the final potting.

When the pots become full of roots, afford some diluted soot-water or weak liquid manure, and on bright days damp the plants overhead lightly with the syringe, and shade them if the sun is hot.

A second batch should be raised in September if plants are required to flower later. These seedlings may be wintered in small pots or boxes, and afterwards potted up and flowered in 5-inch pots. Late plants will make very useful material for decorating, and after flowering, if they are cut back and planted out in the reserve garden, first thoroughly moistening the roots, they will bloom again during the summer, particularly some of the perpetual-flowering sorts, of which the best is the Wallflower-leaved variety, *All the Year Round*. This has pure white blossoms. *Riviera Market*, white and rose, is also good. *Empress Elizabeth*, carmine pink, and *Sutton's Christmas Pink* are splendid for winter flowering, and grow about 18 inches high. *Beauty of Nice* is also very useful, and has varieties with pink, Primrose, Apricot, rose, white, and crimson flowers respectively. *R. W. Thatcher*, *Carlton Park Gardens, Market Harborough*.

INDOOR PLANTS.

SELAGINELLAS.

ALTHOUGH Ferns hold premier place in the favour of the general public, yet in the genus *Selaginella* there are found species which equal Ferns in grace and beauty. Indeed, some kinds surpass in elegance many of the Ferns. These plants are Fern-like in form and general appearance, and seem the more beautiful the more closely they are inspected, while their lace-like frondage, together with the many shades of green they display, make them invaluable for purposes of decoration. They are mostly plants of easy culture, and succeed if well grown in any warm, moist temperate



FIG. 34. —DELPHINIUM NYMPH: R.H.S. AWARD OF MERIT, JULY 25 (SEE P. 72).

house; all prefer a shady position. Many of them succeed well in a room grown in a Wardian case. Some are tall-growing, and others creep upon the ground and form a carpet-like covering. They vary much in shades of colour, and make charming objects in a warm fernery.

To keep up a good collection, cuttings should be inserted two or three times in the year, putting in the first batch of cuttings at the beginning of March, but they may be rooted almost at any time, providing the right cuttings are taken, these being the young growing shoots. Put the cuttings into small pots, and place the latter in a warm, moist, close case or hand-light until rooted. Any house that has a fair supply of heat and moisture will suit them.

Broad, shallow pans are the best to grow specimens in, as large plants require room to spread. An important point is to have the pots or shallow pans well drained, so that a good supply of water may be given to the roots, especially during the summer months. A good plan is to plant five or six newly rooted cuttings in the pan, as these will soon make up as specimens. The soil for *Selaginellas* should be of a light character, consisting principally of fibrous peat, a little light, turfy loam, chopped *Sphagnum* moss, and silver sand.

The following are amongst the best and distinct sorts:—*S. grandis*, one of the most beautiful in cultivation, remarkable for the deep green colour and great width of its fronds; requires a stove temperature. *S. apus* is a charming little creeping plant, growing only one or two inches high, but it spreads very rapidly, forming a carpet-like covering of a light green. *S. uncinata* (*caesia*), a creeping species, succeeds well in baskets if kept from direct sunshine; it is most interesting with its bright blue-green foliage. *S. caesia arborea* (of gardens) is a beautiful climber, a tall species growing from one to five feet long and of a splendid metallic hue; requires heavy shade. *S. caulescens*, a very elegant species, grows from eight inches to twelve inches in height, and is of a neat and compact habit. *S. atrovirens*, one of the most beautiful of the sub-erect kinds, is of dwarf habit, and the fronds are of a dark glossy green colour. *S. Vogelii* (*africana*), a strong-growing species, is dark green. *S. Lobbii* is a fine, robust species, with Fern-like branches and rich, lustrous, metallic hue. *S. amoena*, a variety of *caulescens*, grows from six inches to eight inches high, and is invaluable grown in small pots for small vases. *S. emiliana*, a charming kind, with light green fronds, is a good plant for small vases in rooms. *S. Griffithii*, a dwarf, elegant species, has pale, erect fronds, with a beautiful metallic lustre, and grows eight inches to ten inches high. *S. lepidophylla* (the Resurrection plant) throws out branches in a horizontal manner, forming a flat top like a table; if allowed to shrivel and appear dead and afterwards placed in water, it will revive again. *S. Martensii* is a most ornamental species, from eight to ten inches high, with stems densely clothed with broad, dark, shining fronds. *S. Martensii variegata* is similar in habit to *S. Martensii*, but it is profusely marked with pure white. *S. Kraussiana* (*denticulata*) is a most useful plant for rock-work, for edging stages or walks, for pot culture, or for carpeting soil in the stove or greenhouse. *John Heal, V.M.H.*

HARDY FLOWER BORDER.

CEPHALARIA TATARICA.

THERE is a good deal of confusion among the *Cephalarias*, and some of the species are known by various names. This is not surprising, as several of the species bear a strong resemblance to each other. A number of years ago, when the late Mr. Bruce Findlay was curator of the Manchester Botanic Gardens, I paid a visit to the gardens there, and was interested to find a collection of *Cephalaria* species grown together in a bed. I examined these carefully and came to the conclusion that the best was that called *C. tatarica*, and Mr. Findlay kindly sent me a plant, from which all I have grown since have descended. It is quite an old plant with no pretensions to brilliancy of colour, this being of a creamy-yellow more than anything else. It is a tall grower, and I have had it varying from about six to eight or nine feet. It has quite large flowers, which seem to look you in the face and compel you to notice them. They are like *Scabiosa caucasica* in form, but larger than the blooms of that favourite plant. This *Cephalaria* is not difficult to cultivate in any common soil, and in the garden looks best at the back of a border with a background of the foliage of trees or against a high, creeper-clad wall. It is inclined to spread at the roots, but not to a degree which makes it too aggressive. *S. A.*

MESEMBRYANTHEMUM AND SOME NEW GENERA SEPARATED FROM IT.

(Continued from page 54.)

46. *C. altile*, N. E. Br. Growths 10-12 lines long, 8½-12 lines broad and 7½-10 lines thick, with the lobe on each side of the notch half globose, without a keel on the faces of the notch, giving the plant a more bloated appearance than any of its allies, of a slightly shining grass-green, tinted with purple on the basal part, and thickly marked on the top with rather large separate dark green dots and a cross-shaped marking or a single line on each lobe formed of confluent dots. Calyx 4-5 lobed; tube included. Corolla 10-15 lines in diameter; tube not exceeding the calyx; petals 60-65, spreading right and left as if the flower were parted down the middle, somewhat lax, pink, fading into white at the very base. 1½ line long; stigmas 4, plumose-filiform, pale greenish.—M. *altile*, N. E. Br. in *Journ. Linn. Soc. Bot.*, Vol. 45, p. 92.

South Africa. Locality and collector unknown. The bloated appearance of this plant seems constant year after year and readily distinguishes it from the other species.

47. *C. odoratum*, N. E. Br. (Fig. 35). Growths 5-13 lines long, 6-12 lines broad and 4-9 lines thick, with the ridge on the faces of the notch distinct (type Q); usually the lobules on each side of the notch are short and very broadly rounded in the dorsal view, but sometimes they rise conically into an obtuse ridge, varying from green to grey-green according to sunlight, sometimes tinged with purple, sprinkled with separate dots and a line of confluent dots over the top on each side of the orifice and

elliptic ring of confluent dots enclosing the notch and passing over the lobe on each side midway between the orifice and margin. Calyx 3-5 lobed; tube included or partly exserted. Corolla 12-15 lines in diameter; tube usually not longer than the calyx; petals 45-55, lax, usually divided into two groups spreading right and left, pink at the upper two-thirds, white at the basal third. Style about 1 line long; stigmas 4, rather longer than the style, plumose-filiform, pale greenish.—M. *pallidum*, N. E. Br. in *Journ. Linn. Soc. Bot.*, Vol. 45, p. 96.

Worcester Div. On a mountain near Worcester, Cooper.

The pale chalky-green colour of this species readily distinguishes it from its allies. In the



FIG. 36.—*CONOPHYTUM BILOBUM*, N. E. BR.
NATURAL SIZE.

laxity of its petals it is similar to *C. altile*, but they are paler in colour and white for a greater length at the base.

49. *C. placitum*, N. E. Br. Growths of newly-imported plants 4-8 lines long, 3½-6½ lines broad, and 2½-4½ lines thick, becoming much larger under cultivation, with the faces of the notch keeled (type Q), some plants entirely green, others more or less tinted with or entirely purple, with a line of confluent dark green or dark purple dots on the keel of the notch with its outer end forking into arched lines enclosing the notch, outside of this enclosing line are one or two short lines and some scattered dots. Calyx 4-lobed, usually considerably exserted. Corolla 7½-10 lines in diameter; tube finally exceeding the calyx, white; petals 40-60 in 2-3 series, regularly spreading, not arranged in two groups, and not so crowded as in *C. odoratum*, entirely white or pale-lemon yellow, or with the tips on the back or on both sides tinted with pink, or entirely very pale pink, varying on different plants; stamens about 15-16, in 3 series. Style less than 1 line long; stigmas 4, about 1 line long, pale yellowish white.—M. *placitum*, N. E. Br. in *Journ. Linn. Soc. Bot.*, Vol. 45, p. 99.

Robertson Div., near Robertson, Marloth, 7985.

II.

Growths two-lobed at the top (very shallowly in *C. quaesitum*), and the lobes or top of the growth compressed and keeled somewhat as if pinched between the finger and thumb, with flat sides to the notch separating the lobes, except in 57. *C. turrigerum*, which has cylindric lobes convex or subtruncate at the top. Types R-T. (Species, 50-57).

F.

Surface feeling slightly and harshly puberulous to the touch, and when viewed with a lens seems to be covered with minute points, scarcely hairs, best seen on the sheaths. (Species, 50-51).

50. *C. quaesitum*, N. E. Br. Growths 4-7½ lines long, 4½-7½ lines broad, and 3½-4½ lines thick, in side view somewhat truncate obovoid, with a small notch ½ line deep at the centre

of the keeled top (type R), light greyish-green with a faint bluish tint, with or without a few dots of a slightly darker green, that are sometimes conspicuous, at others scarcely perceptible without a lens and sometimes quite absent. Flowers unknown.—M. *quaesitum*, N. E. Br. in *Journ. Linn. Soc. Bot.*, Vol. 45, p. 65.

Namaqualand, Jackals Mountains, near Sendlings Drift, Pearson, 6123.

This is the smallest species of the group. I have not yet succeeded in getting it to flower.

51. *C. apiatum*, N. E. Br. Growths 1-2½ inches long, 9-13 lines broad and 6½-10 lines thick, compressed-oblong, with lobes 3-8 lines long (type S), whitish-green or light glaucous-green, often reddish on the margins and keel of the lobes, very conspicuously marked all over with dark green scattered dots. Calyx 5-lobed. Corolla an inch in diameter, somewhat funnel-shaped, with 45-60 widely spreading yellow petals. Stamens numerous in 5 or 6 (or more) series, the upper exserted, yellow. Style nearly as long as the corolla-tube; stigmas 5-6, finally 2-2½ lines long and exserted beyond the stamens, dull orange.—M. *apiatum*, N. E. Br. in *Journ. Linn. Soc. Bot.*, v. 45, p. 64.

Namaqualand, Western slopes of a ridge between Daunabis and Bethany Drift, Pearson, 6058.

This is readily distinguished from all its allies by its chalky-green colour, conspicuous dots, and peculiar surface.

FF.

Surface quite glabrous, smooth to the touch. All the species distinctly two-lobed.

52. *C. bilobum*, N. E. Br. (Fig. 36). Growths 1½-2 inches long, 3-4 inch broad, and 7-10 lines thick, cuneately oblong, compressed, with lobes 4-9 lines long (type S), light bluish-green (glaucous-green, ex Marloth), dotless, with a wedge-shaped area of rather darker dull green under the notch, and the margins and keel of the lobes often reddish or purplish tinted. Calyx 4-6 lobed. Corolla 10-15 lines in



FIG. 37.—*CONOPHYTUM CAULEFERUM*, N. E. BR.
NATURAL SIZE (SEE P. 84).

diameter, expanding in bright sunshine, scentless; tube longer than the calyx; petals 40-45, somewhat laxly recurved-spreading, bright yellow stamens in 4-5 series, the upper exserted, yellow. Style varying from 1-4½ lines long; stigmas 4-6, varying on the same plant in different years from 3½-6½ lines long, sometimes only equalling the stamens, sometimes exserted much beyond them, dull orange.—M. *bilobum*, Marl. in *Trans. S. Afr. Phil. Soc.* v. 18, p. 44, pl. 5, f. 2 (1907), and *Fl. of S. Afr.* v. 1, p. 201, pl. 49, f. F: Berger, *Mesemb.*, p. 280, f. 63 (copied from Marloth's



FIG. 35.—*CONOPHYTUM ODORATUM*, N. E. BR.
NATURAL SIZE.

usually a doubly-arched line of them crossing each lobule. Calyx 4-5 lobed, partly exserted. Corolla 10-14 lines in diameter; tube about as long as the calyx; petals 65-80, in about 4 series, overlying each other, not lax, bright magenta pink, white at the very base. Style 1½ line long; stigmas 4-5, about 1 line long, greenish-white.—M. *odoratum*, N. E. Br. in *Kew Bull.*, 1917, p. 113. M. *jugiferum*, N. E. Br. in *Journ. Linn. Soc. Bot.*, Vol. 45, p. 94 (1920).

Worcester Div. On a mountain near Worcester, Cooper, and without locality, Pillans.

When the plant I described as *M. jugiferum* was sent to me it seemed so very distinct from *C. odoratum* in shape and general appearance that I had no suspicion that it was that species, and was assured that its ridged lobules was a permanent character; in two years, however, it altered completely, and is now quite indistinguishable from *C. odoratum*. The more crowded petals overlying each other at once distinguishes this from *C. altile* and *C. pallidum*.

48. *C. pallidum*, N. E. Br. Growths 8-15 lines long, 6-11 lines broad and 4½-10 lines thick, with a faint or distinct ridge on the face of the notch (type P), pale chalky-green, marked on the top with some indistinct scattered dots of a darker green, and a line of confluent dark green or purple dots crossing the top transversely to the orifice, with or occasionally without an

original figure); L. Bolus in *Ann. S. Afr. Mus.* v. 9, p. 141. M. stylosum, N. E. Br. in *Bot. Mag.* t. 9595, f. B (1915).

Little Namaqualand. Plains between Stinkfontein and Chubiessis, Pearson 6203, and without precise locality, Marloth 3750.

53. *C. cauliferum*, N. E. Br. (Fig. 37, p. 83). Plant with age forming distinct branching stems up to 3 inches (or more?) long, above ground under cultivation, but probably covered with drifting soil under natural conditions. Growth 1-1½ inch long, 8-10 lines broad and 6-7½ lines thick, cuneately oblong, with lobes 1½-4½ lines long (type S), light bluish-green, perhaps glaucous-green in S. Africa, distinctly pellucid dotted when held against sunlight, with a wedge-shaped area of darker green under the notch, with a purplish spot at the apex of the lobes, or with their margins and keel dull purplish. Calyx 4-5-lobed. Corolla ¾-1 inch in diameter, expanding in the morning in bright sunshine, scentless; tube about as long as the calyx; petals 50-55, in 2-3 series, bright yellow. Stamens numerous, in 4-6 series, the upper just exerted, yellow. Style nearly as long as the corolla-tube; stigmas 4, filiform, 3-4 lines long, shorter than or exceeding the stamens, varying from orange-red to pale greenish-yellow.

Little Namaqualand. Upper north-western slopes of hills south-west of Chubiessis, Pearson 6176.

Although similar to *C. bilobum*, this constantly differs by developing stems, by its much shorter lobes, and in being pellucid dotted. It also grows on hill-tops, while *C. bilobum* grows on plains.

54. *C. nuciforme*, N. E. Br. Plant developing branching stems with age, which become subteranean under natural conditions. Growth 7-12 lines long, 6-10 lines broad and 5½-8½ lines thick, ovoid or subglobose slightly compressed, with the short lobes 1½-2½ lines long, uniformly glaucous-green, with a purplish keel to the lobes. Flowers not seen; according to Miss Kensit the calyx is 6-lobed, and the petals of the corolla about 6 lines long, rosy, striped. Ovary convex at the top. Stigmas 6, about 3 lines long filiform. M. nuciforme, Haw. Obs. Mesemb., p. 129, 440 and 450 (1794), *Misc. Nat.*, p. 22, and *Rev. Pl. Succ.*, p. 84. M. cryptopodium, Kensit in *Trans. Roy. Soc. S. Afr.*, v. 1, p. 150, pl. 21, f. c. (1909).

Laingsburg Div. Left side of the road between Witte Poort and Laingsburg, Pillans, 892. Originally introduced by Masson. N. E. Brown.

(To be continued.)

THE HISTORY OF THE MOSS ROSE.

(Continued from page 70.)

THE year 1730 is a landmark of supreme importance in the history of the Moss Rose, for, in spite of what Miss Willmott tells us in her beautiful book, *The Genus Rosa*, about the first illustration of the flower being published thirty years later, it can be shown that the two earliest coloured ones appeared almost simultaneously in 1730, and that others followed before the one to which she alludes.

Which of the two is entitled to precedence will be difficult, if not impossible, nowadays to determine. If Furber has no right to be regarded as the first person to publish a coloured figure of the Moss Rose, he can, at any rate, claim to be the second, for his figure of the flower was one of the two published in 1730.

The first figure of the Moss Rose that I can trace, states Major Hurst, in the *Rose Annual*, is in *Hortus Anglus* (1730). There is some mistake in that title, for there is no such book, but some enlightenment is given in his article in the R.H.S. *Journal*, where he writes, "Martyn (1807) refers to what is apparently the first figure of the Moss Rose in *Hort. Angl.*, a Catalogue of Trees, Shrubs, Plants, and Flowers cultivated for sale in the Gardens near London, 1730 (folio)," which in his list of authors cited at the end of the

article in the R.H.S. *Journal* undergoes a transformation and appears as "Furber, R., 1730. In *Hort. Angl.* Catalogue of plants, 66. n. 14. t. 18." Furber is surely not intended here, but what is meant is the "*Catalogus Plantarum*," published by a Society of Gardeners," in that year. It is in this last-named publication where the other coloured figure of the Moss Rose is given.

It is apparent, as already intimated, that Major Hurst and other writers on the Rose are unacquainted with the very important series of imperial folio plates of flowers, one for each month of the year, January to December, with an engraved list of subscribers, published by Furber in 1730. This was followed two years later by a similar one on fruits. It is a misfortune that this very valuable collection is not recorded in any garden bibliography I know. Weston makes no reference to it. Neither Johnson nor the Hon. Mrs. Evelyn Cecil has any record of it in their bibliographical lists; and yet 450 complete sets were subscribed for by 423 of Furber's customers and business acquaintances, without taking into account any of the sets that were disposed of through the ordinary channels of the book-selling trade. It is equally unfortunate that we do not know where a copy of this important floricultural collection can be consulted. Certainly not in the R.H.S. Lindley Library, nor at Kew, according to the catalogue of the Library there (1899), and, it is believed, not at the Natural History Museum. The only copies I know of are in private hands. Quaritch, the well-known bookseller, in recent years, has had only two copies pass through his hands, and at the time of writing is cataloguing one set for £60.

For the purpose of reference there are no more authentic and trustworthy contemporary pictorial representations of florists' flowers than this series of Furber's subscription folio plates of flowers for the twelve months of the year. The subjects chosen to be depicted in them are no figment of Furber's imagination, but faithful copies from the life of actual examples grown at the time. The plates were designed by P. Cassteel, and engraved by H. Fletcher, and measure to the edge of the plate mark 16½ by 12½ inches. As a matter of fact, they were reproduced, in a reduced form, more than once, and are the originals from which the plates in *The Flower Garden Display'd*, 1732, were rather indifferently engraved. It is in the plate for the month of June of Furber's series that we find what may in all probability—and I say so guardedly—be the first coloured figure of a Moss Rose in English horticultural literature; if it is not, the only other one that appeared in 1730 which can compete for the premier place is a very excellent coloured figure in "*Catalogus Plantarum*, etc. A Catalogue of Trees, Shrubs, Plants and Flowers . . . by a Society of Gardeners," 1730. The plate is No. 18, and the Rose is named *Rosa provincialis spinosissima pedunculo muscoso*, Moss Province Rose, and described in the text under *Rosa* No. 14.

This work, like *Miller's Dictionary* of 1724, has its preface signed by a number of well-known gardeners. In this case there are twenty of them—Thomas Fairchild, Robert Furber, Philip Miller, Benj. Whitmil, and others almost equally well known. And this little extract from the preface subscribed to by Furber and his colleagues is too significant to pass over: "Nor will we mention any particular Tree, Plant, Flower or Fruit which is not in our own Garden." Furber's bona-fides after that ought not to be called into question, either expressed or implied.

In opposition to any suggestion that Furber advertised the Moss Rose before it was actually in his possession, we cannot ignore the fact that for trade purposes there is good ground for believing that he had business relations with foreign nurserymen, and that the plant must have been grown and bloomed, the flower drawn, and engraved on steel, not by itself alone, but with about 400 other flowers, and then printed, coloured, and published in 1730. The world moved slowly in

those days; cheap process engraving and other mechanical means of illustration were not known, and, if Furber did not receive the first plant till after Miller's return from Holland in 1727, it would have been almost a practical impossibility to have done all that was needful to have figured it in 1730. It is to be noted that the coloured figure in the *Catalogus Plantarum* of that year was a single figure only.

After the publication by Furber of a similar set of plates of fruit in 1732, he issued a little handbook by way of explanatory text to the two series of Flowers and Fruits. This very scarce little book is entitled *A short introduction to Gardening . . . being several useful catalogues of fruits and flowers by Robert Furber of Kensington. London, 1735.* It is important to take note of what he states in the preface: "And that the subscribers to my former Work of Flowers may be furnished with Directions how to chuse the properest for every purpose, I have annexed a Catalogue of Flowers, wherein is shewn not only the Season of their blowing, but also whether they are most fit for open Borders, Edgings, Pots, etc." Does this look like the action of a man who advertises plants before being in actual possession of them? He goes on to say: "I have spent many years in collecting, cultivating, and improving all the different Kinds of Trees, Plants, Fruits, and Flowers that I could possibly obtain. . . . I have from time to time published Catalogues containing a large Variety of Trees, Plants, Fruits, and Flowers, both Foreign and Domestic, cultivated by me for Sale."

Alas! where are those catalogues to-day? Gone, no doubt, where thousands of other nurserymen's catalogues have gone since. Being of merely ephemeral interest, they served their purpose for a few seasons, perchance, at the most, and then were ruthlessly relegated to the waste-paper basket by Furber's customers who had ceased to have any further need of them. It is certain that there is none accessible to-day, and, with one exception, not any are recorded in our garden bibliographies. And yet to-day they, like those of many other old-time nurserymen and florists' catalogues, would be invaluable records for reference, and priceless. One only of such catalogues issued by Furber can be traced to-day, except that in *Miller's Dictionary* of 1724; its title is *Catalogue of Trees which will thrive in the natural ground in England. 8vo. 1727.*

The year 1731 marks the beginning of a continuous series of references to the Moss Rose by Miller. In that year what is more properly known as the first edition of his *Gardeners' Dictionary* was published—the big folio that passed through nine separate editions up to the one edited by Martyn in 1807. In the first of these is enumerated among the forty-seven species described by Miller, "No. 14, *Rosa*, provincialis, spinosissima, pedunculo muscoso. The Moss Province Rose." In the abridgment, too (second edition, 1741), Miller gives precisely the same descriptive name, but in 1768, when he published the eighth edition, Miller had come to the conclusion that the Moss Rose was an independent species, so that he abandoned Boerhaave's Latin name and called the flower, under No. 22, "*Rosa muscosa*. Commonly called Moss Province Rose."

It may be gathered from Major Hurst's observations that he regards the year 1735 as one of some importance, and rightly so, in spite of the somewhat contradictory and irrelevant quotation from Shailer, which, we shall see presently, is of no historical value. As a further instance of second-hand information, he tells us that Miss Willmott mentions that there is a specimen of the Moss Rose in the British Museum, from the Chelsea Physic Gardens (Miller's), with the date 1735. What of it? He tells us nothing more. And yet, if it had occurred to Major Hurst to verify this very simple allusion, he would have made a singular discovery which may have an important bearing upon another question—the cultivation of the flower in the north of France. C. Harman Payne.

(To be continued.)

ALDER WOOD FOR CLOG SOLES.

THE making of clog soles is a quaint and little known industry, and the "cloggers" are quiet, self-respecting folk, though looked at askance by the gamekeeper. The expert clogger is now a difficult man to find, and an independent, highly-paid man when found. Successive members of the same family have been known to follow the occupation for several centuries, as, like charcoal-making, "clogging" is distinctly a skilled industry and confined to few.

Clog-making is also amongst the oldest industries of our country, for we learn that in 1200 the English archers petitioned the King to prohibit the clog-makers using Aspen, or there would be a shortage of wood for their bows and arrows.

All good clogs are made of Alder, which has been found the best material both for holding the nails and supplying the resistance to heat and damp. Having bought a suitable lot of trees, usually with permission thrown in that they can be roughly converted into clog soles either within the wood or on a suitable piece of waste land convenient, the cloggers fix up a temporary canvas shelter for themselves, with a log for a seat and bench, and heated by a fire of chippings or waste of the clog soles.

The cloggers' tool resembles a stout, short scythe blade, which is worked on a swivel joint attached to a stout bench about 2 feet in height. One end of this rudely constructed knife is fitted with a handle for ease in working, while the other is securely fixed between iron uprights to the bench, these being sufficiently far apart to allow room for plenty of play. With dexterity born of long practice, it is surprising how, with a few well-directed movements of the knife, the roughly-split block of wood is converted into the clog sole; indeed, the rapidity of workmanship is marvellous, for I have watched an expert clog-maker turn out twenty pairs of these soles in an hour. The various sizes of clog soles are from 6 inches to 12 inches long, 2 inches to 3 inches wide, and 1 inch to $\frac{1}{4}$ inch thick.

This is the first process, the next is to build up these soles in a cone-shaped stack, admitting as much air as possible to the pile, so that drying may be brought about as quickly as possible.

When fresh felled, the timber of the Alder is of a yellowish-white colour, which, however, quickly changes to a bright red, and afterwards to a pale pink, the latter colour being permanently retained. For the making of clog soles, Alder timber is preferred to any other because it is light for its bulk, easily worked, and does not readily splinter by nails being driven into it, the latter property being a necessity on account of the large number of sprigs that are used in fastening the upper to the sole. In the Midlands especially, large quantities of Alder timber are consumed in the manufacture of clog soles, these being roughly hewn out in the woodland, and finished off by the clog manufacturers in the Lancashire towns, where the trade is principally carried on. Before the war it was estimated that fully 7,000 men were employed in the clog-making industry.

The wearing of clogs has to be acquired, for they are not nearly so adaptable to the feet as the softer, springy leather, and as the changes of temperature affect the shape, they are not taken to kindly by the man accustomed to shoes. Although many attempts have been made to popularise the use of clogs in boot-wearing districts without much success, yet in a few parts of the country, especially in Ireland, their use is general amongst the poorer classes of people.

Strange as it may sound, not only the best Alder, but the cheapest clogs were, until the war, exported from Germany, and large numbers of trees have been planted in the State forests by the German Government. It has proved a profitable speculation, considering that the timber at the age of twenty years may be utilised and is worth at least 5d. per cubic foot. Alder timber sells at an average price in this country of 8d. per foot, and cleft blocks of this wood cost about 2s. 6d. per dozen pairs delivered, though at the present time, with

greatly increased cost of labour, the price is much higher. What is known in the trade as "patterns," or overclogs, have never been used to any great extent, and at one time the clogging industry nearly became extinct, those who had spent a life-time in connection with the cleft Alder block taking to shoe-dealing instead. It was during this lull in the business that a trade sprung up with Germany, and the lighter factory or garden boot was introduced at a much cheaper rate than we were able to produce the same in England. German clogs were, however, found to be inferior, after a fair trial, to those of British production, and have on that account, as well as the war, gradually fallen into disuse.

We have plenty of excellent Alder and Birch timber that makes the best type of clog sole, and as this particular wood is only in use for a limited number of purposes, there is no reason why we should not utilise to the fullest our native production in connection with a trade for which it is peculiarly suited. If Germany could supply at a price round about 5s., why, it may be asked, cannot our manufacturers do the same? Our machinery and labour are certainly not inferior to those of other countries. A. D. Webster.

EVELYN'S KALENDARUM.

Through the kindness of a correspondent in Cornwall, who has sent me the third edition of the *Sylva*, I am able to throw a little light on the question of the dedication of Evelyn's *Kalendarium*, for bound up with it are (1) part of Rapin's poem, "Englished," by Evelyn's son; (2) *The Terra*, and (3) the fifth edition of the *Kalendarium*. In this last the dedication begins "To Abraham Cowley, Esq., Sir.—This second edition of my Hortalan Kalendar is yours, mindful of the honour once conferr'd on it, when you were pleased to suspend your nobler Raptures, and think it worthy your transcribing." This fixes the second edition as being the one which was first dedicated to Cowley. But the interest does not stop here. The *Sylva* begins with the usual laudatory poems of the period. In the first edition there was but one. Now, in this third edition, there are four, one of which is Cowley's poem, "The Garden. To J. Evelyn, Esquire." The poet and the gardener seem to have been doing a little mild scratching of one another's backs. Thus; Cowley reads the first edition of the *Kalendarium* (1664) and tells Evelyn how interested he had been in its perusal and that he has made a copy of it. Evelyn is very pleased at this and when he publishes the second edition in 1666 (?) dedicates it to Cowley. Cowley takes this as a great honour and promptly sits down and writes (August, 1666) his poem, "The Garden," which he, in turn, dedicates to Evelyn, and in the short preface says some nice things about him. "I know nobody that possesses more private happiness than you do in your Garden; and yet no man who makes his happiness more public by a free communication of the Art and Knowledge of it to others." It was now the gardener's turn to be pleased and, if my surmise is correct, he appends the poem to his second edition of the *Sylva*, which is dated 1666. Whether this be so or not, at all events it appears in the third (1679). Would some one who has a copy of the second tell us if I am correct? It is in the nature of a digression, but a paragraph in the dedication of this third edition to the King (Charles II) is one of very great interest as it shows how soon the publication of the original edition bore fruit and began to fulfil, as it were, its purpose in life. "I need not acquaint (1679) your Majesty how many millions of Timber-Trees (beside infinite others) have been propagated and planted throughout your vast Dominions, at the instigation and by the sole direction of this work (1664)." The dates in parenthesis are my addition. Upon this planting depended the very existence of the English navy. The picture painted in this dedication, of king and subjects setting to work with a hearty will to

make good the losses caused by cutting down too much timber for fuel recalls the occasion of the building of Solomon's Temple, when, likewise, king and people "offered willingly" at a great crisis in their national existence. Nor can we forget 1914 to 1918.—Joseph Jacob.

SPRING CABBAGES.

GROWERS who secured a good crop of Spring Cabbages this season were well repaid, as in no previous season do I remember such excellent prices ruling for early Cabbages. The season was about the most disastrous one for Spring Cabbage ever experienced in this district, hardly any garden having anything approaching a decent bed. In the early part of the year growth was much retarded by severe, cutting, north-east winds, which, coming after much rain, crippled growth and made the crop much later than usual.

Of the small, early Cabbages, Harbinger heads the list, and many growers who, in the past, relied on the larger varieties, now find the small, early ones more profitable; indeed, when space is taken into account, and the small percentage of waste, such as useless outer leaves, the advantage over the large, coarse varieties is great. With Harbinger, April and Springtide, it is rare to find a "bolter" if proper conditions are observed as regards sowing and planting. I do not say that growers are immune from failure if they grow these sorts, but in nine cases out of ten, if proper treatment is given, losses are rare.

Sowing is one of the most important details. These small, early varieties should not be sown before August, and in the south I have found the second week of that month quite early enough, but with this proviso—there must be quick germination, therefore in hot, dry soils sufficient moisture must be supplied to ensure this. Sow the seeds thinly, in drills, and transplant the seedlings when a few leaves have been formed. Should land not be available for planting, it is far better to prick out the seedlings when quite small, into nursery beds, and by so doing get sturdy plants. If there is no check to the seedlings, there will be total freedom from bolting. Prepare the soil thoroughly and feed the crop with a quick-acting fertiliser early in the new year, just as new growth commences. James A. Paice, Watford.

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Dunkeld Larches.—Mr. A. D. Richardson has quoted many authorities in *The Gardener's Chronicle* (see page 258), concerning the introduction of the Larch into Scotland. I have in front of me *Arboriculture*, by John Grigor, The Nurseries, Forbes, N.B., who dedicated the book to the Highland and Agricultural Society of Scotland, in 1868. It appears that John Grigor was a cultivator and distributor of Larches, and he mentions, on page 207, a report published in 1813 by the Rev. James Headrick, minister of the parish of Dunnichen. "It is generally supposed that Larches were first brought to this country by one of the Dukes of Athol about eighty or ninety years ago. But I saw three Larch trees of extraordinary size and age in a garden near the mansion house of Lockhart of Lee, on the northern banks of the Clyde, a few miles below Lanark; the stems and branches were so covered with lichens that they hardly exhibited any signs of life or vegetation. The account I had of them was that they had been brought there by the celebrated Lockhart of Lee, who was ambassador for Oliver Cromwell at the Court of France, soon after the restoration of Charles II." John Grigor also mentions, on page 206, that "the first account we have of the Larch introduction into England is given by Parkinson, an apothecary in London. This author also states that there were two sorts of Larches, one variety red and the other white." This book also contains valuable information on the Duke of Athol's Larch plantations, and on

page 207 the author states: "From the accounts we have of the introduction of the Larch into Scotland, some state that it was first planted in 1725 at Dalwick in Tweeddale, and several years afterwards at Dunkeld, Monzie, and Blair; but the states of the various reports do not exactly correspond." *Mark Mills*.

—I was glad to read Mr. Webster's letter, which verifies my statement (p. 337) that the largest Larch had a girth of 13 feet in 1817. This tree it appears was cut down in 1888, and measured at 5 ft., 15 feet 1 inch, an increase of 2 ft. 1 in. in 71 years. *A. Clinton Baker, Bayfordbury.*

Plants from the Antipodes.—In his note on page 56, Sir Herbert Maxwell mentions *Veronica Traversi* and *V. parviflora* as the only Veronics which have become thoroughly naturalised in his locality. Hereabouts the species which seems to reproduce itself most freely is *V. salicifolia*. *A. D. Richardson, Edinburgh.*

Pruning Grape Vines.—In my notes on the "Grape Vine" (see p. 232, Vol. lxxi), I pointed out that several varieties resent hard pruning, better results being obtained by leaving eight inches of the current year's wood and removing the buds to one at the base of each shoot, so as to conserve the food in the last year's wood. Some very old vines here have responded wonderfully to this treatment, and produce more bunches than they could possibly finish properly, the bunches having to be thinned out before flowering. I am indebted to Mr. C. A. Jardine for this and other information in connection with the pruning of the vine, the result of experience he has gained in French vineyards. To obviate bleeding in the spring when the sap is rising, we find it is better to rub out buds and cut back the shoots while the leaves are still on the vine, so that the wounds have time to heal before the leaves fall in the autumn. *Malccolm Macnaughton, Seane Palace Gardens, Perth.*

Phormium tenax.—The New Zealand Flax, *Phormium tenax*, is now flowering in my garden. It has been planted in its present position just over six years, and has only failed once during that time to produce three spikes of blooms. *G. J. Warren, The Gables, Balcombe, Sussex.*

Too-Much-Alike Names of Roses.—In your report of the N.R.S. Provincial Show (p. 57) mention is made of a gold medal awarded to a new Rose called Mrs. Courtney Page. I think it was only last year that a Rose called Courtney Page was placed on the market. It is surely a great pity, in naming a variety after the wife of a man whose name has already been affixed to a Rose, that the prefix "Mrs." is used instead of the lady's Christian name. Only keen rosarians who closely follow the various new introductions from year to year and become familiar with them in their gardens are likely to distinguish between Mr. and Mrs. So-and-So, while, in the minds of men gardeners and the great bulk of the public only confusion follows the rather stupid practice to which I allude. Although a lady on marriage surrenders her surname for that of her husband, she retains a Christian name, which is usually much more distinctive than "Mrs.", and I am sure that, if the matter were brought to the notice of our leading raisers, a more distinctive method of naming novelties would be adopted. *Red Rose.*

Dianthus Allwoodii.—In your issue of July 29 (p. 71) there is a letter from Mr. Mark Mills commenting upon varieties of *Dianthus Allwoodii*. It is evident from his remarks that he has not proved a successful cultivator, although this may be because he has the plants growing in a shaded position or has added leaf-mould or something similar to the soil. Furthermore, this would account for them growing to the height he describes, because such varieties as Joan, Susan, etc., grown under correct conditions, never exceed a foot in height. It seems rather late in the day to ask whether the race is successful or no, considering that we first commenced disseminating it in 1917, and this season we have sold over a million and a half plants;

we are preparing to sell double that number next year, so there can be no possible doubt whatever as to their success with the multitude. We consider no transaction complete which does not meet with the entire approval of the buyer, and if Mr. Mark Mills has procured his stock from us, then we shall be happy to compensate him with fresh plants; but if he has procured cheap, over-propagated stock from unscrupulous nurserymen who sell plants cheaply, irrespective of their quality, we wash our hands of the whole affair. We have no such name as "Mark Mills" on our books, but, of course, this may be a *nom de plume*. *Allwood Bros., Hayward's Heath.*

—Most of the varieties of *Dianthus Allwoodii* mentioned by Mr. Mark Mills (see p. 71) are unknown to me, but those I know, Harold, for instance, and Jean, are splendid plants. I do not go further among novelties than Rufus, which also is uncommonly floriferous and a lovely flower. Plants of the latter are from cuttings rooted last October, but I find the plants should be left alone for a second year to enable one to ascertain their full value and reap the full extent of their beauty. I have had some splendid specimens of Harold, in 7-inch and 8-inch pots, and, in my opinion, this is one of the most desirable additions made to our hardy plants of recent years. They have to be staked here too, and, unfortunately, so have many other good things. *R. P. Brotherton, Tyninghame Gardens.*

—Mr. Mark Mills's experience with, and opinion of, *Dianthus Allwoodii* (*Gard. Chron.* p. 71) coincides with that of other growers of individual or few plants. To properly appreciate the value of *D. Allwoodii* varieties for garden decoration, they require to be grown in quantity, planted in the mass, in order to obtain what painters call "breadth of effect." *Fred W. Jeffery, Dalsef, N.B.*

—I can endorse what Mr. Mark Mills states in your issue of July 29 (p. 71) about this new type of *Dianthus*. I thought I was obtaining perpetual-flowering Pinks, but I seem to have got inferior Carnations! The cold, wet season may be partly responsible for the poor display the plants have given so far, therefore I may be prejudging the merits of this new introduction for a north-west garden. *J. P., Carlisle.*

Puya chilensis.—A large number of plants have been introduced to this country under the name of Puya, but most of them have now been referred to the allied genus, *Pitcairnea*, including most of them with showy flowers, or bracts. Puya is characterised by more expanded flowers, and seeds surrounded by a complete wing. In gardening books they are classed as stove plants, but some of them are sufficiently hardy to be grown outdoors in Cornwall without protection. I recently had part of an inflorescence and a leaf from Penzance. The plant had been in the garden for thirty to thirty-five years. In general appearance and habit the plant resembles *Yucca recurvifolia*, but the leaves are far more formidable, being armed with strong, hooked spines on the margin. These spines are directed backwards in the lower part of the leaf and forward on the upper part, so that if one were to get entangled in the plant it would be no easy matter to get clear. The flower stem was four feet high to the base of the inflorescence, and the latter sixteen inches high. It carried about forty of its large greenish-yellow flowers. A remarkable feature of the panicle is that the outer half of each branch is simply covered with bracts without flowers while the plant is in full bloom. The species is figured in the *Botanical Magazine*, t. 4715, and was introduced in 1820. *J. F.*

The Carrot's Crimson Eye.—I was interested in the note concerning the small red flower in the centre of the umbel of the Carrot (see p. 45), because a few days previously I had been looking at two wild Carrots, side by side, on the chalk downs. One bore umbels with the ordinary white flowers, while all the umbels on the other plant had pale rosy flowers. The colouring pigment extended to the margins of the secondary umbellules, which are usually colourless or hyaline. This variation may also be found in

Caucalis Anthriscus, a near ally of the Carrot; and it is not necessary to go to Cornwall to find these variations. The red pigment of the Cornwall plant may have been more highly developed, for I can only describe the flowers coming under my observation as rosy pink. Whether or not this may be reversion to an ancestral type, I am unable to give an opinion; but if so, it is not confined to the two plants above mentioned. Hitherto, I have been wont to regard the presence of pigment as a development, and not a retrograde phenomenon. In my opinion, it would take a far greater number of years to evolve an umbel than a colouring pigment. I have never seen a dark pigment in the wild non-hearting Cabbage; yet we have red Cabbages, that is, purple, many shades of it in Borecole, and a considerable amount of purple in Cottager's Kale. Just now the leaves of some bushes of *Cornus sanguinea* are wholly bronzy-purple, though possibly not permanent. In Surrey, *Achillea millefolium* varies with pure white, pink, pale rose, and red-purple or cerise flowers. *J. F.*

Cynoglossum amabile.—The way I am now growing this lovely little plant (see pp. 31, 67) is to sow the seeds, immediately they are ripe, in boxes, transplanting the seedlings in spring into their flowering positions. I have grown it for several years, and it came to me from a ducal garden. Moreover, many people have had seeds or plants from here, and I presented the surplus supply of last year's seedlings to a leading seed firm, so that it will soon be as common as Mr. Cowley hopes it may. Too common, perhaps! I seem to recollect having sent a note recording its beauties to *The Gardeners' Chronicle* a year or two ago. *R. P. B.*

SOCIETIES.

ROYAL HORTICULTURAL.

Trial of Antirrhinums.

THE following awards have been made by the Council of the Royal Horticultural Society of Antirrhinums grown in pots under glass at Wisley.

AWARD OF MERIT.

No. 1, *Snowflake*, sent by Messrs. BARR AND SONS; No. 6, *Canary Yellow*, sent by Messrs. BARR AND SONS; No. 7, *Yellow*, sent by Messrs. DOBBIE AND CO.; No. 15, *Crimson-Scarlet*, sent by Messrs. BARR AND SONS; No. 24, *The Bride*, sent by Messrs. BARR AND SONS; No. 27, *Queen of the North*, sent by Messrs. TOOGOOD; No. 36, *Canary Bird*, sent by Messrs. BARR AND SONS; No. 39, *Yellow Queen*, sent by Mr. A. DAWKINS; Nos. 47 and 48, *Golden Gem*, sent by Mr. A. DAWKINS and Messrs. SIMPSON; No. 65, *Rose Queen*, sent by Messrs. SIMPSON; No. 107, *Maize Queen*, sent by Messrs. DOBBIE AND CO.; No. 119, *Captivation*, sent by Messrs. BARR AND SONS; Nos. 125 and 126, *Prima Donna*, sent by Messrs. BARR AND SONS and Messrs. R. VEITCH AND SON; No. 131, *Amber Queen*, sent by Messrs. DOBBIE AND CO.; No. 138, *Morning Glow*, sent by Messrs. BARR AND SONS; No. 167, *Firelight*, sent by Messrs. DICKSON AND ROBINSON; No. 199, *Elegance*, sent by Messrs. BARR AND SONS; No. 206, *Queen Victoria*, sent by Messrs. SIMPSON; No. 218, *Esmé*, sent by Messrs. SIMPSON; No. 221, *Cerise King*, sent by Messrs. WATKINS AND SIMPSON; No. 228, *Coral Red*, sent by Messrs. R. VEITCH AND SON; No. 229, *Maize Queen*, sent by Messrs. R. VEITCH AND SON; No. 231, *Moonlight*, sent by Messrs. DOBBIE AND CO.; No. 251, *Lilac Queen*, sent by Messrs. R. VEITCH AND SON; Nos. 84 and 85, *Bonny Lass*, sent by Messrs. BARR AND SONS and Messrs. WATKINS AND SIMPSON; No. 120, *The Fawn*, sent by Messrs. WEBB AND SONS; and No. 121, *The Fawn Improved*, sent by Mr. W. H. SIMPSON.

HIGHLY COMMENDED.

No. 29, *White Beauty*, sent by Messrs. DOBBIE AND CO.; No. 69, *Rose Doré*, sent by Messrs. WATKINS AND SIMPSON; No. 82, *Salmon Queen*, sent by Messrs. DICKSON AND ROBINSON; and No. 153, *Admiration*, sent by Messrs. BARR AND SONS.

HULL SHOW.

THE Horticultural Committee of the Yorkshire Agricultural Show, assisted by Mr. P. Blair, is to be heartily congratulated on the admirable arrangements made for exhibitors and visitors, and upon the splendid success of the Horticultural section at Hull, on July 26, and following days. It is very doubtful if the East Riding of Yorkshire has ever seen finer horticulture exhibits. Thousands of visitors willingly paid the extra charge to see one of the finest floral exhibitions ever held in Hull. No less than seven thousand passed through the turnstiles on the second day, besides ticket-holders. The exhibits were splendidly staged in one very large tent, with plenty of space, and the general effect was brilliant. The chief features of the show were the grand groups of plants, Roses, Carnations, Sweet Peas, and the collections of hardy perennials and cut flowers.

In the principal class for a group of flowering and foliage plants occupying a space not exceeding 350 square feet, Messrs. J. CYPHER AND SONS, Cheltenham, won the premier award of £40 with a beautiful group, most artistically arranged; Mr. W. A. HOLMES, Chesterfield, was a capital second. Mr. C. ENGELMANN won the first prize of £15 for a collection of cut Carnations with a well arranged stand of good quality flowers; Mr. W. LAWRENSEN AND SON, Yarm, was a very close second with flowers of equal quality.

Five exhibitors competed in the class for a group of hardy perennial plants and cut flowers, and they produced a brilliant display. The prizes offered were £22, £18 and £15 respectively, but the unplaced groups were so good that the Committee awarded extra prizes of £12 10s. and £10. We have never seen such fine quality of bloom as was staged by Messrs. HARKNESS AND SON, Bedale, and much pains had been taken to give a good finish to their display; crowding was the only fault to be found with their wonderful first prize exhibit. The second prize was won by Mr. MONTAGUE STATHER, Cottingham, Hull, whose group arrangement was entirely distinct from others and must have run the first prize winner very closely indeed. It was an artistic arrangement with a lightness and elegance which societies and judges have long been asking for, and in our estimation it is a style which will supersede the rather flat and often overcrowded exhibits we have become accustomed to in these most interesting classes. Messrs. GEO. LONGSTER AND SONS, Malton; Messrs. GIBSON AND SON, Bedale; and Messrs. W. ARTINDALE AND SON, Sheffield, followed in the order named, all with excellent groups.

Excellent prizes were provided in five different classes for Sweet Peas, but competition was not keen. The chief prize winners were Messrs. R. BOLTON AND SON, who won the first prize of £10 for a very fine exhibit on a space 20 ft. by 5 ft. Mr. W. WADSWORTH, Bishop Wilton, led for 18 distinct varieties, and Mr. T. W. SHERBURN, Selby, for 12 varieties, each with flowers of fine quality.

Mr. MONTAGUE STATHER won the first prize for a dinner table decoration with a most pleasing arrangement of Carnations; Mr. F. E. WARD, York, second, also with Carnations.

Gold Medals were awarded as follows:—To Messrs. SUTTON AND SONS, for a very fine collection of vegetables and flowers; Messrs. ALEX. DICKSON AND SONS, Newtownards (two), for magnificent collections of Roses and Sweet Peas; Messrs. ALLWOOD BROS., for an excellent exhibit of Carnations; Messrs. JOHN FORBES, Hawick, for Phloxes, Pentstemons, Border Carnations and other hardy flowers; and Mr. R. V. ROGER, Pickering, for Alpine plants and clipped trees; Messrs. LITTLE AND BALLANTYNE, Carlisle, for ornamental trees and shrubs, arranged with great effect near the main entrance and around the president's and other official offices.

Silver Medals were awarded to Mr. H. V. ELLISON, Birmingham, for Ferns, Palms, and Cacti; Messrs. JOHN K. KING AND SONS, Essex, for Sweet Peas; and to Messrs. BAKER, Wolverhampton, for Herbaceous flowers and plants.

Obituary.

Dr. F. Bedford.—We learn with deep regret of the death of Dr. F. Bedford, of Esleforde, Marden, Kent, who passed away at the early age of 43 years at his residence on the 13th ult., after a very short illness. The funeral took place at Sleaford, on July 17, amid many expressions of sympathy and regret. The death of Dr. Bedford means a very great loss to horticulture generally, and more especially to the Orchid world. He got together a very valuable collection of Orchids, and one especially rich in botanical and other species, while living at Dovecote, York, and had recently removed his plants to his new residence, Esleforde, Marden, where he had erected special houses for the accommodation of his favourites.

M. Rene Momméja.—It is with profound regret that we learn, just as we are going to press, of the almost sudden death of this distinguished French amateur horticulturist. M. Momméja is best known for the part he has played in connection with the Chrysanthemum, of which flower he was a most enthusiastic and devoted cultivator. For many years he was a prominent exhibitor at the Paris autumn shows and a successful prize taker. Besides being interested in the flower from a cultural point of view, the deceased gentleman was a keen collector of all kinds of literary and artistic curiosities bearing the imprint or in any way connected with his favourite flower. It was mainly through his exertions that the Paris Retrospective Chrysanthemum Exhibition was held in conjunction with the Paris Autumn Show of 1908. Visitors will not readily forget the extraordinary and valuable collection of art treasures and bibliographical rarities, largely of oriental origin, that he staged on that occasion. Our old correspondent Mr. C. Harman Payne also contributed to the success of that exhibition, and both he and M. Momméja were each awarded a handsome silver plaque by the National Horticultural Society of France—the only awards made on that occasion. At Le Mans, last autumn, in the Art Section of the International Horticultural Exhibition, M. Momméja again exhibited a fine collection of drawings, prints, engravings, and Japanese curios of all kinds having reference to the popular autumn flower. There can be no doubt that M. Momméja's idea to hold such an exhibition in Paris in 1908 was the reason why two years later the eminent rosarian M. Jules Gravereaux did the same thing for the Rose. After the death, during the war, of M. Max de la Rocheterie, who held the presidency of the French Chrysanthemum Society from its foundation, in 1895, a new president was sought for as soon as the Society again began its operations. Although the headquarters of the Society are at Lyons, it is no small tribute to the respect in which M. Momméja was held to know that a Parisian should have been invited to stand for the high position of president. When the annual election of officers took place, M. Momméja received 210 votes out of 213, an almost unanimous election. The new president, in his response, pointed out how sadly the raising of new Chrysanthemums had declined since the death of Calvat and promised to do all he could to encourage new seedling growers. He was a frequent contributor to the Press on matters relating to the Chrysanthemum and for many years he had been gathering together from all sources material for writing a book on the flower he loved so much. We have heard the MS. has practically been completed and hope, in spite of the unforeseen misfortune that has befallen the Society, that it will sooner or later be our pleasure to see the work in print, for it will be something quite out of the ordinary in Chrysanthemum literature, if only the publication can now be effectually carried out without his masterly supervision. We little thought when we last saw him, calm, impassive and earnest, presiding over the Chrysanthemum Conference at Le Mans, that we should never see him again. He was a gentleman in every sense of the word, modest and unassuming, but courteous and hospitable.

ANSWERS TO CORRESPONDENTS.

CALCEOLARIAS: *W. H. C.* These bedding plants frequently suffer during dry weather when they are planted out late. As they are almost hardy, they should be planted into their flowering quarters in April or in May, so that they may become established before hot weather sets in. There appears to be no disease present, so we can only suggest that the plants affected suffered from some kind of check, which, of course, might have been emphasised by the ravages of wire worms or by disturbance due to moles.

CLIMBING ROSES FOR GREENHOUSE WALL: *J. G. J.* Marechal Niel is the best of all Climbing Roses for a greenhouse. Fortune's Yellow is another good greenhouse Rose, and when well grown is suitable either for growing on the wall or roof of a greenhouse. Firm soil is the best foundation for constructing a crazy-paved path; the stones should be bedded in sand or fine soil, not cinder ash, as no alpine plants like such rooting medium.

COMPENSATION FOR BROKEN ENGAGEMENT: *H. B.* Assuming that you are correct in stating that the letter you mention *definitely* engaged you, you are entitled to a month's wages plus the rental value of the cottage for one month.

FIGS UNSATISFACTORY: *P. D.* The specimens received showed no trace of fungal infection or of attack by insect pest, so we can only conclude that the unsatisfactory condition of the plants is due to unfavourable conditions.

FRUIT TREES OVERHANGING NEIGHBOUR'S GARDEN: *R. P.* The portions of the fruit trees which overhang your neighbour's garden are your property, as also is the fruit upon them; but, in the absence of permission, you have no right to enter your neighbour's garden to gather the fruit. Your neighbour can order you to cut back the trees to a perpendicular line continuous with the fence, or, should you fail to remove the overhanging parts, he may, after giving notice, remove them himself and return the cut branches to your side of the fence.

MARKET GARDENING: *H. R.* We think you would find *Commercial Gardening*, edited by John Weathers and published by the Gresham Publishing Co., Southampton Street, Strand, London W.C., the kind of work you require. It deals with the market garden culture of fruits, flowers and vegetables of all descriptions in the open air and under glass. The pre-war price was 36s for 4 volumes, but if it is now out of print, you may be able to obtain a secondhand copy by advertising. The questions of soils and manures, rotation of crops, market garden book-keeping, estimates of receipts and expenses for important crops, etc., etc., are dealt with, and should be of great use to you. A series of works on Orchard Tree Culture, Market Nursery work, Special Glasshouse Crops, etc., is published by Messrs. Benn Bros., Ltd., 8, Bouverie Street, E.C.4, at 4s. 6d. per volume. *French Market Gardening*, by John Weathers (John Murray, 5s. 6d.), may also be helpful to you in the cultivation of salads and vegetables for market.

MICHAELMAS DAISIES DISEASED: *C. J. W.* If you will send specimens affected by the disease referred to in your letter, we will endeavour to determine it.

NAMES OF PLANTS: *J. E.* 1, *Rosa lutea*; 2, *Tropeolum polyphyllum*; 3, *Rubus bambusarum*; 4, *Medicago lupulina*; 5, *Lychnis vespertina*; 6, *Ligustrum lucidum coriaceum*. The white flower is *Robinia Pseud-acacia*. We do not recognise the Butterfly.

ORNAMENTAL SWIMMING POOL: *W. A. E.* It depends very much upon the composition of the brown sediment hiding the tiles of the swimming pond as to whether you can bleach it out or not. Water in still ponds may remain more or less permanently green, but this in-

dicates the presence of organic matter, which should not apply in this case. Green scum often consists of microscopic plants which can be seen, but not felt with the fingers. One named *Euglena viridis* seems on the borderland of animal life. It should be possible to bleach or whiten such organic matter by distributing bleaching powder all over the surface of the pool. This powder consists of a mixture of calcium chloride and calcium hypochlorite, the latter being the bleaching agent, but the already prepared bleaching powder would serve the purpose best, because free from lumps and the impurities of quicklime. It would have been good policy to have washed and flushed the pool before filling it. Another point to see to is that dust does not blow into the pool in any quantity, if this can be prevented. The chloride of lime can only remove colour and does not destroy the substance; but it does not bleach particles of sand.

POPLAR LEAVES DAMAGED: *M. J. A.* Possibly the dry weather earlier in the season caused the leaves to shrivel. No disease was present.

ROSES FOR EXHIBITION: *J. W. H.* To secure large flowers all except the leading bud should be removed at an early period. No. 3 is a Briar; but No. 2 is a Rose growth.

SINGLE PELARGONIUMS: *H. W.* The specimens sent were very good samples. Single varieties are useless for market, the semi-double sorts being mostly in demand. The demand for single Pelargoniums varies greatly.

STOCKS UNHEALTHY: *J. I.* The roots contain the mycelium of some fungus, and also a bacteria. Infected plants should be destroyed.

TOMATOS FAILING TO COLOUR: *J. McP.* The lack of colour, together with the firmness of the flesh on the pale parts of the fruit of your Tomatos is probably due to lack of potash in the soil. Top-dress the root area with wood ash and follow with a good watering.

TRANSPLANTING IRIS SIBIRICA: *E. B. H.* As your plants of *Iris sibirica* have been allowed to develop into large clumps it would be advisable to defer lifting and replanting them until the end of September. The clumps should then be lifted and divided by inserting two forks into the middle, back to back, and pulling them apart; choose the best pieces from the outside of the clump and replant as the work proceeds. If possible, place a heavy mulch of some decaying material round the clumps now. This will encourage the new roots near the surface and enable you to conserve a larger portion of roots undamaged when dividing the specimens.

Communications Received.—*M. W. J. B.*—*F. M. H. E. P.*—*L. G. W.*—*W.*—*Regular Reader*—*J. F. W. A. L.*—*A. C. B.*—*H. B.*—*F. R.*

THE WEATHER.

THE WEATHER IN JUNE.

THE exceptionally fine weather of May continued until the middle of June, large amounts of sunshine being experienced, only two days yielding a millimetre or more of rainfall, and the winds being mainly light and variable, consisting chiefly of diurnal land-and-sea breezes. The ground became very dry, and crop and garden prospects declined seriously. A great change then occurred, and the last fortnight was stormy and dull, with some substantial, and many smaller, falls of rain. In most respects the two widely different periods practically balanced each other. For the complete month, however, the mean temperature was only 55.7°, or 0.7° below normal. There were 204 hours of bright sunshine, or only 7 fewer than usual. The total rainfall amounted to 2.16 inches, or a trifle of 0.13 inch under the average. Westerly winds were nearly twice as frequent as normally, and the easterly airs common in June were almost absent. A moderate gale from the westward prevailed during the middle of the day on the 25th. No thunder occurred, and during the hot spells over much of the country the maximum thermometer at Southport only twice rose above 72°—viz., to 78.8° on the 7th and to 79.5° on the 1st. On the early morning of the 14th the minimum thermometer upon the grass fell to 28.3°. *Joseph Barendell, F.R.Met.Soc., Borough Meteorologist, The Fernley Observatory, Southport*

MARKETS.

COVENT GARDEN, Tuesday, August 1, 1922.

Vegetables; Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Arti chokes,		Mushrooms	
green, dozen	1 0-1 6	—per lb. Forced,	2 0-3 0
Aubergine, doz.	2 0-3 0	— " Outdoor	0 9-1 0
Beans,		Onions, Valencia	14 0-16 0
—Worthing	0 2-0 4	Peas, half bag,	
Beets, per bus.	3 0-4 0	—Laxtons	7 0-9 0
Cabbage doz.	0 9-1 0	—others	5 0-6 0
Carrots, new,		Potatoes,	
doz. bun.	1 0-2 0	—new, cwt.	5 0-8 0
Cauliflower, doz.	2 0-3 0	Scarlet Runners	
Cucumbers		—per bushel	7 0-8 0
—flats, 3 doz.	10 0-16 0	Spring Onions,	
— " 3½ "	10 0-16 0	doz. bun.	2 0-3 0
— " 4 "	6 0-14 0	Tomatoes,	
Endive, per lb.	4 0-5 0	—English Pinks	3 0-3 6
Garlic, per lb.	0 8-0 9	—Pink and white	3 3-3 6
Greens, per bag	1 6-2 0	—Valencia	10 0-12 0
Lettuce,		—Guernsey	3 0- "
—long, per score	0 9-1 9	—Dutch	2 0-3 0
—round, per doz.	0 6-1 0	Turnips, new, doz.	1 0-2 0
Marrows per doz.	2 0-3 0		

Fruit: Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Apples,		Grapes	
—Sturmer Pippin	18 0-20 0	—Alicante	1 6-2 0
—Others	15 0-16 0	—Black Hamburgh	1 4-2 0
English, half bus.		—Canon Hall	2 6-6 0
—Julians	1 6-2 6	—Muscat	1 6-6 0
—Suffolds	2 0-4 0	Lemons	
—Grenadiers	2 0-4 0	—Messina, 300's	12 0-15 0
—Early Victorias	2 0-4 0	—Murcia	14 0-16 0
Bananas, singles	15 0-25 0	—Naples	12 0-16 0
—doubles	20 0-27 6	Melons	
Cherries		English and	
—Bizarreau	6 0-8 0	Guernsey	3 0-7 0
—Florence	8 0-10 0	—Cantaloupe	6 0-18 0
—Morello, half	7 0-12 0	—Spanish 36's	12 0- "
—Napoleon	12 0-20 0	— " 24's	10 0- "
—Other Black	6 0-10 0	Nectarines	4 0-18 0
Currents, Black,		Nuts	
English ½ sve.	20 0-23 0	—Brazil	44 0-46 0
—Red	10 0-14 0	Oranges,	
Figs, per doz.	4 0-12 0	—Australian	20 0-24 0
Gooseberries		—S. African Navels	20 0-22 0
English, Red,		—Seedlings	18 0-21 0
half sieve	5 0-7 0	Peaches, per doz.	4 0-24 0
—Yellow	8 0-10 0	Pineapples	2 0-5 0
—Large Sulphurs,		Raspberries	
per lb.	0 6-1 2	4 lb. Chips	2 6-3 0
South African		Spanish Gages	10 0-20 0
Grape-Fruit	35 0-40 0	Plums, Cears	8 0-9 0
		—Rivers	8 0-10 0
		Walnuts Green	
		half bushel	2 0-3 0

REMARKS.—The requirements for Bank Holiday trade have slightly improved the demand of some fruit, although values remain comparatively low in other instances. Large arrivals of Dutch Tomatos have adversely influenced prices of home-grown supplies. Cucumbers are not so plentiful and selling fairly well. Early English Apples, such as Beauty of Bath and Gladstone, are inquired for and expected in quantity daily. Large cookers are also wanted, but the bulk of arrivals are on the small side. English Plums, such as Czar and Early Rivers, are meeting a good demand. Cherries are less plentiful, and firm, well coloured fruits sell at better prices. There is a fair demand for large dessert Gooseberries, while small red berries are not much wanted. Choice fruits, such as Melons, Grapes, Figs, Peaches and Nectarines meet a fair demand at slightly lower quotations. Plums and Gages from France and Spain are moving freely in moderately large quantities. Green vegetables and salads remain plentiful and cheap. French Runner Beans are also quoted low. Mushrooms are in shorter supply and advanced in price early in the week. The supply of new Potatoes is heavy and values low.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d. s. d.		s. d. s. d.
Adiantum		Heliotropes, 48	
cuneatum,		per doz.	9 0-12 0
per doz.	10 0-18 0	Hydrangeas,	
—elegans	10 0-12 0	—White, 48 per	
Aralia Sieboldii	10 0-12 0	doz.	10 0-15 0
Araucarias	30 0-48 0	Marguerites,	
Asparagus plu-		per doz.	12 0-15 0
mosus	12 0-15 0	Neprolepis, in	
—Sprengeri	12 0-18 0	variety	12 0-18 0
Aspidistra, green	48 0-72 0	—32's	24 0-36 0
Asplenium,		Palms, Kentia	24 0-30 0
per doz.	12 0-18 0	—60's	15 0-18 0
—32's	24 0-30 0	—Cocos	24 0-36 0
—nidus	12 0-15 0	Polyanthus Roses	
Cacti, per tray,		48s. per doz.	12 0-18 0
12's, 15's	5 0-6 0	Pteris, in variety	12 0-21 0
Crotons, per doz.	30 0-42 0	—large 60's	5 0-6 0
Cyrtomium	10 0-15 0	—small	4 0 4 6
Fuchsias		—72's, per tray	
48 per doz.	9 0- "	of 15's	3 6-4 0
60 " "	4 0-6 0		

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Achillea, The Pearl		Lavender	
—per doz. bun.	4 0-6 0	per doz. bun.	9 0-12 0
Alstromeria		Lilium	
—per doz. bun.	6 0-9 0	—longiflorum	6 0-7 0
Adiantum deco-		—speciosum	
rum, doz. bun.	8 0-10 0	long per doz.	4 6-5 0
—cuneatum,		short, "	4 0-5 0
per doz. bun.	6 0-8 0	Lily of the Valley,	
Asparagus plu-		per doz. bun.	24 0-36 0
mosus, per bun.		Marguerites, yellow,	
long trails, 6's	4 0-5 0	per doz. bun.	3 0-4 0
med. sprays	2 6-3 6	—Cattleyas	12 0-18 0
short	1 0-1 6	—Cypripediums	6 0-9 0
—Sprengeri, per bun.		Pelargonium,	
long sprays	2 6-3 0	per doz. bunch,	
med.	1 3-1 6	—double scarlet	10 0-12 0
short	0 9-1 0	Richardias (Arums),	
Asters per doz. bun.		per doz.	6 0-8 0
—White	4 0-8 0	Roses, per doz.	
—Coloured	3 0-8 0	blooms—	
Carnations, per		—Frau Karl	
doz. blooms	1 6-3 6	Druschki	1 3-1 6
Cornflower, per		—Madame A.	
doz. bundle	1 6-2 0	Chatenay	1 6-2 6
Croton leaves,		—Melody	1 6-2 6
various, per bun.	2 6-4 0	—Niphetos	1 6- "
Chrysanthemum		—Ophelia	2 0-3 0
maximum, per		—Liberty	2 0-3 0
doz. bun.	3 0-6 0	—Richmond	1 6-2 6
Coreopsis, per		—Sunburst	1 3-2 6
doz. bun.	1 6-2 0	—White Crawford	1 6-2 0
Gaillardia, per		Scabiosa caucasica,	
doz. bun.	3 0-3 6	per doz. bun.	4 0-5 0
Fern, French		Statice, per doz. bun.	
per doz. bun.	1 0-1 3	—mauve	6 0-9 0
Gardenias, per		—white	6 0-8 0
box	6 0-8 0	—yellow	6 0-9 0
Gladiolus Halley,		Smilax, per	
per doz. spikes	2 6-4 0	doz. trails	4 0-5 0
—The Bride,		Stephanotis, per	
per bun.	1 0-1 6	72 pips	1 6-2 0
Gypsophila		Stock, double	
paniculata		White	6 0-10 0
per doz. bunch	9 0-12 0	Sweet Peas,	
—Dorbie White,		—Coloured	4 0-9 0
per doz. bunch	12 0 18 0	—White, doz. bun.	4 0-9 0
Heather, white,		Sweet Sultan, white	
per doz. bun.	12 0-15 0	per doz. bun.	3 0-6 0
Iceland Poppies		—mauve	3 0-6 0
per doz. bun.	1 6-2 0	per doz. bun.	3 0-6 0
Lapageria		Violas, per doz.	
per doz.	3 0-3 6	bun.	2 0-2 6

REMARKS.—In this department trade still remains at a very low ebb. Country orders appear to be falling off, and many lines are much above requirements. Carnations and Gladiolus are most prominent, and some fine blooms of the latter are arriving from Holland in fine condition, but they are over-supplied, and consignments are difficult to clear even at greatly reduced prices. The Bride (white) is more limited in quantity, and prices remain normal. Roses mostly consist of second-rate blooms, and prices are firmer for better quality blooms. All outdoor blooms are abundant, the double white Gypsophila paniculata being one of the most popular kinds. The supply of all Statice exceeds the demand. Asters are improving in quality, and a few bunches of white and bronze Chrysanthemums are on sale, but there is no demand for them or for the few Dahlias also offered. Sweet Peas vary considerably in quality and price, and the best blooms are soon cleared. The supply of Liliums appears to be shorter, and prices show a tendency to rise, especially for *L. longiflorum*. White and pink *L. speciosum* are still in excellent condition. Lily-of-the-valley has also been reduced in quantity, but Stephanotis is more plentiful, as are white and mauve Sweet Sultans. Orchids are scarce and the supply very irregular.

GARDENING APPOINTMENTS.

Mr. E. Jolley, previously Gardener to Mrs. MARIAM PORCELLI-CRIST, of The Wayside, Southbourne, Sussex, as Gardener to VISCOUNTESS PERL, Leydena, Petersfield, Hampshire.

Mr. H. Parkinson, for the past 24 years Gardener to the late P. S. MATHEW, Esq., Duxbury Park, Chorley, Lancashire, as Superintendent to Chorley Corporation, at Astley Park. (Thanks for 2s. for R.G.O.F. Box.—Eds.)

Mr. Wm. Lewry, for the past 14 months Gardener at Snaitheg Brook, Sheffield, as Gardener to THE BISHOP OF COVENTRY, Bishopsholme, Coventry, entering upon his duties August 14. (Thanks for 2s. for R.G.O.F. Box.—Eds.)

Mr. F. J. Carter, for the past 18 months Gardener to J. P. EYRE, Esq., Heatherlea, Bulcombe, Sussex, as Gardener to E. V. WELBY, Esq., Rothbury, West Byfield, Surrey.

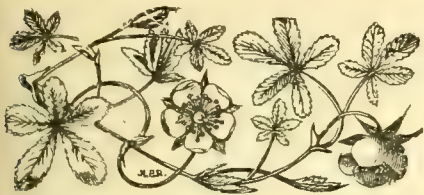
Mr. E. Gilman, late of Ingestre Gardens, asks us to state that his new address is Hillsdale, Huggleby.

CATALOGUES RECEIVED.

KING'S ACRE NURSERIES, LTD., Hereford.—Roses.

R. WALLACE & Co., LTD., The Old Gardens, Tunbridge Wells.—Iris and Iris Gardens

JOHN B. VAN DER SCHOOT, Hillegom, Holland.—Hyacinths, Tulips, Narcissus, Crocus, etc.



THE

Gardeners' Chronicle

No. 1859.—SATURDAY, AUGUST 12, 1922.

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 62.3°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, August 9, 10 a.m. Bar. 29.9; temp. 63°. Weather—Overcast.

The condition of the hardy fruit crops, as revealed by the tabulated returns on pp. 95 to 100, furnished us by growers in different parts of Great Britain and Ireland, is, with the exception of Strawberries, eminently satisfactory. Many of our correspondents have crops of all kinds of fruit in excess of the average, and a considerable number record quality above the normal. It is true that the tables reveal nothing of an exceptional nature in either abnormal yields or deficiencies, but they prove that it is a good fruit year generally, and very much better than was at one time anticipated. The most surprising feature the returns show is the splendid crop of Apples, which, after the record yield of last year, might have been expected to be small this year. Yet, of a total number of 183 returns for this fruit, no fewer than 52 of our readers record crops in excess of the average; of the remainder 87 are given as normal yields and only 44 growers report a deficiency. Pears are even better than Apples, for the great bulk of our correspondents have splendid crops of this fruit. Of the 183 returns sent in, more than one-third record an "over" crop, whilst nearly half are equal to the average yield, with only 26 "under" crops. Stone fruits come out exceedingly well and especially Plums. This year 94 of the 183 returns for this fruit are given as "over" compared with 4 in 1921, and the "average" crops total 61, with only 28 under crops, compared with 187 last season. Cherries also are plentiful, as is shown by the large

number of 99 average crops out of 169 returns, whilst 36 of our correspondents have crops of Cherries in excess of the normal. Peaches and Nectarines are bearing exceedingly well, and it is interesting to find that northern growers have unusually fine crops of these exotic fruits. This is doubtless due to the exceptionally fine weather late in May, when the blossom expanded under ideal conditions for setting. Apricots are also fruiting freely and the number of returns for this fruit over or equal to the average is far in excess of the number of "under" crops. Small fruits, which, taking one year with another, are by far the most consistently regular in cropping, come out exceedingly well with 114 average yields, 54 in excess of the normal and only 15 below the average. Strawberries are, as stated, the most disappointing crop of all, for which a variety of circumstances are responsible. It is probable that the exceptional drought of last summer is partly responsible, for in many districts the crowns were starved through an insufficiency of nourishment, and strong runners for planting were exceptionally scarce. At blossoming time, many of the flowers were blackened by frost and a period of exceptionally dry, hot weather prevailed at the time when the berries were swelling.

The last column in the tables shows that ruts are more plentiful than usual, with yields of 48 average, 47 over, and only 15 under crops of the 110 returns sent us.

Taking the various items in the tables collectively, the records point to a good fruit year generally, and show that northern growers are especially favoured. Only one of our Scottish correspondents has an under crop of Apples, and only one an under crop of Peaches and Nectarines. It is also interesting to find that this is exactly the same in the case of Ireland, although the number of returns from that country is relatively a small one. Such a year of plenty, without there being a glut of any kind of fruit, may be regarded as an ideal one, as very fat years are almost invariably followed by lean ones and, contrary to popular belief, are unprofitable to market growers, for the returns from glutted markets are always poor. Not for a great many years was the wood of our hardy fruit trees so thoroughly well ripened as in the autumn of 1921, therefore fruit buds were plentiful. As a consequence of this, fruit blossom was produced in abundance this spring, the Plum and Pear orchards especially being white with the flowers. Fortunately the season of blooming was late, for although the weather from Christmas to May was not exceptionally cold, the winds were chilly and much rain fell, making the soil cold and retarding root action. Thus, when the brilliant spell of weather set in on Saturday, May 6, vegetation was quite a month backward and only a few precocious blossoms expanded, for on Tuesday, May 9, the weather turned cold again and continued dull and cold until Saturday, May 20. Thereafter the weather was gloriously fine and the belated flowers opened and set freely, as the results in the Grand Summary table for 1922 prove.

Rose Trials at Wisley.—We learn that the Council of the Royal Horticultural Society has decided to establish a plantation of Roses in order to compare the behaviour of different varieties in the garden. The Council regrets that in spite of long negotiations, the National Rose Society has not seen its way to co-operate, but a confident appeal is made to Rose-growers for assistance in making this effort a success. A portion of the newly acquired farmland at Wisley has been set aside for the purpose, pro-

viding ample room with space to expand in the future, and while the primary object of the plantation will be the testing of new varieties of all classes against well-known standard varieties, it is hoped also to increase the collection of Rose species, which is already considerable. The varieties planted will be reported upon at intervals and awards will be made according to their value for use in gardens. The tests will be made, as a rule, with not fewer than six plants of each variety, and all varieties sent for trial should reach the Director, R.H.S. Gardens, Wisley, Ripley, Surrey (if by rail, L. and S.W. Rly., Horsley Station), on or before November 15. The Director will also be glad to receive offers of standard varieties for planting for comparison. The Council hopes that this Rose trial ground will eventually be developed into a National Rose Garden for Great Britain, where Roses of all types will be well represented.

American Iris Society's Lists.—The American Iris Society has compiled a list of names of about eight hundred Bearded Irises and graded the varieties according to merit. The highest possible rating was ten points, but the twenty-five jurors were instructed that "the recent work of breeders forecasts far superior development than known at present, so that no variety should be given ten." Standard varieties have been chosen and rated, and by the side of these the varieties introduced since 1916 are listed, according to their quality. Thus, the highest rated variety is Lent A. Williamson, which receives 9.6 points, and it is alone, with no standard variety of similar merit for comparison; Lord of June is a 9.1 variety; Alcazar, 8.9; pallida dalmatica, 8.8; Crusader, 8.7; Edouard Michel, 8.6; Lady Foster, 8.5; Anna Farr, 8.4; Ambigua, 8.3; Delicatissima, 8.2; Carthusian, 8.1; and Col. Candelot, 8.0; these, of course, are only the standard varieties which head the higher ratings. When the American list has been checked by English and French growers, and published with any amendments that seem desirable, it should prove a valuable guide to all who propose to plant Bearded Irises or keep their collections up-to-date.

Bank Holiday at Kew.—Although the weather was very unpromising in the morning, over 20,000 persons visited the Royal Gardens, Kew, on August Bank Holiday. It is pleasant to record that the notices, which were displayed at the chief entrances, requesting the public to place waste paper, etc., in the receptacles provided for the purpose and not to spoil the beauty of the gardens, were generally observed, so there was not the unsightly litter so commonly associated with Bank Holiday crowds. For the most part, the early visitors patronised the glasshouses and the museums, but later on in the day the outdoor departments received their full share of attention. In the herbaceous borders the tall Hollyhocks, Sweet Peas, and other seasonable flowers attracted great crowds, while those who have an eye for colour when associated with foliage admired the large shrubbery bed near-by, where the golden forms of Catalpa bignonioides, Elm and Negundo contrast finely with the rich purple of Prunus pissardii and the Purple-leaved Filbert. Flowering trees are not numerous at this time of the year, but those who discovered Aesculus parviflora by the T. Range, and again just beyond the ruined arch, were amply repaid. The Mount Etna Broom was still beautiful, and very soon the large bed of Tamarix pentandra, by the Broad Walk, will be a mass of soft, pinkish blossom. There were many features of interest along this chief approach, such as the beds of brilliant Pentstemon Southgate Gem and the delicately beautiful variety Daydream. The old favourite, Verbena venosa, is a mass of glowing purple flowers, and rich colour is provided by Begonia semperflorens Bonfire. An unusual summer bedding feature is the two large beds of perpetual-flowering Carnations bordered with Prichard's garden Pinks in the best varieties, and this is especially successful. The flower garden proper is not yet quite at its best, but the bright scarlet of Pelargonium Paul Crampel and the intense crimson foliage of Coleus Verschaffeltii

were greatly appreciated during the dull weather. Dahlia enthusiasts were impressed by the splendid appearance of the plants in the several large beds near the Timber Museum. Their condition augurs well for an autumn display. The "conservatory" has been especially bright during the holiday with Begonias of many types and sorts, Celosias, Lobelia tenuior, Plumbago capensis, Statice sinuata, and many other kinds. The principal attraction to the public in the T. Range is the Giant Water Lily (*Victoria regia*), and this is excellent just now. Several plants of *Nymphaea gigantea* Hudsoni have been bearing their large, rich blue flowers over a long period. On the roof there are Allamandas and *Aristolochia gigas* Sturtivantii, bearing its enormous, quaint flowers, while at one corner of the Lily tank the cotton of commerce (*Gossypium herbaceum*) has set a goodly number of pods, which soon will burst and disclose the hidden wealth of fibre. At the other end there are floating plants of the Water Hyacinth, which is reported to be again such a pest in the American tropical rivers as to render navigation wellnigh impossible.

Potato Trials at Ormskirk.—The Ministry of Agriculture's Wart Disease Immunity Trials which are carried out each year at the Potato Testing Station of the National Institute of Agricultural Botany, Lathom, Ormskirk, will be open for inspection by the public on Thursday, August 24; the demonstrations will begin at 10 a.m. Sir Daniel Hall, the Ministry's chief scientific adviser, will preside at lunch, which it has been arranged to provide on the grounds at 1 p.m. Tickets for lunch are obtainable from Miss Whitehead, at the Potato Testing Station Office.

Mr. W. G. Brazier.—For many years the exhibition of the Shropshire Horticultural Society, at Shrewsbury, has been regarded as the most important of the shows held in the provinces. Like many other large undertakings, it commenced in a very small way, and for a long period after its inception the exhibition was managed very largely by the inseparable friends, Mr. Adnitt and Mr. Naunton, who were co-secretaries. When, owing to advancing years, they retired, Mr. Brazier, who had been associated with them in many ways, was appointed secretary, and he has held office since 1913. Visitors to the great exhibitions held in The Quarry will readily understand that secretarial duties connected with such an exhibition and its numerous associated entertainments must be very onerous, but those who have the most intimate knowledge of affairs will readily concede that Mr. Brazier has proved an admirable successor to Messrs. Adnitt and Naunton, and that under his regime the high position of the Shrewsbury Fête has been maintained. Mr. Brazier does not rest satisfied with things as they are and is always looking out for improvements, consequently he is usually to be seen at Chelsea, York, Wolverhampton, and other large exhibitions, on the look out for new classes or for suggestions which may eventually materialise at Shrewsbury. In view of the exhibition to be held on the 16th and 17th inst., we have much pleasure in publishing Mr. Brazier's portrait.

Appointments for the Ensuing Week.—Monday, August 14.—United Horticultural Benefit and Provident Society's meeting; Bath Gardeners' Society's meeting; Purley Horticultural Society's meeting. Tuesday, August 15.—Clay Cross Horticultural Society's show; Dublin Horticultural Society's show (two days). Wednesday, August 16.—Fraserburgh Horticultural Society's show; Derbyshire Agricultural and Horticultural Society's show (two days); Keymer, Clayton and Hassocks Society's show; Shropshire Horticultural Society's show (two days); Banff Flower Show. Thursday, August 17.—Bembridge Horticultural Society's show. Friday, August 18.—Perthshire Royal Horticultural Society's show (two days); Eastbourne Horticultural Society's meeting; Forfar Flower Show (two days); Rothsay Flower Show (two days). Saturday, August 19.—Felling and District Horticultural Society's show (two days); Laurencekirk

Flower Show; London and North-Western Railway Horticultural Society's show at Belle Vue, Manchester; Falkirk Horticultural Society's show; Dollar Flower Show; Kippen Flower Show; Burnley and District Horticultural Society's show; Maybole Flower Show; Alyth Flower Show; Beattock Flower Show; Blackwood Flower Show; Burntisland Flower show; Coupar-Angus Flower Show.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Pruning the Banksian Rose.* This Rose differs widely in appearance from other Roses, and the difficulty experienced by many in inducing it to grow and flower freely points out the error of treating it as other Roses. It is met with in the regular course of business, and the question that it is a Rose being satisfactorily determined, it is pruned as a Rose; the how, when and where being never once thought of. Hence the cause of the disappointment that so frequently ensues. Now, how pleasant it would be if, with a little management, the many barren plants could be induced to change their character, and thus convert barrenness into a source of admiration and delight. To accomplish this end, do not prune the Banksian



MR. W. G. BRAZIER.

SECRETARY OF THE SHROPSHIRE HORTICULTURAL SOCIETY.

at set seasons as with other Roses. It is disposed to form strong shoots in the summer time. Watch for the appearance of these, and so soon as they are about a foot long, pinch off their tops. In consequence of this check, they will form laterals, which become well ripened and flower with certainty. It is necessary to cut their tops off early in spring, and from this period the plants should be watched throughout the growing season. Where too many shoots arise from one spot, let some be broken out entirely when young, and let the others be stopped when they attain the length before mentioned. There was a plant which covered one side of a house in this neighbourhood, but which was unfortunately destroyed by the severe frost during the winter of 1837-8. It was subjected to the treatment mentioned above, and produced annually thousands of its beautiful blossoms. *A. Z., Gard. Chron., August 14, 1847.*

Publications Received.—*Shakespeare's Garden.* By Ernest Law. Selwyn and Blount, Ltd., 21, York Buildings, Adelphi, W.C.2. Price 3s. 6d. net. *British Basidiomycetes.* By Carlton Rea. Cambridge University Press, Fetter Lane, E.C.4. Price 30s. net. *Peat Scab in the Western Province.* By V. A. Putterill. Bulletin No. 2, 1922. Government Printing Office, Pretoria. Price 3d.

NOTICES OF BOOKS.

The Dahlia.*

THIS attractive, well printed and brightly written manual on a very popular American floral favourite deserves a special word of recognition, for many years have elapsed since anything similar has been published on the Dahlia. The book is adorned with a coloured frontispiece of a decorative variety raised by the author; there are several photographic process blocks neatly and artistically executed, and no fewer than 314 pages of text contained within its dark green cloth and gilt-lettered covers.

Being written for American growers, we can scarcely be expected to criticise the cultural methods recommended, but a brief résumé of the contents will help readers to form an idea of the general scope of the work so pleasantly discoursed upon by the lady who has undertaken, and with success, the production of so important an addition to Dahlia literature.

The book is divided into fifteen chapters without counting the Chart and Index. History and early Dahlia culture are superficially dealt with. Then follow special chapters on Situation, Soil Propagation, Breeding, Planting, Staking, and Fertilising, Cultivating, Watering, etc., Frosts, Pests and Remedies, Cutting, Packing and Shipping, under all of which headings the details are more or less elaborated.

We then get one on Dahlia Shows, another on Colour Combinations, and still another on Varieties in Alien Soil and Climate, each of which will raise in the reader's mind some idea of the matter under treatment.

It is curious that this book, which is a first attempt on the part of its author, should be by a lady enthusiast. The same remark applies to the very handsome work on the Paeony, by Mrs. Edward Harding, and so we must, of course, make allowances for little faults which might not be so readily excused on the part of more experienced authors. It would have been well for Mrs. Stout to have consulted *The Gardeners' Chronicle* before compiling her little bit of Dahlia history. In "the Pompon Dahlia," which appeared in the issues for September 2, 9, and 16, 1916, and also in another article entitled, "When Was the Dahlia First Introduced into England," which appeared in the issue for the 23rd of the same month, much information is contained which would have prevented Mrs. Stout from falling into the errors she has committed in matters historical.

Her somewhat effusive paragraph relating Cervantes' despatch of Dahlias to Cavanilles of Madrid is ambiguous, and we are tempted to ask were "seeds" really sent to Europe or were tubers? The reader is certainly left in a dilemma when, following the year 1787, we are told, "At that time the Marquis of Bute was British Ambassador to Spain, and his wife . . . begged a few seeds and sent them home for trial there." As a matter of fact, this story is apocryphal. There was no such person as the "Marquis" of Bute at that time, as the title was not created till 1796. The Earl of Bute was not then British Ambassador at the Court of Madrid, and it was not while Lord and Lady Bute were at Madrid that the Dahlia was introduced into Kew Gardens, but in 1798, when they had returned. Lady Bute obtained the Dahlia, with other plants, for Kew Gardens through the kindly offices of Ortega of Madrid. No one has any right to falsify history.

It is perfectly certain that the author's allusion to Hartweg of Karlsruhe and the Pompon Dahlia are at variance with the facts. She states, "In 1870 . . . appeared a tiny ball-shaped blossom, originating probably with Hartweg of Karlsruhe, which he called 'Pompon.'" The Pompon Dahlia was never known in Hartweg's lifetime; he died about 1830, after labouring to bring about duplication in the old single-flowering Dahlias, originally introduced from Mexico into Madrid and thence into England. The Pompon first made its appearance in 1850. It was the product of a well-known German raiser of Dahlias—Sieckmann of Köstritz.

* *The Amateurs' Book of the Dahlia.* By Mrs. Charles H. Stout. Wm. Heinemann 20-21, Bedford Street, W.C.2. Price 10/6 net.

There are some curious typographical errors requiring alteration in a new edition, viz., "Icones et Descriptions Plantarum," on p. 12; then "Paradisus londinensis," on p. 16. One would have thought that the great Frenchman, André Thouin, was well known enough, yet three times, on one page and once in the Index he is erroneously referred to as "Thuin." Casually turning over the pages, we observe the systematic use of the mongrel word Collarette in place of Colletette, but some English writers are also guilty of this malformation. Our old Belgian friend Jules Closon appears on p. 216 as Jules Closson, but excuses may be made perhaps for unfamiliar foreign names, though why does Mrs. Stout illtreat her fellow countryman Ridgway, when she erroneously tells us she always uses "Ridgeway's Colour Chart"?

HARDY FLOWER BORDER

THE DOUBLE CARDAMINES.

ONE of the brightest plants in bloom in May is the double lilac variety of *Cardamine pratensis*, our Lady's Smock, which forms a compact little plant about a foot high, almost covered with its bright lilac flowers. I was for some time under the impression that this was simply an old form which, with the white variety of the double *C. pratensis*, was grown in gardens long ago, and which had flowers of a warmer hue than the white. I had lost sight of this old, coloured one for some years and had not an opportunity of comparing it with *C. pratensis* *lilacina plena*, but I now feel sure the latter is a brighter and better plant for the border or rock garden. The old one more nearly approaches the description of Shakespeare, who says:—

"And Lady-Smocks with silver white

Do paint the meadows with delight."

Its colour is more "silvery" than pure white, and if we examine the flowers of the wild single form we shall see white and several shades ranging from the faintest to a deeper lilac. But *à nos moutons*, as my object is to speak of the double varieties as garden plants, not to discuss the variations of the wildings. All the three double varieties I know are very pretty border plants with many flowers of quite doubleness and very symmetrical in their formation, yet not in any way stiff. One is pure white, another the very palest lilac, and the third, which I have had in flower, of a warm lilac. While the plants naturally like a moist place, they do not resent a dry soil, and I have grown them quite satisfactorily in that medium. When April and May come they help with other flowers "to paint" the garden "with delight," and are most satisfactory plants in every way. S. Arnott.

CULTURAL MEMORANDA.

CUCUMBERS IN PITS AND FRAMES.

OLD Cucumber plants which have been in bearing a long time will now begin to show signs of failing vigour, no matter how well they may have been cared for. If these cannot be dispensed with, their vigour may be improved by cutting them over and top-dressing the roots with fresh turf and bone-meal, by feeding with tepid liquid manure and by syringing. F. J.

LACHENALIA.

LACHENALIAS will now have thoroughly ripened up their bulbs, and these should be shaken from the old soil, graded and repotted. The largest bulbs should be chosen, and six or seven placed in a 4-inch pot, while to increase the stock the smaller bulbs may be grown in shallow boxes. Lachenalias also make a fine display when planted fairly thickly in shallow pans. The potting compost should be fairly rich and made porous by the liberal use of silver sand. After potting, stand the pots of bulbs on a bed of cinders in a cold frame, and give water sparingly until growth commences. Afterwards they should be stood on a shelf near the roof glass in a cool greenhouse. T. P.

TREES AND SHRUBS.

SYCOPSIS SINENSIS.

THIS interesting member of the genus Hamamelidaceae was introduced by Mr. E. H. Wilson, in 1901, when collecting for Messrs J. Veitch and Sons. It is an evergreen shrub or small tree, and is said to grow to the height of twenty feet in its native home in central China, where it was found at an altitude of 4,000 feet. It has somewhat leathery leaves, either entire or toothed towards the apex, dark green above and paler green beneath.

The small unisexual flowers are borne in short dense clusters (Fig. 38) rather less than an inch long, but the modestly showy part of the inflorescence is provided by the reddish-brown bracts and the yellowish stamens. *Sycopsis sinensis* flowers in February and March, and has proved quite hardy at Kew and Aldenham; sprays of it were exhibited

ripen? They are so inaccessible that we will have to wait for them to fall. M. J. Woodward, Arley Castle, Beudley.

OLEARIA NUMMULARIAEFOLIA.

THE above species was introduced from New Zealand, in 1899, by Messrs. J. Veitch and Sons, yet to-day there are many who regard it as too tender to withstand our climate outdoors. It has been omitted by Mr. W. J. Bean from his book, *Trees and Shrubs Hardy in the British Isles*, probably for this same reason. Soil and situation may have something to do with the matter of hardiness, but it certainly looks hardy enough in the garden of Miss Willmott, at Warley Place, Great Warley, where a clump of it measures six by six feet. The plants are the tallest I have seen, and are perfectly healthy. Amongst other shrubs, in full exposure, it looks different from anything else with its small, roundish, evergreen leaves, densely arranged on the shoots.

Contrast in foliage and its compact habit are its most striking features, and if it behaves



FIG. 38. SYCOPSIS SINENSIS.

from the latter gardens at one of the spring meetings of the Royal Horticultural Society this year. The neat habit and evergreen character of the shrub make it a useful plant for the garden, but its flowers must be regarded as interesting rather than beautiful.

PINUS LAMBERTIANA AT ARLEY CASTLE.

It may interest your readers to know that the *Pinus Lambertiana*, in the Arley Castle grounds, is now, in the 96th year of its age, bearing its first cones.

There are four long, slender, pale green cones hanging from the topmost branches. This tree is said to be the only survivor, in this country, of plants from the original seeds sent over by Douglas from Oregon in 1826, and distributed by the Royal Horticultural Society in 1827. It is now a fine specimen, being 98 ft. high and having a girth at 3 ft. of 12 ft. 2 inches. It seems strange it should wait so long to bear fruit, as trees of the same species planted at Kew and other places in 1872 had cones in 1920. The two specimens of *Pinus ponderosa* of the same date and origin as *P. Lambertiana*, in the Arley Castle Arboretum, have borne cones for many years.

Are any of your readers able to state how long the cones of *P. Lambertiana* will take to

elsewhere as it does at Warley Place it would deserve a place in any garden where evergreen shrubs like *Phillyrea* and *Osmanthus* are grown for the sake of their foliage. J. F.

ORCHID NOTES AND GLEANINGS.

BULBOPHYLLUM GALBINUM, RIDLEY.

SPRAYS of this singular, large-flowered, Malayan species, each with two flowers, are sent by Messrs. Armstrong and Brown, Orchid-hurst, Tunbridge Wells, where the species thrives well in a warm house in company with its nearest ally, *B. Reinwardtii*, and others of the evergreen species, with distant pseudobulbs on running rhizomes and natives of the Malay Archipelago.

The flowers have wax-like, greenish-yellow sepals with a few red markings, and they incline forward over the column. The petals are small, and the main attraction of the flower is the comparatively large front lobe of the lip, which is delicately hinged and moves with the slightest touch or change of position, the bright purple colour, no doubt, acting as an attraction to the insects necessary to secure fertilisation, an operation which the tilting of the lip facilitates.

The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the
DUKE OF MARLBOROUGH, K.G., Blenheim Palace,
Woodstock, Oxon.

Platyclinis. Plants of *P. filiformis* are most delightful objects when in flower, their graceful spikes of beautiful yellow flowers having earned for this species the name of the Golden Chain Orchid. This family of plants is subject to attack of red spider. The plants will derive benefit from a daily spraying overhead, and on the underside of the foliage until their tiny flowers open. Specimens of *P. glumacea* that have finished their growth will need little water at the roots, but must not be allowed to suffer from drought. *P. Cobbiana* and *P. uncatia* require similar treatment. All are plants of easy culture, and may be grown in an ordinary plant house, where the delicate perfume of *P. glumacea* will be greatly appreciated. All the species of *Platyclinis* thrive well in a shady position in the intermediate house the whole year round. Formerly these plants, like a great many other Orchids, were coddled and ruined by being grown in too much heat and given too little fresh air; but since more rational treatment has been adopted much better results have been attained. Being natives of the Philippine Islands, it was considered necessary to give them very warm, moist, tropical treatment, but the plants, as a rule, deteriorated under it. These pretty Orchids may be repotted after the flowers fade, or at the commencement of growth. Shallow pans are preferable to pots, as they are more easily suspended from the roof, where the plants will enjoy all the light possible, which is a considerable factor in their cultivation; but they should be shaded from strong sunshine. They root freely in a compost of equal parts of chopped *Osmunda* fibre and *Sphagnum* moss. Freshly potted plants should be very carefully watered, merely spraying the surface of the compost to keep it moist, and giving a little extra shade until they become re-established.

THE FLOWER GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY
GIBBS, Aldenham House, Hertfordshire.

Herbaceous Borders.—Whilst the shrubberies are being dealt with, the hardy flower borders should not be neglected, but examined from time to time, staking and tying the plants where necessary, and clearing away dead flowers, as well as untidy foliage when it has ripened off, such as that of Oriental Poppies, which is better shortened than left spreading around in unpicturesque fashion.

Tropaeolums.—There are two species of this genus that deserve mention now. Firstly, I would refer again to *T. speciosum*, that wonderful little climber that is doing so wonderfully well this year with its countless small flowers of vivid scarlet hue. This was a difficult plant to get established at Aldenham, but our struggles with it have been amply repaid, for it is a wonderful picture threading its way through the growth of a tall Yew, or wandering in and out of a hedge, and forming what are practically long lines of scarlet blooms. Those who have seen it growing in Scotland will know that I am not too extravagant in my praise of it, for it does wonderfully well north of the Tweed. The other species is *T. majus*, commonly known as "Nasturtium," a term properly applicable to *Watercress*. This is an old cottage garden favourite, and we grow both the climbing forms and the Dwarf, or Tom-Thumb, varieties. The former we generally grow after the manner of Runner Beans up poles—with good effect.

HARDY FRUIT GARDEN.

By H. MARKHAM, Gardener to the EARL OF STRAFFORD,
Wrotham Park, Barnet.

Strawberries.—Plants raised in small pots for producing large, early fruits next season should be planted at once—if the pots are filled with roots—on suitably prepared land. Plant them firmly and not too far apart in the rows. Keep runners removed and the soil amongst the rows clean and free from weeds. If the land is in good condition the plants should do well and by the end of the season have developed the strong, sturdy, well-ripened crowns which are necessary for the production of large fruits. Keep all the earliest sorts together, following on with the later varieties. Those intended for supplying very early fruits should be planted on a sheltered border in a sunny position.

Summer Pruning.—Push forward this work as fast as possible, taking great care to preserve all leaders and other young shoots needed for filling up space. Give the foliage a thorough washing before the fruits ripen. All trees have greatly improved since the rains and those trees that are bearing light crops should build up good buds for next year's supply.

Pears.—Where trees are bearing very heavy crops some amount of thinning is desirable both for improving the size and quality of those left to mature and to assist the trees in forming stronger buds by the end of the season. Although much rain has fallen do not overlook the roots of trees on walls and supply both water and liquid manure if necessary.

Young Bush Trees.—Young trees that are making rather weakly growth should be encouraged by mulching the root area with well-decayed manure. Trees bearing heavily should have the smaller and ill-placed fruit removed; quite small Apples make very good jelly, so the fruits removed need not be wasted. It is advisable to regulate the crops according to the strength of the growth. Bush trees should be largely planted where there is insufficient room for standards, as they usually crop freely when quite young.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER CLAY,
M.P., Ford Manor, Lingfield, Surrey.

Early Vineries.—The growth on early vines from which the Grapes were cut last month will now be getting ripe, and the foliage changing colour, which will indicate a satisfactory condition of the roots. If they are quite clean and free from insects the use of the syringe may be somewhat relaxed. Laterals that have had full liberty must now be checked by partial shortening, a few only being left to keep the roots in action to plump up the buds for another year. Examine inside borders, and if well drained do not be afraid of watering them for a few hours by means of a hose, as the roots of Vines should not want for water. The mulching must not be removed until the time arrives for top-dressing in October, when all should be raked off, the surface pricked up, and well dusted with bone-meal, vine manure, and lightly covered with fresh compost.

Late Vines.—The scalding period having passed away, houses containing Lady Downe's and other late varieties may now be ventilated freely, but by no means excessively. The house may be closed, with sun-heat, early in the afternoon for a few hours, fresh air being admitted throughout the hours of darkness. Treated in this way, the Grapes will swell fast with a minimum of fire-heat and in warm districts without it. If not already done the thinning scissors should be used for the last time, especially on bunches inclined to "bind," a very serious defect in Grapes expected to hang through the winter. Generous supplies of weak liquid manure, not only to the roots but also for damping purposes, should be given for a month after this date, but when colouring is well advanced, pure water may be substituted.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir C. NALL-CAIN, Bart.,
The Node, Codicote, Welwyn, Hertfordshire.

Richardias.—Plants that have been dried off in their pots should now be shaken out of the old soil and repotted. If the same receptacles are to be used they should be washed clean and allowed to become dry again before potting takes place. The compost may consist of good loam, leaf-soil and sand, with a moderate sprinkling of bone meal. The tubers should be placed in their flowering pots at once; after potting arrange them on an ash bed in a cold frame, for preference under a north wall, and during fine weather the lights should be left off both day and night. Very little water is needed until the plants show signs of active growth. *Richardias* that have been planted out of doors should be lifted in due course and placed in their flowering pots, but it is not advisable to allow them to make excessive growths before lifting them.

Cyclamen.—To obtain an early batch of *Cyclamen* for flowering in the autumn of next year seeds should now be sown in pots or pans thoroughly well drained with broken crocks or some other rough material. The soil may consist of good, open loam, leaf-soil, and a liberal supply of sand, and the mixture should be passed through a very fine sieve. After filling the receptacles water the soil with a fine rose can and allow it to drain for several hours before sowing the seeds, which should be placed about half an inch apart. This method of sowing will greatly facilitate the potting up of the young seedlings when they are sufficiently large. The soil should always be kept uniformly moist, and the receptacles covered with a sheet of glass and shaded from bright sunshine until germination takes place.

Violets.—Violets placed in beds out of doors to produce plants for flowering in frames during the winter and spring months are now growing freely, the recent rains having greatly benefited them. Remove runners as they appear and keep the soil lightly moved between the rows. A dusting of soot occasionally will be found very beneficial and during dry weather the plants should be sprayed, taking care that the moisture reaches the underside of the leaves; by this means red spider will be kept in check.

THE KITCHEN GARDEN.

By JAMES E. HATHAWAY, Gardener to JOHN BRENNAND,
Esq., Baldersby Park, Thirsk, Yorkshire.

Runner Beans.—These should have the points of growth pinched out as soon as they reach the tops of the rods. This will induce the plants to branch out and to produce finer pods. Plants which produce the longest and best shaped pods should be marked, and the seed saved from them. Give the roots plenty of liquid manure, but, if the weather is wet, dress the ground with a good fertiliser.

Spring Cabbage.—Sow a batch of Ellam's Early and Sutton's April on a bed of finely prepared soil, in rows one foot apart. Scatter in some old lime rubble, finely sifted, and also wood ash, over the seed bed. If birds are troublesome, cover the bed with netting. Another sowing should be made a fortnight hence, as a good deal depends upon the weather. If a very hot autumn follows sowing, the early batch often runs to seed in spring.

Onions.—Choose a well-drained site, prepare the soil as recommended for spring-sown Onions, sow the seeds in drills drawn one foot apart, and use Giant Rocca, Tripoli, Ailsa Craig, and Cranston's Excelsior varieties. Make a second sowing a fortnight later.

Watering.—Celery, Leeks, Runner Beans, and Cauliflowers require abundance of water, and even during showery weather the soil should be examined at intervals to ascertain what depth the rain has penetrated, as rainfall is often deceptive in this respect. Give liberal supplies of liquid manure occasionally or a dressing of some good fertiliser.

THE HISTORY OF THE MOSS ROSE.

(Continued from page 84.)

THE specimen referred to by Miss Willmott can be seen to-day. It will be remembered by those familiar with the history of the Chelsea Physic Garden that, when Sir Hans Sloane conveyed the freehold of the Garden to the Society of Apothecaries, a covenant was inserted in the deed, binding them to present to the Royal Society every year fifty dried specimens of distinct plants grown in their garden the same year until the number of 2,000 should have been delivered. It was in accordance with that covenant that Miller, as gardener to the Apothecaries Company, made the presentation, and the specimen No. 681, 1735, is still preserved in the British Museum, with a reference to Boerhaave's description, and presumably from the plant which was given to Miller by Boerhaave.

But this is not all. At the time I was shown the specimen No. 681, another one of Miller's specimens was produced for inspection, and this not a Dutch one, but a French one. It would appear that this second specimen, received some years later, was the type upon which Miller founded the specific name of *R. muscosa*, the name first used by him, as already mentioned, in the eighth edition of his *Dictionary*, No. 22, in the article *Rosa*. A very remarkable interest attaches to this specimen. Pasted on the sheet upon which it is mounted is a little note in a cramped, old-fashioned handwriting in Latin, viz., "*Omnium rosarum maxime distincta ab Armorica in Europam immutabilis tamen a Linneo confusum Centifolia.*" It was not Dutch, as the specimen came from Armorica, and Armorica is the old Latin name for that region in the north of France which lies between the Seine and the Loire, otherwise Normandy and Brittany as we know it to-day. Here, then, is some food for reflection with regard to Major Hurst's theory that the Moss Rose was grown by Fréard du Castel in Normandy in 1746, about which I shall reserve comments till I come to the question of the Moss Rose in France.

A few lines are necessary in regard to Major Hurst's ready acceptance without criticism of Shailer's palpable misstatement in his article which appeared in *The Gardeners' Chronicle* for 1852, in *The Midland Florist* for the year previous, and possibly in several other contemporary horticultural publications. Both in the *R.H.S. Journal* and in the *Rose Annual*, Major Hurst states that this is the year, 1735, which Shailer gives as the date of the first introduction of the Moss Rose. I cannot understand what useful purpose is served by dragging into what should be a history such irrelevant, contradictory, and false statements as Shailer's. He had no personal knowledge of the event, and was writing about it considerably more than a century after it happened. He evidently took but little trouble, like many others, to verify his dates and facts. It explains, amplifies, or proves absolutely nothing. Shailer's opening paragraph (see *The Gardeners' Chronicle*, 1852, p. 759, and *Midland Florist*, Vol. V., p. 182) is obviously an egregious blunder, and begins thus: "On the first introduction of the old red Moss Rose, in or about the year 1735, it was sent over . . . from the Italian States to Mr. Wrench, then a nurseryman and gardener at Broomhouse, Fulham." Is this the sort of evidence to be accepted without question? It has been shown that Furber offered it for sale in 1724, that Miller brought it from Holland in 1727, that at least two publications figured it in 1730, and that in the following year, 1731, it was described in Miller's *Dictionary*, and that it had been already grown at Chelsea and a specimen of it presented to the Royal Society in 1735; most of which facts had come to the notice of Major Hurst, who tells us—with what object in view it is difficult to understand—that Darwin (1893) quotes this reference of Shailer, and states the common double Moss Rose was imported into England from Italy about 1735. If Darwin did say so,

it is self-evident that he was misled and quite unaware of the facts, and there is no point in Major Hurst quoting the great scientist's error if the original introduction be meant, for it is absolutely contrary to ascertained facts and has no bearing on the main question, which is to establish the date of the first introduction of the Moss Rose into England.

This acceptance of irrelevant or unconfirmed matter is further exemplified in the statement on p. 34 of the *R.H.S. Journal*, where Major Hurst states: "We have seen that it was in cultivation in Holland in 1720, in England in 1727" (why not 1724?), "and in Italy in 1735." So far as the last-named country is concerned, we have seen nothing of the kind. All we have seen is that Shailer's opening paragraph is an obviously erroneous statement about the year of introduction, with the addition that the flower came from the Italian States. And, considering his ignorance of the date, it is not by any means convincing to be told that we have seen that the flower was cultivated in Italy in 1735. We can only be assured of the

the widow of the Comte de Vandes, himself an enthusiastic amateur horticulturist, should be referred to as the Countess de "Vanda's" garden. The famous Bayswater botanic garden contained a great number of horticultural rarities, and from it came many specimens which were figured in the horticultural and botanical publications of the early part of the nineteenth century. It may be mentioned that it was here that the single-flowered Moss Rose originated in 1807 or thereabouts, and was subsequently introduced into France by that great lover of horticulture, M. Boursault.

(C. Harman Payne.)

(To be continued.)

THE ALPINE GARDEN.

CAMPANULA ZOYSIL.

THIS charming little alpine bell-flower is so exquisitely beautiful that it deserves to be cultivated by all lovers of alpine plants, even though one has to go to considerable trouble



FIG. 39.—CAMPANULA ZOYSIL.

truth of this illogical conclusion by reference to contemporary Italian horticultural writers, not the *ipse dixit* of an elderly nineteenth-century Battersea nurseryman.

There is some little difficulty in keeping my criticisms in chronological order, and that is due to the fact that some of the evidence to be considered was published long after the events took place which it purports to record, but so far as can conveniently be done I have endeavoured to treat the questions serially.

Miss Willmott, in the chapter on the Moss Rose in *The Genus Rosa* makes the most unfortunate assertion that "the first illustration is certainly that in *Miller's Icones*." If by that title—and Major Hurst uses it too—is meant Miller's *Figures of the most beautiful plants described in the Gardeners' Dictionary*, etc., published in 1760, it would have been much better to have quoted the title correctly, for in such matters verbal accuracy must be insisted upon, so that the independent investigator be not needlessly thrown off the track. But this gifted lady amateur is just as certainly wrong, for at least half a dozen coloured figures of the Moss Rose were published between 1730 and 1760. It is a pity that the text of so beautiful a book should also contain in the same chapter such blemishes as the misprint of "Faber," where Furber is intended, and that the garden of another well-known lady amateur of about a century ago,

to cultivate it. It is a native of the Austrian Alps, and according to Nicholson was introduced from Carniola in 1813. It is an alpine gem that thrives in a sunny position in British soil and appears to be most satisfactorily accommodated in the moraine. The light blue flowers are very distinctly shaped from those of any other *Campanula*, the tube being somewhat angular and flask-shaped, contracted at the throat, with five short, triangular, connivent lobes.

In the *Gardeners' Chronicle*, August 15, 1896, the late Dr. M. T. Masters pointed out that the inner surface of these lobes is studded with hairs, the stamens being short and occupying the bottom of the flower tube. An insect visiting the flower would therefore have to push aside these segments, which would be more or less obstructed by the hairs on the inner surface, and would come into contact with the stigma on the elongated style. If the insect had come from another flower, most probably it would be dusted over with pollen, and that pollen would be deposited on the stigma.

In the young state the flowers are pendulous, but they become erect as they grow older. The tiny, roundish, green leaves form little flat tufts from the midst of which the slender flower stems rise. Several finely flowered examples in small pots were exhibited by Mr. M. Prichard, of Christchurch, at a recent meeting of the R.H.S., and one of these is illustrated herewith (Fig. 39). C.

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Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

THE MARKET FRUIT GARDEN

JULY seemed to be a wet month, because of the number of rainy days (16); but in reality the rainfall (2.91 inches) was not much over the average. The weather was mainly dull and unseasonably cold, so that

instructed to discard any cracked or damaged fruit, but it is impossible to get them to do that kind of thing thoroughly, particularly if they are on piece-work. Wherever I have had occasion to unpack a basket, I have found a number of Plums which were not fit for sale. This season, as I am packing in accordance with the marketing scheme of the Federation of British Growers, and so giving a guarantee that all fruit is sound when packed, I am bound to be more particular.

In spite of the bountiful crop, all our Plums are being passed over a sorting table, and any that are cracked or otherwise unsound or abnormal are thrown out. Much of the discarded cracked fruit is rotting by the following morning, which shows how desirable it is that it should not be included. The sorting, of course, involves extra work, but it should be well worth it. I have made a long, narrow table, with canvas top, with a gently sloping shoot at each end. A half-sieve is placed under each shoot, and the Plums are very quickly sorted over and run into the baskets by two girls. This is an example of the kind of improvement in marketing methods

I began to rogue my cutting bed by the leaf method, but the number left as healthy was so very small that I lost confidence and abandoned the task. Is it possible that an exceptional number of bushes are showing signs of reversion as a result of the abnormal drought of last season, and that they will recover? I should like to have Mr. Lees' opinion on this point. He mentions the spread of reversion from one bush to another. Is this a proved fact?

Mr. W. P. Seabrook tells me of another method of detecting reversion which has been practised with success in his firm's plantations for many years, and was their discovery. In this case the blossom is the criterion. On a normal bush the calyx is covered with a bright lavender-coloured down. On a reverted branch or bush the bloom is rather smaller, and the calyx is smooth, shiny, and dark chocolate-coloured, the petals being yellower than usual. The distinction is said to be very easily made. I must wait until next year for an opportunity to put this method to the test.

CHLOR-CRESOL AS AN INSECTICIDE.

I have previously (p. 324) mentioned the failure of chlor-cresol in a small trial against Currant leaf blister aphid. I now find that the Red Currants on the bushes sprayed with chlor-cresol are flavoured, so that they are quite unusable. Even the birds, which rapidly strip any unsprayed bushes that are left unprotected, fight shy of this fruit. The spraying was done whilst the fruit was quite small and green, and much rain has fallen since. This long-lasting taint might be counted in favour of chlor-cresol for use as a deterrent to birds and possibly insects in certain conditions; but apparently the material is not suitable for use on fruit in anything like an advanced state. *Market Grower.*

LILIUM GIGANTEUM AND MECONOPSIS WALLICHII.**TWO GOOD PLANTS FOR THE SOUTH-WEST OF SCOTLAND.**

PROBABLY no two plants are giving more pleasure and satisfaction than *Lilium giganteum* and *Meconopsis Wallichii* in the milder districts of the south-west of Scotland at present, early August.

The noble *Lilium giganteum*, with its handsome, shining, heart-shaped leaves, is just passing out of flower, and a group of it with fifty-two flowering spikes, many of them 10 feet high and bearing from 8 to 12 white, funnel-shaped flowers, has been a distinct feature in these gardens for some time. *L. giganteum* is easily grown either from off sets when the old bulb dies after flowering, or from seeds; the former method has much to recommend it once there is a plentiful supply of flowering bulbs. *L. giganteum* delights in a cool deep soil containing a very high percentage of humus, and a position sheltered from high winds. The illustration (Fig. 40) shows a small group in these gardens, and the average height of the plants is about 11 feet.

Meconopsis Wallichii, the beautiful Himalayan Poppy, seems to delight in our humid climate, for on measuring several plants in a group, I found they had attained a height of 7½ feet before opening their first flowers. This plant also seems to thrive best if grouped among shrubs in rich, well-drained soil. No prettier object than a group of these handsome Poppies with their beautiful, drooping, pale blue flowers, can be desired, and although only a few flowers open at one time, the display continues for many weeks.

Unfortunately, like many other interesting plants, this Poppy is of biennial habit, and for that reason is not so often seen as it ought to be. A few seeds sown every year will ensure a number of flowering plants, and even before they reach their flowering stage they possess a most attractive appearance. *R. Findlay, The Gardens, Castle Kennedy.*



FIG. 40. *LILIUM GIGANTEUM* FLOWERING AT CASTLE KENNEDY.

crops were kept in a backward state. The week before August Bank Holiday is often a very busy marketing week with me, South Coast towns being full of visitors; but this year only Rivers' Early Prolific Plums and Early Victoria and Early Julian Apples were ready to gather. However, a wet season really suits my light land, and the rainy July has done a great deal of good.

Plums, Apples, and Pears are now certainly to be of good size. Apples look particularly well, and promise to have plenty of colour, whilst there is hardly a speck of scab to be found. Practically every variety having been thinned, the trees look very attractive with the fruit evenly spaced and all very much of a size. The gale on July 5 did a good deal of additional thinning, but most varieties could stand it.

SORTING PLUMS.

Plums often go to market in a very unsatisfactory condition. I have never hitherto been satisfied with my own. The pickers are

which is bound to result where the Federation's scheme is adopted and carried out in a conscientious manner.

REVERSION IN BLACK CURRANTS.

Mr. A. H. Lees' remarks on reversion (p. 65) are of much interest. As mentioned in my last notes (p. 38), I have been using Mr. Lees' method of detecting reversion. Rightly or wrongly, however, I gave it up, because it meant the sacrifice of so many bushes that are still bearing a useful crop. Instead, I had to fall back on the second method, which he, no doubt correctly, describes as more risky, namely, examining the bushes when in fruit and marking for destruction any that are obviously reverted, as shown by their general appearance and the lightness of their crop. All these bushes, I admit, showed the reverted type and leaf venation; but, then, so did a great many others which are still in profitable condition. Probably some of the latter are only temporarily producing leaves of reverted type, and may recover, as Mr. Lees says happens in certain conditions, in which case I was right to spare them.

REPORT ON THE CONDITION OF THE OUT-DOOR FRUIT CROPS.

[FROM OUR OWN CORRESPONDENTS.]

THE WORDS "AVERAGE," "OVER," OR "UNDER," AS THE CASE MAY BE, INDICATE THE AMOUNT OF THE CROP; AND "GOOD," "VERY GOOD," OR "BAD," DENOTE THE QUALITY.

FULLER COMMENTS WILL BE GIVEN IN THE FOLLOWING NUMBERS. SEE ALSO LEADING ARTICLE ON PAGE 89

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NEC- TARINES.	APRICOTS.	SMALL FRUITS.	STRAW- BERRIES.	NUTS.	NAME AND ADDRESS.
SCOTLAND										
Scotland, N.										
MORAYSHIRE	Average ; good	Average ; good	Average ; good	Average ; good	Average ; good	Average ; good	Average ; good	Average ; good	....	John Macpherson, 4, Hawthorn Road, Elgin.
ROSS-SHIRE	Over ; very good	Average ; good	Over ; very good	Under ; bad	....	....	Over ; very good	Average ; good	....	William L. Muir, Address Castle Gardens, Alness.
SUTHERLAND	Over ; good	Over ; good	Over ; very good	Under ; good	....	....	Over ; very good	Over ; good	....	W. F. Game, Dunrobin Gardens Dunrobin, Golspie.
Scotland, E.										
ABERDEENSHIRE	Over Over very good Over ; very good	Average Over ; good Average ; very good	Over ; very good Over ; good Average ; very good	Average ; good Average ; good Over ; very good	 Over ; very good	.... .... .... ....	Over ; very good Over ; very good Average ; good	Over ; very good Over ; good Average ; good	.... .... .... ....	Simon Campbell, Fyvie Castle Gardens, Fyvie. James Grant, Rothienorman Gardens. John McKinnon, Haddo House Gardens.
BANFFSHIRE	Over ; good Average	Average Average	Over ; very good Over	Average Average	.... ....	.... ....	Over ; very good Average	Over ; good Under	.... ....	George Edwards, Ballindalloch Castle Gardens. James Jamieson, Easter Elchies, Craigellachie.
CLACKMANNANSHIRE	Average very good	Average	Average	Average ; good	Under	Under	Under	Average	....	Alex. Kirk, Consulting Gardener, Paton St., Alca.
EAST LOTHIAN	Over ; very good	Over ; very good	Over ; very good	Average ; good	Average ; good	Over ; very good	Average ; good	Over ; very good	....	R. P. Brotherston, Tynninghame Gardens, Prestonkirk.
INVERNESS-SHIRE	Average ; good	Over ; good	Over ; good	Average ; very good	Over ; good	....	Average ; very good	Over ; very good	....	E. Dudge, Achmacary Castle Gardens, Span Bridge.
FIFESHIRE	Over ; good Over ; good	Average Average	Under Under	Average Over ; very good	 Average	Under Over ; very good	Average Over ; very good	Over ; good Over ; very good	.... ....	Chas. Simpson, Wemyss Castle Gardens, East Wemyss. D. McLean, Raith Gardens, Kirkcaldy.
FORFARSHIRE	Over ; good Over ; good Average ; good Over ; very good	Over Average Over ; very good Average ; good	Over ; good Over ; good Under Under ; good	Over ; good Average ; good Average ; good	Average Average ; good	Average	Over ; good Over ; very good Under Over ; very good	Over ; good Over ; very good Over ; good Average ; good	.... .... .... .... ....	Robert Bell, Kinnaird Castle Gardens, Brechin. J. E. Peffer, Pannure House Gardens, Carnoustie. David Boyle, Tay Park Gardens, Broughty Ferry. Andrew McAndie, Ruthven House Gardens, Meikle.
KINCARDINESHIRE ..	Over	Average	Over	Over ; very good	Average ; very good	....	Average ; good	Average ; good	....	William Thomson, Urie House Gardens, Stonehaven.
LINLITHGOWSHIRE ..	Average ; good	Average ; good	Over ; very good	Under ; good	....	Average ; bad	Under ; good	Over ; very good	....	John Highgate, Hopetoun Gar- dens, South Queensferry.
MIDLOTHIAN	Over ; good	Average	Over	Over ; good	Average ; good	....	Average ; good	Average	....	William Crighton, Morton Hall Gardens, Liberton.
PEEBLESHIRE	Over ; good	Under ; good	Over ; very good	Average ; good	....	....	Over ; good	Average ; good	....	John Finnie, Stobo Castle Gar- dens, Stobo.
PERTHSHIRE	Over ; very good Average ; good Over Over ; very good Over	Over ; good Average Average Average	Over ; very good Average ; good Over Over ; good Over	Over ; good Average ; very good Average ; good Under Under ; bad Under	 Average Average Average Average ; good Average	 Average Average Average	Over ; very good Average ; very good Average Under ; good Over	Over ; very good Over ; very good Over Average ; good Average ;	.... .... .... .... .... .... ....	James Cuthbert, Meikleour House Gardens, Meikleour. Thomas Lamb, Keir Gardens Dunblane. Chas. Crighton, Jordanstone Gar- dens, Meikle. Malcolm Macnaughton, Seone Palace Gardens. J. B. McKiddie, Rossie Priory Gardens, Luchture.
Scotland, W.										
ARGYLLSHIRE	Over ; good Under	Under Under	Under Under	Under Average ; good	 Average ; good	.... ....	Average ; good Average ; good	Average ; good Average	.... ....	Henry Scott, Torloisk Gardens by Aros, Isle of Mull. D. S. Melville, Poltalloch Gar- dens, Kilmartin.
RUTESHIRE	Over ; good	Under ; bad	Under ; bad	Under ; bad	Average ; good	....	Average ; good	Under ; bad	....	John J. Davidson, Ardencraig Gardens, Rothesay.
DUMBARTONSHIRE ..	Average ; good	Average ; good	Under	Under ; bad	Average ; good	....	Average ; good	Average ; good	....	John Brown, Cairndhu Gardens, Helensburgh.
DUMFRIESSHIRE	Average ; good	Average	Under	Under	....	....	Over ; good	Over	....	James McDonald, Dryfeholme Gardens, Lockerbie.

CONDITION OF THE FRUIT CROPS—(continued).

COUNTY.	APPLES	PEARS.	PLUMS.	CHERRIES	PEACHES AND NEC- TARINES.	APRICOTS.	SMALL FRUITS.	STRAW- BERRIES.	NUTS.	NAME AND ADDRESS.
Scotland, W.										
STIRLINGSHIRE	Average ; good	Under	Average	Over ; good	Under	Under	Over	Under ; bad	Under	James D. Cunningham, Dunt- reath Castle Gdns., Blanefield.
ENGLAND:										
England, N.E.										
DURHAM.....	Average	Average	Over ; very good	Over	Over ; very good	....	Average ; good	Average ; good	....	Edward Tindale, Ravensworth Gardens, Gateshead.
	Average ; good	Over ; good	Over ; very good	Average ; good	....	Under ; good	Over ; very good	Average ; very good	....	William McCombie, Redworth Hall Gardens, Heighington.
	Average ; good	Under ; bad	Over ; very good	Over ; very good	Under ; good	....	Over ; very good	Average ; good	....	J. A. Woods, Beamish Park Gar- dens, Beamish, S.O.
NORTHUMBERLAND	Over ; very good	Over ; good	Over ; good	....	....	....	Over ; very good	Average ; good	Over ; good	James Winder, Howden Dene Gardens, Corbridge-on-Tyne.
YORKSHIRE	Average ; good	Over ; very good	Over ; good	Average ; good	....	Average ; good	Over ; good	Average ; very good	Average ; good	Jas. E. Hathaway, Baldersby Park Gardens, Thirsk.
	Average ; good	Over ; good	Average ; good	Under	....	....	Average ; very good	Under ; good	Average	J. G. Wilson, Newmillerdam P.O., Wakefield.
	Over ; good	Under ; good	Average ; good	Over ; good	....	....	Average ; good	Under ; bad	Average	Slaney, ^{Leam} Warter Priory Gardens, Pocklington.
England, E.										
CAMBRIDGESHIRE .	Average ; good	Average ; very good	Over ; good	....	Average ; good	Average ; good	Average ; very good	Under ; good	....	Arthur Sewell, 32, Barton Road Ely.
	Under ; good	Under ; good	Average ; very good	Average ; good	Under ; good	....	Average ; very good	....	....	T. Spooner, Meldreth, Royston. Cambridge.
ESSEX	Average ; good	Average ; good	Average ; good	Average ; good	Average ; good	Average ; good	Average ; good	Under	Average	Arthur Bullock, Copped Hall Gardens, Epping.
	Average ; good	Average ; good	Over ; good	Average ; good	Average ; good	Average ; good	Average ; good	Under ; good	Average ; good	E. F. Hazelton, Park Road, Elsenham, Stansted.
	Under	Average ; good	Over ; very good	Average ; good	Average ; good	Over ; good	Average ; good	Average	Average ; very good	Charles A. Heath, Gt. Halling- bury Place, Bishops Stortford.
	Under ; good	Average ; good	Over ; good	Average ; good	Average ; good	Over ; good	Average ; good	Under ; good	Over ; good	Edwin Guile, Shortgrove, New- port.
	Under ; good	Average ; very good	Average ; very good	Under very good	Under ; good	Under ; good	Average ; good	Under ; good	Over ; very good	C. Wakely, County Gardens. Chelmsford.
	Under ; good	Over ; good	Over ; good	Under ; good	Average ; very good	Average ; good	Average ; good	Under ; bad	Average ; good	William Johnson, Stansted Hall Gardens, Stansted.
HUNTINGDONSHIRE..	Under	Average	Average	Average	Under	Under	Average	Under	Average	James Hewitt, Castle Gardens, Kimbolton.
	Under	Average	Over	Average ; good	Under	Average	Under ; bad	Under ; bad	Under	A. V. Coombe, Ramsey Abbey Gardens.
LINCOLNSHIRE	Over ; good	Over ; good	Average ; good	Over ; good	Over ; good	....	Average ; good	Average ; good	....	Thomas Cox, Hainton Hall Gardens.
	Under	Over ; very good	Over	Average	Over ; good	Average ; good	Average ; good	Under	Average	F. J. Foster, Grimsthorpe Castle Gardens, Bourne.
	Over ; very good	Average ; good	Average ; good	Average ; good	Average ; good	....	Average ; very good	Over ; very good	....	F. C. Stainsby, Brocklesby Park Gardens.
	Average	Under	Under	Over	Average	Under	Average	Over ; good	....	J. F. Vinden, Harlaxton Manor Gardens, Grantham.
NORFOLK	Over ; good	Average ; good	Over ; good	Average ; good	Average ; good	Under ; good	Average ; good	Average ; good	Average ; good	C. G. Nichols, Station Lane, Gt Ormesby, Gt. Yarmouth.
	Average ; good	Average ; very good	Over ; good	Average ; good	....	Under	Average ; very good	Under	Average ; good	J. E. Pitt, Earham Hall Gar- dens, Norwich.
	Average ; good	Under ; good	Over ; very good	Over ; very good	Average ; good	Average ; good	Average ; good	Under ; good	Over very good	David McIntosh, Easton Gar- dens, Thetford.
	Average ; good	Average ; very good	Over ; very good	Average ; good	Average ; good	....	Average ; good	Under ; good	....	Isiah Johnson, Catton House Gardens, Norwich.
SUFFOLK	Average ; good	Over ; good	Over ; good	Average ; good	Average ; good	Under ; good	Average ; good	Under ; bad	Over ; good	A. K. Turner, Orwell Park Gardens, Ipswich.
	Average ; good	Over ; very good	Over ; very good	Average ; good	....	Under ; good	Average ; good	Under ; good	....	H. Coster, Ickworth Gardens. Bury St. Edmunds.
Midland Counties.										
BEDFORDSHIRE	Average ; good	Average ; good	Over ; good	Under	Average ; very good	Under ; bad	Average ; good	Under ; good	Average	W. G. Warner, Chicksands Priory Gardens, Shetford.
	Under ; good	Average ; very good	Over ; good	Average ; very good	....	....	Average ; very good	Average ; good	Average ; good	Chas. Turner, Ampthill Park Gardens, Ampthill.

CONDITION OF THE FRUIT CROPS—(continued).

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APRICOTS.	SMALL FRUITS.	STRAW- BERRIES.	NUTS.	NAME AND ADDRESS.
BUCKS	Average ; good Average ; good Over ; good Average Under ; good Average ; good Average ; very good	Average ; good Average ; good Over ; good Average Average Average ; good Average ; very good	Under ; good Under Average ; good Average Over	Average ; good Over ; good Average ; good Under ; good Under Average ; good Average ; very good	Under ; good Average ; good Average ; good Under ; good Average Average ; good	Under ; good Under ; bad Under ; good	Over ; very good Average ; good Average Average Average ; good Over ; very good	Under ; good Under ; bad Average ; good Under ; good	Over ; good Average ; good Over ; good Average Under Average ; good	W. Hedley Warren, Aston Clinton Gardens, Aylesbury. James Wood, Hedsor Park Gardens, Bourne End. William Brooks, Abbey Gardens, Great Missenden. Philip Mann, Education Sub. Office, Aylesbury. Chas. Page, Dropmore Gardens, Maidenhead. Wm. Turnham, Greenlands Gardens, Henley-on-Thames. G. F. Johnson, Waddesdon Gardens, nr. Aylesbury.
CHESHIRE	Average Under ; good Average ; good Over ; very good Average Over ; very good Average ; good	Over ; good Over ; very good Over ; good Over ; very good Average Over ; very good Over ; good	Over Under ; good Over ; good Average ; very good Under Average ; good	Average Average ; good Average ; good Over ; very good Average Average ; good	Average Under ; bad	Over Under ; bad Over ; good	Average ; good Average ; good Average ; good Average ; good Average ; good	Average Under ; bad Average ; good Over ; very good	Over Over ; good Over	T. A. Summerfield, Alderley Park Gardens, Chelford. Alfred N. Jones, Marbury Hall Gardens, Northwich. Philip Bolt, Manor House Gardens, Middlewich. Jas. B. Allan, Tirley Garth Gardens, Tarporley. Jas. Atkinson, Torkington Lodge Gardens, Hazel Grove, nr. Stockport. N. F. Barnes, Eaton Gardens, Chester. Edward Severn, Combermere Gardens, Whitchurch.
DERBYSHIRE	Average Over ; good Over Average ; good	Over Over ; very good Over Average ; very good	Over ; good Average ; good Over Average ; good	Average ; good Average ; good Average ; good	 Over ; very good	Average ; good Average ; good Under	Average ; very good Over ; very good Average Average ; very good	Under ; good Under ; bad Under Over ; good	 Over ; very good Average	John Maxfield, Darley Abbey Gardens, Derby. Walter Y. Steward, Alfreton Park Gardens, Alfreton. E. Wilson, Hardwick Hall Gardens, Chesterfield. J. Tully, Osmaston Manor Gardens, Ashbourne.
HERTFORDSHIRE	Average Under ; bad Average ; good	Under Over ; good Over ; good	Under Over ; good Over ; very good	Average Over ; good Average ; good	 Average ; good Under ; good	 Over ; good Average ; good	Average ; good Average ; good Over ; very good	Under ; good Under ; bad Average ; very good	 Average ; Over ; good	James A. Palce, Aldenham Vicarage Gardens, Watford. Edwin Beckett, Aldenham House Gardens, Elstree. T. Pateman, The Node Gardens, Welwyn.
LEICESTERSHIRE	Average ; good Under Average ; good Under ; good	Over ; good Average Over ; good Over ; good	Over ; good Over Over ; good Average ; good	Under Average ; good Average ; good	Average Average Average ; good Average ; very good	Over ; good Average Average ; good Average ; very good	Over ; very good Average Average ; good Over ; very good	Average ; good Under Under ; good Under ; bad	Over ; good Average Under ; very good Over ; very good	W. Coe, Prestwold Hall Gardens, Loughborough. F. Ibbotson, Rolleston Hall Gardens, Billesdon. A. H. Campin, Whetstone Pastures Gardens, Leicester. Wm. Paterson, Swithland Hall Gardens, Loughborough.
NORTHAMPTONSHIRE	Average ; good Under ; good	Under ; bad Over ; good	Over ; very good Over ; good	Over ; good Over ; good	 Under ; good	 Average ; good	Average ; good Average ; good	Under ; bad Under ; good	Average ; good Over	Alfred Child, Catesby House Gardens, Daventry. R. Johnston, Wakefield Gardens, Stony Stratford.
NOTTINGHAMSHIRE	Over ; very good Average Average	Over ; good Average ; very good Average	Over ; good Average ; very good Average	Over ; very good Average ; very good Average	 Average ; very good	 Over	Average ; good Average Over	Average ; good Average Average	Over ; very good Average ; very good Average	William Rae Scott, Bunny Park Gardens, Bunny. S. Barker, Chamber Gardens, Worksop. James Gibson, Welbeck Gardens, Worksop.
OXFORDSHIRE	Under ; very good Average ; good Average ; very good Average ; very good	Average ; good Over ; good Over ; good	Over ; good Over ; good Over ; very good Average ; good	Average ; very good Under Over ; very good Average ; good	Under ; bad very good Under Over ; very good Average ; very good	Under ; very good Under Average ; good	Average ; very good Average ; good Average ; very good	Average ; good Under ; bad Average ; good	Average ; very good Over Over ; very good Average ; good	T. W. Whiting, Shotover Park Gardens, Wheatley. Ben Campbell, Cornlury Park Gardens, Charlbury. John A. Hall, Shiplake Court Gardens, Henley-on-Thames. Victor R. S. Gammon, Eynsham Hall Gardens, Witney.

CONDITION OF THE FRUIT CROPS—(continued).

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APRICOTS.	SMALL FRUITS.	STRAW- BERRIES.	NUTS.	NAME AND ADDRESS.
STAFFORDSHIRE ..	Average ; good	Average ; good	Over ; good	Average ; good	Under ; good	Under ; bad	Average ; good	Under ; bad	Average	H. Collier, Rolleston Hall Gardens, Burton-on-Trent.
	Average ; very good	Average ; very good	Over ; very good	Average ; bad	....	Over ; good	Average ; good	Average ; good	Over ; good	E. Bannerman, Blithfield Gardens, Rugeley.
	Average ; good	Over ; good	Over ; good	Average ; good	....	....	Over ; good	Average ; good	Average	Edwin Gilman, Ingestre Gardens, Stafford.
	Over ; very good	Over ; very good	Average ; good	Over ; good	Average ; good	....	Over ; very good	Under ; good	....	Thomas G. Cheney, Rose Cottage, Court Drive, Shenstone, nr. Lichfield.
	Average ; good	Over ; good	Over ; very good	Average ; good	Average	....	Over ; good	Over ; very good	Over ; good	J. Bates, Meaford Gardens, Stone.
WARWICK.....	Under ; very good	Average ; very good	Over ; good	Over ; good	Average ; good	Under ; good	Under ; good	Under ; bad	Over ; good	H. Dunkin, Mount Pleasant Gardens, Emscote.
	Average ; good	Average ; good	Over ; good	Over ; good	Average ; good	....	Over ; good	Average ; good	Average	W. Harmon, Newnham Paddox Gardens, nr. Rugby.
	Average ; good	Average ; good	Over ; good	Average ; good	Average ; good	....	Over ; good	Average ; good	Over	B. H. Martin, Moreton Paddox Gardens, Moreton Morrell.
	Under ; bad	Average ; good	Over ; good	Average ; good	....	Average ; good	Average ; good	Over ; good	Average ; good	Chas. Harding, Ragley Gardens, Alcester.
	Average ; good	Under	Average ; good	Under ; bad	Under ; bad	Average ; good	Average ; good	Under ; good	Average	H. F. Smale, Warwick Castle Gardens, Warwick
England, S.										
BERKSHIRE	Average ; good	Average ; good	Average	Under	Average ; good	Under	Average ; good	Under	Average ; good	A. B. Wadds, Englefield Gardens, Reading.
	Average ; bad	Average ; very good	Average ; bad	Average ; bad	Average ; very good	....	Average ; bad	Under ; bad	Average ; good	J. Minty, Oakley Court Gardens, Windsor.
	Average ; good	Over ; good	Average ; good	Average ; good	Over ; good	Average ; good	Under ; good	Under ; bad	Over ; good	Geoffrey Cooper, Ranworth, Malvern Road, Furze Platt, Maldenhead.
	Average ; bad	Over	Average	Average	Average	Average	Average	Average ; good	Over	J. Howard, Benham Park, Gardens, Newbury.
	Average	Average ; good	Under	Under	Average ; good	Under	Average	Under	Under	Thomas Wilson, Castle Gardens, Wallingford.
DORSETSHIRE	Average ; good	Over ; good	Over ; good	Average ; good	Average ; good	Average ; good	Average ; good	Under ; bad	Average	Thos. Denny, Down House Gardens, Blandford.
	Average ; good	Average ; good	Average ; good	Average ; good	Under ; bad	Average ; bad	Average ; good	Under ; bad	Under	W. E. Axford, St. Giles Gardens, Salisbury.
HAMPSHIRE	Under ; good	Average ; very good	Average ; very good	Over ; good	Average ; good	Under ; good	Average ; good	Under ; good	Average	A. W. Blake, The Castle Gardens Highclere, Newbury.
	Under ; good	Average ; very good	Under ; good	Over ; very good	Under ; good	....	Over ; very good	Average ; good	Over ; very good	George Edwood, Swanmore Park Gardens, Bishops Waltham.
KENT	Under	Under	Average	Average	....	....	Under	Average	Over ; very good	Geo. Lockyer, Mereworth Gardens, Maidstone.
	Under	Over	Under	Over	....	....	Average	Under	Over	Edward A. Bunyard, Allington, Maidstone.
	Under ; good	Under ; good	Average ; good	Average ; good	Average ; good	....	Average ; good	Under ; good	Average ; good	J. George Woodward, Barham Court Gardens, Teston, Maidstone.
	Under	Average	Under	....	....	....	Average	Under	....	Charles E. Shea, The Elms, Foles Cray.
	Under	Average	Average	Average	Average	Average	Average	Under	Over	J. T. Shann, Betteshanger Park Gardens, Rastry, Deal.
	Under ; good	Average ; good	Over ; good	Over ; good	Average ; good	....	Average ; good	Under ; good	Under	J. G. Weston, Eastwell Park Gardens, Ashford.
MIDDLESEX	Under	Average ; good	Average	Average ; good	Average ; good	Average	Under	Under	Under	H. Markham, Wrotham Park Gardens, Barnet.
	Under ; good	Under ; very good	Under	Under	....	Under	Average	Under ; bad	....	G. H. Head, Fulwell Park Gardens, Twickenham.
SURREY	Under	Over ; good	Average ; good	Average	Under	Over ; good	Over ; good	Under	Average ; good	J. Collier, Gatton Park Gardens, Reigate.
	Under ; good	Average ; good	Under	Average	Under	Under	Under	Under	Average	James Lock, Otlands Lodge Gardens, Weybridge.
	Under	Average ; very good	Average ; good	Average ; very good	Average ; good	....	Over ; good	Average ; good	Over ; very good	F. Jordan, Ford Manor Gardens, Lingfield.
	Under ; good	Average ; good	Under ; good	....	Under ; good	....	Over ; very good	Under ; bad	Over ; very good	Alan N. Ruwes, R.H.S. Gardens, Wisley, Ripley.
	Under ; very good	Under ; very good	Under ; good	Under ; good	Under ; good	....	Average ; very good	Under ; bad	....	T. Smith, Coombe Court Gardens, Kingston-on-Thames.
	Average ; good	Average ; good	Over ; good	Under ; bad	....	....	Average ; very good	Under ; bad	Over ; good	H. Prince, Polesden Lacey Gardens, Dorking.
SUSSEX	Average ; good	Average ; good	Average ; good	....	Average ; good	....	Average ; good	Average ; good	....	H. Cook, Glynde Place Gardens, Lewes.
	Over ; very good	Under ; good	Over ; good	Average ; good	....	....	Over ; good	Under ; bad	Average ; good	E. M. Bear, Magham Down, Hailsham.

CONDITION OF THE FRUIT CROPS—(continued.)

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES. AND NEC- TARINES.	APRICOTS	SMALL FRUITS.	STRAW- BERRIES.	NUTS	NAME AND ADDRESS.
SUSSEX	Average	Average	Over; good	Average	....	....	Average	Under	Average	Leon Squibbs, Stonehurst Gar- dens, Ardingly.
(Continued)	Under; bad	Over; good	Average	Average	Over	Average	Average; good	Average	Over	Arthur Wilson, Eridge Castle Gardens, Tunbridge Wells.
	Average; good	Over; good	Over; good	....	Under	....	Over; good	Average	Over	Ernest Markham, Gravetye Manor Gardens, East Grin- stead.
	Over; good	Average; good	Average; good	Under	Average; good	Average	Average; good	Under; bad	....	W. H. Smith, West Dean Park Gardens, Chichester.
	Average; good	Average; good	Over; good	Average; good	....	....	Over; good	Average; very good	Over; good	Edwin Neal, Tilgate Gardens, Crawley.
WILTSHIRE	Average; good	Average; very good	Average	Under; good	Average; good	....	Over; very good	Under	Under	C. E. Barter, Longleat Gardens, Warminster.
	Average; good	Over; good	Average; good	Average; very good	Over; good	Over; good	Under; bad	Under	Over; good	H. H. Mills, The Gardens, Font- hill House, Tisbury.
	Under; good	Over; good	Average; good	Average; good	Over; good	....	Average; good	Average; good	Over; good	J. Yandell, Manor Gardens, Ramsbury.
	Average; good	Over; very good	Average; good	Average; good	Over; very good	Under; bad	Over; very good	Average; good	Over; good	T. Challis, Herbert Cottage, Wilton, nr. Salisbury.
England, N.W.										
CUMBERLAND	Over; very good	Over; good	Over; good	Over; good	Under; good	Average; good	Over; good	Over; very good	....	James Tait, Justicetown Gar- dens, Carlisle.
LANCASHIRE	Over; good	Average; good	Average; good	Average; good	Average good	....	Average; good	Under	....	W. B. Upjohn, Hall Gardens, Worsley, Manchester.
WESTMORLAND	Over; good	Under; good	Over; good	Average; good	....	....	Over; good	Average; good	....	W. A. Miller, Underley Gardens, Kirkby Lonsdale.
	Over; good	Under; bad	Over; very good	Average	Average	....	Average; good	Under; bad	....	James Jeffrey, Lowther Castle Gardens, Penrith.
England, S.W.										
CORNWALL	Average; good	Over; very good	Average; good	Average; good	Under	....	Average; very good	Over; very good	....	Harry Williams, Tolvean Gardens Redruth.
	Average	Over	Average	Under	Over; good	Average	Over; very good	Under	....	James Treloar, Trevarno Gar- dens, Sithney, Helston.
DEVONSHIRE	Over; good	Over; good	Average; good	Average; good	Average; good	Average; good	Over; good	Under; bad	Average; good	E. E. Bristow, Castle Hill Gardens, Tilleigh, South Molton.
	Under	Over	Under	Under	Under	....	Average	Average	....	Gilbert Sleep, Hartland Abbey Gardens, Hartland.
	Over; good	Average; good	Average; good	Average; good	Average; good	Average; good	Average; good	Average; bad	Average; good	P. C. M. Veitch, Royal Nurseries, Exeter.
SOMERSET	Under; good	Average; very good	Over; good	Over; good	Average; good	Over; good	Average; good	Under; good	Average; very good	James 'Glasheen,' Hestercombe Gardens, Taunton.
	Over; good	Over; good	Under; good	Under; good	Over; very good	Over; very good	Average; good	Under; good	Over; good	Grigor Roy, Halswell Park Gardens, Bridgwater.
GLOUCESTERSHIRE ..	Average; good	Over; good	Average	Average; good	Under	Under	Under	Over; very good	Over	Frank J. Clark, Westonbirt Gardens, Iffleybury.
	Average; good	Over	Average	....	Average	....	Average	Average	....	Wm. J. Jefferies, Cirencester.
	Average; good	Average; good	Over; good	Average; good	Average; good	....	Average; good	Average; good	Over; good	John Banting, Tortworth Gar- dens, Faldfield.
	Average; good	Average; good	Over; good	Average; good	Average	Under	Average; good	Average; good	Average	G. H. Hollingworth, Shire Hall, Gloucester.
	Average; good	Over; very good	Over; very good	Over; good	....	....	Under; bad	Over; good	Over; good	Geo. A. Emmett, Lindors Gar- dens, St. Briavels.
HEREFORDSHIRE	Under	Over; very good	Over; very good	Average; good	Average; good	Under; bad	Over; very good	Over; very good	Under	F. Roberts, Stoke Edith Park Gardens, Hereford.
	Average	Average	Over	....	....	....	Average	Under	....	Dr. H. E. Durham, Hereford
	Over; good	Over; good	Over; good	Average	....	....	Average	Average; good	Over	Thomas Spencer, Goodrich Court Gardens, Ross.
SHROPSHIRE	Over; very good	Average; good	Over; good	Over; very good	Under; bad	Average; very good	Over; good	Average; good	Average	Roger F. Jones, The Gardens, Oteley, Ellesmere.
WORCESTERSHIRE ..	Average; good	Over; good	Over; good	Average; good	Over; good	Average; good	Average; good	Under; bad	Over; good	William Crump, V.M.H., Oakridge Malvern Link.
	Average	Under	Over	Under	....	....	Average; good	Under; bad	Average	Ernest Avery, Finstall Park Gardens, Bromsgrove.
	Under; good	Under; good	Over; good	Under	Under; good	Over; very good	Under; good	Under; good	Over;	G. E. Roden, Overbury Court, Tewkesbury.
	Average; good	Under	Over; good	Over; very good	Average	Average	Average; good	Under; good	very good Under	James Udale, 7, Ombersley Road, Droitwich.
WALES.										
CARDIGANSHIRE	Over; very good	Over; very good	Average; good	Average	Over; good	....	Average	Under	....	W. Phillips, Derry Ormond Gardens, Llangybi.
	Over; very good	Over; very good	Over; very good	Over; good	....	Over	Over; good	Under; bad	Over; good	D. H. Dunn, Hafod, Devil's Bridge.
CARNARVONSHIRE ..	Average; good	Average; good	Over; good	Under; bad	Under	....	Over; very good	Over; good	....	J. S. Higgins, Glynllivon Gar- dens, Llanwnda.
DENBIGHSHIRE	Average	Over; good	Over; good	Average	Average	....	Average	Average; good	Average	J. A. Jones, Chirk Castle Gar- dens, Chirk.

CONDITION OF THE FRUIT CROPS—(continued).

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NEC- TARINES.	APRICOTS.	SMALL FRUITS.	STRAW- BERRIES.	NUTS.	NAME AND ADDRESS.
PEMBROKESHIRE	Over; good Under; bad	Average; good Average; good	Average; good Under; bad	Over; good Under; bad	 Over; very good	 Over; very good	Over; very good Over; good	Average; bad Under; good	 Under; bad	Thomas Hy. Roberts, Heywood Meadow Gardens, Tenby. Chas. McInroy, Stackpole Gardens, Pembroke.
IRELAND: IRELAND, N.										
KILKENNY.....	Over; good Average; very good	Over; very good Average; very good	Over; very good Average; good	Average; good Under; good	Over; very good	Over; very good Under; very good	Over; very good Average; good	Under; good Under; bad	Over; good Under	T. E. Tomalin, Bessborough Gardens, Piltown. Henry Hall, Shankill Castle Gardens, Whitehall. Michael McKeown, Julianstown, Drogheda.
MEATH.....	Average; good	Under; good	Over; very good	....	....	....	Average; good	Average; good	....	Fred. W. Walker, Sion House Gardens, Sion Mills.
TYRONE.....	Over	Average; good	Average	Average	....	....	Average; good	Average; good	....	Edward Rutherford, Farnham Gardens.
CAVAN.....	Average; good	Average; good	Average; good	Average; good	Under; good	....	Average; good	Average; good	Average; bad	Wm. Allan, Pakenham Hall Gardens, Castlepollard.
WESTMEATH.....	Over; good	Over; very good	Over; very good	Average; good	....	Average; good	Average; good	Under; bad	Under	
IRELAND, N.E.										
DOWN.....	Over; very good	Average; very good	Average; good	Over; very good	....	....	Average; good	Over; very good	....	T. W. Bolas, Mount Stewart Gardens, Newtownards.
IRELAND, S.										
CORK.....	Average Average; good	Over Over; good	Average Over; good	.... ....	.... ....	.... ....	Average Average; good	Under Under; bad	.... ....	M. Colbert, Aghern Gardens, Conna. J. Dearnaby, 17, St. Patrick's Terrace, Magazine Road.
KILDARE.....	Over; good	Over; good	Over; good	Over; good	Average; good	Average; good	Over; good	Over; good	Average; good	Frederick Streeter, Straffan House Gardens.
WATERFORD.....	Under	Over	Average	Under	Average	Under	Over	Over	Average	D. Crombie, Curraghmore Gardens, Portlaw.
CHANNEL ISLANDS:										
JERSEY	Under; good Under; good	Under; very good Under; good	Under; good Under; bad	Average; good Average;	Average; good Under; bad	Under; good Under; bad	Average; very good Under; bad	Under; bad Under; bad	.... ....	Jas. Harper, Springfield Nursery, St. Heliers. Thomas Sherman, Imperial Nursery, St. Mark's Road, St. Heliers.
ISLE OF MAN:										
DOUGLAS	Average; good	Average; good	Average	Under	....	....	Average	Average	....	James Inglis, Peel Road Nursery

SUMMARIES OF THE HARDY FRUIT CROPS

SCOTLAND.										IRELAND.									
Records.	Apples.	Pears.	Plums.	Cherries.	Peaches and Nectarines.	Apricots.	Small Fruits.	Strawberries.	Nuts.	Records.	Apples.	Pears.	Plums.	Cherries.	Peaches and Nectarines.	Apricots.	Small Fruits.	Strawberries.	Nuts.
Number of Records	32	32	32	31	17	11	32	32	1	Number of Records	11	11	11	8	4	5	11	11	6
Average	10	20	5	13	13	6	14	14	—	Average	5	4	6	4	2	2	3	3	2
Over	21	7	18	8	12	2	14	15	—	Over	5	6	5	1	1	2	2	2	2
Under	1	5	9	8	3	3	4	3	1	Under	1	1	1	1	1	1	1	1	1
ENGLAND.										CHANNEL ISLANDS.									
Number of Records	131	131	131	121	95	76	131	130	100	Number of Records	2	2	2	2	2	2	2	2	1
Average	69	69	47	76	55	35	83	44	44	Average	—	—	—	—	—	—	—	—	—
Over	23	53	62	24	13	13	33	11	45	Over	—	—	—	—	—	—	—	—	—
Under	39	18	16	21	27	28	10	75	11	Under	2	2	2	—	1	2	1	2	—
WALES.										ISLE OF MAN.									
Number of Records	6	6	6	6	4	2	6	6	3	Number of Records	1	1	1	1	—	—	1	1	—
Average	2	8	2	2	1	—	2	2	1	Average	1	1	1	—	—	—	1	1	—
Over	3	3	3	3	1	—	4	1	1	Over	—	—	—	—	—	—	—	—	—
Under	1	—	1	2	1	—	—	3	1	Under	—	—	—	1	—	—	—	—	—
GRAND SUMMARY, 1922.										SUMMARY OF 1921 FOR COMPARISON.									
Number of Records	183	183	183	169	122	96	183	182	110	Number of Records	224	223	216	211	153	122	223	217	125
Average	87	88	61	99	72	43	114	64	48	Average	121	72	25	120	77	24	113	95	50
Over	52	60	94	36	18	18	54	30	47	Over	62	6	4	43	12	1	56	42	13
Under	44	26	28	34	32	35	15	88	15	Under	41	145	187	46	64	93	54	80	62

HOME CORRESPONDENCE.

Dianthus Allwoodii.—Early in the spring, after carefully noting the various advertisements, I recommended my employer to purchase plants of *Dianthus Allwoodii*. Eight varieties of this hybrid were received from Messrs. Allwood Bros., Haywards Heath, which I unpacked. I gather from Messrs. Allwood's letter (p. 86) that they resent my remarks upon these eight varieties, grown in Coombe House Gardens. The border where the plants were grown is 114 feet long and receives the sunlight from early morn till late in the evening and we have not placed leaf mould in it. In this border we have successfully grown seedling border carnations from Messrs Sutton and Sons, and many years ago the Old Clove did exceedingly well on the same site. After forty years' experience in these gardens I have yet to meet a reputable nurseryman who supplies "cheap, over-propagated stock." Messrs. Allwood Bros. will find in their books the name of my employer, Frank Lloyd, Esq., Coombe House, Croydon, Surrey. I am forwarding a few flower sprays and their "grass" for the Editors' examination. Mr. R. P. Brotherton has made some useful remarks anent the pot culture of these *Dianthus*, but I am seeking information with regard to outdoor border cultivation. Mr. F. W. Jeffery recommends *Dianthus Allwoodii* for planting in masses, but admits the inferiority of the individual plant; he also writes of the painter's "breadth of effect," but this seems to rule out small gardens. "J. P., Carlisle" supports my remarks. What I want to know is under what conditions varieties of *D. Allwoodii* become good garden plants.—*Mark Mills*.

—When I first read Mr. Mark Mills' letter in your issue of July 29 regarding *Dianthus Allwoodii*, I was under the impression it was written by someone who was not a skilled gardener, or who was prejudiced, because in the gardens here we have beds of *D. Allwoodii* in the most prominent positions. We grow plants extensively in lawn vases in place of *Pelargoniums*, and for the last two years I have forced the varieties Harold, Joan and Betty, for Easter and early flowering, in fact, my employer insists upon *D. Allwoodii* being used from April to November in one way or another for decoration in the hall. We have propagated considerably over 3,000 *D. Allwoodii*, and as every new variety is sent out I intend to buy it, as I am sure we have only just begun to see the beauty of this marvellous plant.—*Jack Palmer, Holmside, Surrey*.

The "Golden Elder."—Why is it that in practically all the works on trees and shrubs, including the very latest ones, this very common plant is designated as a variety of the common Elder (*Sambucus nigra*)? So far back as July, 1896, at a meeting of the Botanical Society of Edinburgh, and subsequently in the columns of *The Gardeners' Chronicle*, I pointed out that this was wrong, and that it was a variety of the Canadian Elder (*S. canadensis*), but the fiction that it is a variety of the common Elder seems to cling to it as tenaciously as ever. Is it not time it was put in its proper place? *A. D. Richardson, Edinburgh*.

Branch-cuttings of Apples.—Have any of your readers heard of a burr-knot method of raising Apple trees? I am a Norfolk gardener and occasionally prune neighbours' fruit trees. Some of the trees I have operated upon appear to have been in bearing for some years, and yet are not old, so I asked for their history and was told they were "burr-knots," or Apple cuttings struck from a full-grown tree, quite large branches being taken off below a burr-knot or elbow-like bend and inserted firmly in the soil between October 11 and December 25. Such trees bear 30 or 40 Apples the first season, if allowed. I saw a fine tree of Bramley's seedling from such a cutting, but I have only heard of the Mulberry treated in this way before. *E. F. M. Hewat, Lessingham, Stalham*.

SOCIETIES.

ROYAL HORTICULTURAL.

August 9.—Coming so soon after the Bank Holiday, a large meeting was not expected on this date, nevertheless the Royal Horticultural Hall was fairly well filled, but in no sense crowded with exhibits, whilst Fellows and visitors were few in number. Hardy flowers predominated, and of these the annuals, Phloxes, Hollyhocks, Gladioli and Kniphofias were particularly attractive. Orchids were sparingly displayed, but Carnations were well represented. Gooseberries and Currants were well shown from a Northumberland garden. Comparatively few novelties were shown.

Orchid Committee.

Present: Pantia Ralli, Esq. (in the chair); Messrs. Jas. O'Brien (hon. secretary), Fred. K. Sander, Charles H. Curtis, J. E. Shill, H. T. Pitt, S. W. Flory, T. Armstrong, Gurney Wilson, Stuart H. Low, and Oliver Lines, of Massachusetts, U.S.A.

AWARD OF MERIT.

Cattleya Eleanor var. *Prince of Wales* (*Hardyana alba* × *Warszewiczii* Frau Melanie Beyrodt) from Messrs. HASSALL AND CO. Southgate. The plant shown had three flowers on the spike, each about nine inches across. Sepals and petals pure white; lip broad, violet purple with a yellow disc and lines from the base.

OTHER EXHIBITS.

A Silver Banksian Medal was awarded to Messrs. HASSALL AND CO., Southgate, for a group of their fine forms of *Cattleya Eleanor*, six varieties of their excellent strain of *Cattleya Hardyana alba*, a good selection of a new batch of *C. Dupreana*, and the new *Laelio-Cattleya Minos* var. *Hero* (*L.-C. Rubens* × *Tityus*, rosy-mauve with claret lip).

PANTIA RALLI, Esq., Ashstead Park, Surrey (Orchid grower, Mr. Farnes), sent *Odontodia Manora* (*C. Noezliana* × *Oda*, Coronation) with well formed, bright red flowers, tinged with rose. Messrs. SANDER, St. Albans, showed the handsome yellow *Angulosa Cliftonii splendens* which had claret markings in the centre of its yellow flower; *Cattleya Dowiana Glory*, *C. Thisbe* (micans × *Pittiana*), and the charming little *Cirrhopetalum Andersonii* with an umbel of twelve pretty cream flowers with pink spotting.

H. HANCHET, Esq., Bankholme, Purley (gr., Mr. Birrel), sent *Cypripedium* Mrs. C. J. Hanchet, of unrecorded parentage, but which evidently had *C. superbiens* in its ancestry. The well-formed flower had blackish lines on the dorsal sepal and chocolate spotting on the broad mauve-tinted petals. Messrs. FLORY AND BLACK, Slough, sent the new *Laelio-Cattleya Rosita* (*L.-C. Ingramii* × *C. Tityus*) with mauve sepals and petals and ruby purple lip; and a fine form of *Cattleya Hardyana alba*.

Floral Committee.

Present:—Messrs. H. B. May (in the Chair), Jas. Hudson, H. V. Warrender, W. R. Dykes, R. W. Wallace, Gerald Loder, J. F. McLeod, W. P. Thomson, G. Reuthe, Amos Perry, Geo. Harrow, John Heal, W. Howe, Thos. Stevenson, C. R. Fielder, M. C. Allwood, W. B. Gingell, H. J. Jones, D. B. Crane, Chas. E. Pearson, E. A. Bowles, Reginald Cory, Sydney Morris, and W. B. Cranfield.

AWARDS OF MERIT.

Kniphofia C. M. Prichard.—A magnificent form, with stout spikes carrying big heads of deep yellow flowers. The heads of flowers are about ten inches long. Shown by Messrs. M. PRICHARD AND SONS, Christchurch.

Kniphofia Rouge et Souffre.—This handsome *Kniphofia*, passed by the Floral Committee a fortnight previously when in finer condition, gained an award on this occasion. The noble spikes carry pale yellow flowers on the lower half and coral red ones above. Shown by Messrs. MAURICE PRICHARD AND SONS.

Astilbe King Albert.—This bold erect growing

Astilbe is about 6 ft. high when in flower, as shown. It should be a fine plant for the bog, for the water side, or for a moist border. The flowers are greenish white, and freely borne in long erect spikes. Shown by Messrs. M. PRICHARD AND SONS.

Gladiolus Red Fire.—This brilliant variety has rich velvety scarlet flowers, with a short dull yellow throat. Shown by Messrs. LOWE AND GIBSON, Crawley Down.

Gladiolus Butler Boy.—A very fine primulinus hybrid with large, light yellow flowers, the two smaller, lower segments being deeper yellow, and each having a thin central rosy line. Shown by Messrs. LOWE AND GIBSON.

Athyrium f. angustatum mediodeciens corymbiferum.—An elegant Lady Fern, has pale green arching fronds which are crested at the apex and also at the end of each of the pinnae. A very graceful plant. Shown by Mr. AMOS PERRY, Enfield.

Stokesia cyanea parviflora Perry's Purple.—A free-flowering form, and varying from the type in having bright bluish purple flowers. Shown by Mr. AMOS PERRY.

Astilbe simplicifolia hybrida rosea.—A charming form, and very like an enlarged *A. simplicifolia* in habit. The trifoliate leaves are deep green, the two lower leaflets usually being bilobed; all the margins are deeply serrated. The whole plant is about 15 in. high, and carries neat feathery plumes of rosy flowers. Shown by Mrs. G. REUTHE, Keston.

BOTANICAL CERTIFICATE.

Lewisia Wisley Seedling.—This interesting little plant is a hybrid between *Lewisia Cotyledon* and *L. oppositifolia*. The small specimen exhibited carried three spikes, and one of these bore nine flowers, each $\frac{1}{2}$ in. across, with greenish cream ground, pale mauve lines, and yellowish stamens. This hybrid, probably the first recorded, was raised at the R.H.S. Gardens, Wisley, and the Floral Committee recommended that a Botanical Certificate be awarded.

GROUPS.

At the end of the hall Messrs. SUTTON AND SONS, LTD., had an extensive and most artistic display of annuals. An enormous variety was shown, and this included nearly all the best annuals for summer display. In view of the recent inclement weather, this monster display of flowers of high quality must have astonished many of the visitors. There is an ever-present danger of "overdoing" a very large exhibit of any type of flower, but in Messrs. SUTTON'S skillful hands a most fascinating display was presented. Annual Lupins, of which the Reading house has so many valuable sorts, were freely shown, and the most useful *Lavatera* Sutton's Loveliness, arranged in low baskets of elegant design, were also an admirable feature of this memorable display. The various sets of Poppies included Shirley mixed singles and doubles in many delicately beautiful shades of colour. Marigolds were very prominent, and in addition to a fine strain of Orange Marigolds of the old favourite type, but of improved quality, there were the double African, bearing large fully double flowers, and the *Legion d'Honneur*, which is such a valuable, compact little plant for bordering or as groundwork in a summer bed. Larkspur Pink Pearl is a very elegant annual either as a growing plant or, as on the present occasion, as a cut flower. Besides these there were cases of the *Cineraria*-like *Jacoba*, *Viscaria* Pink Beauty, *Coreopsis* of many sorts, the sun-loving *Eschscholzia*, annual *Chrysanthemums*, and the indispensable *Mignonettes* in several most excellent varieties (Gold Medal).

Immediately opposite the entrance Mr. H. J. JONES had another of the splendid exhibits of herbaceous Phloxes such as he has contributed on several recent occasions. As before, these were excellent, sturdy, well flowered plants, set in shallow baskets for convenience of handling. A great many most desirable varieties were displayed, but on such a dull day it was those of bright colours that received most attention. The brightest were Scarlet Gem, W. Robert-

son, Jules Sandeau, Homeland, C. Edwards, Imperator, and Mrs. Scholten (Gold Medal).

Gladiolus were freely shown by several exhibitors. Messrs. KELWAY AND Co. had an extensive collection of large-flowered hybrids, which included Banat, Painted Lady, Lady Muriel Digby, Earl Compton, and J. W. Kelway, while of the elegant "Langrim" hybrids Maculatus, Countess Torby, Golden Girl, and Wraith were especially charming (Silver-Gilt Banksian Medal).

Besides their two certificated varieties Messrs. LOWE AND GIBSON had many excellent primulinus hybrids, of which the following is a selection:—Linton, Argo, Fieldmouse, Zenobia, Regulus and Insurpassable (Silver Banksian Medal). Near the New Plants' space Major G. Churcher showed an interesting collection of Gladiolus hybrids; Mary Pickford, Liberty, Thoth, Ragten, and Salmon Plumie are the names of only a few of the very good sorts (Bronze Flora Medal).

A fascinating garden, composed solely of grasses, was made by Messrs. J. MACDONALD AND SONS. The "lawn" of seedling grasses was perfect in all respects (Silver Flora Medal).

Carnations of high quality were shown by Messrs. ALLWOOD BROS. (Silver-Gilt Banksian Medal), Messrs. Stuart, Low and Co., and Mr. C. Englemann (Silver Banksian Medals). The former included Toreador, Marian Willson, Edward Allwood, and Enchantress Supreme. Messrs. Stuart, Low and Co. again had many vases of their white Pearl, with the glowing scarlet Lord Lambourne. In the last-named collection Laddie, Iona, Sunstar, and Tarzan were very prominent.

A handsome collection of herbaceous plants shown by Messrs. M. PRICHARD AND SONS included Kniphofia Royal Standard, K. magnifica, K.C.M. Prichard, and K. Rufus in the back row, with smaller vases of Poterium obtusatum, Dracocephalum virginicum, and many Phloxes of merit (Silver-Gilt Banksian Medal).

An uncommon exhibit was the tall spikes of Hollyhocks by Messrs. J. VERT AND SONS. These were all of double-flowered varieties and possessed the distinctive guard petals so desired by florists of a bygone age. Of the many sorts we greatly admired Palling Belle, Alfred Chater, Constance, Apple Blossom, Walden Yellow and Sunset (Silver Banksian Medal).

MESSRS. WATERER, SONS, AND CRISP had various herbaceous Phloxes, Lupins and a grand collection of Campanula White Star (Silver Banksian Medal). A collection by Mr. G. REUTHE included several interesting Liliun seedlings (Silver Banksian Medal). Mr. W. WELLS, Junr., had Phloxes, Alströmarias and Asclepias tuberosa (Silver Banksian Medal).

A massed vase of Monarda didyma Cambridge scarlet was prominent in a group of border flowers by Mr. AMOS PERRY, who also had the equally effective Polygonum amplexicaule atrosanguinea, with other herbaceous plants (Silver Banksian Medal).

Bronze Flora Medals were awarded to Messrs. J. CHEAL AND SONS, for border flowers with their graceful Star Dahlias, and they also showed excellent blooms of Cactus and Decorative varieties; and to Mr. F. C. WOOD for a neat rock garden, appropriately planted. The Central Garden Supplies were awarded a Bronze Banksian Medal for Violas. Several vases of the valuable Lupin Pink Pearl and a quantity of blooms of Romneya Coulteri were included in an exhibit by Mr. J. R. DOWNER.

Roses of quality were shown by Messrs. D. PRIOR AND SON (Silver Banksian Medal), and the Rev. J. H. PEMBERTON (Silver Flora Medal). The former included Geisha, a new Pernetiana Rose of orange-yellow shades, with such sorts as George Dickson, Isobel, Premier, and Climbing Ophelia. In Mr. PEMBERTON'S collection the beautiful single-flowered Mermaid was very prominent. There were also good vases of K. of K., Ruth and Aurora.

Dry Bulbs.

As we have already reported, the R.H.S. has abandoned the idea of holding a special show this year of home-grown bulbs, and in its place

invited exhibits for the present and the next meeting. Only Mrs. WALLIS TOLLER (gr. Mr. G. Crabbs), Woodside, Weybridge, Surrey, responded on this date, with an interesting collection of home-grown bulbs.

Fruit and Vegetable Committee.

Present: Messrs. J. Cheal (in the chair), S. B. Dicks, W. F. Giles, J. Wilson, A. Bullock, W. Bates, W. H. Divers, E. A. Bunyard, J. C. Allgrove, F. Jordan, and the Rev. W. Wilks.

GROUPS.

In the corner by the gallery steps Messrs. G. BUNYARD AND Co. displayed a select little collection of splendid pot fruits. The most prominent were the trees of Pear Marguerite Marillat, bearing very large, perfectly formed fruits. Plums, Late Orange, Monarch and Victoria were well represented—the last-named had large, healthy leaves without any signs of the devastating silver-leaf disease. Amongst the Apples were well-fruited bushes of Rival, Peasgood's Nonsuch and Rev. W. Wilks, and there were several Figs bearing green fruits (Silver-Gilt Hogg Medal).

An interesting and very extensive collection of Gooseberries of great merit was shown by Sir JAS. KNOTT, Bart. (gr. Mr. W. E. Arden), Close House, Wylam-on-Tyne. Over 60 dishes were set out, and they included such large-fruited sorts as London, Collier's Lane, Speedwell, Lord Derby, Dr. Woolley, Broom Girl, Sir G. Brown, Overseer, Leveller, Leader, and Matchless, with the smaller but high-flavoured Yellow Champagne and Glenton Green. There were also several dishes of excellent Red and White Currants (Silver-Gilt Hogg Medal).

From the R.H.S. trials of Turnip-rooted Beet at Wisley, were sent dishes of the nine sorts that received Awards of Merit.

WHITEHALL AND DISTRICT.

THE sixth annual show of the Whitehall and District Horticultural Society, Bristol, was held on the 28th and 29th ult. in the magnificent grounds belonging to Messrs. H. J. Packer and Co., Ltd., chocolate manufacturers. A large and representative gathering of citizens attended the opening ceremony, at which Mr. Horace Walker, the president of the society, presided, and was accompanied by the Lord Mayor, the Lady Mayoress, the Sheriff, Alderman Sir John Swaish, and others.

The entries exceeded in number those of all previous shows, the total number being 1,231. The entries for flowers and vegetables were more than double those of last year. One of the most picturesque features of the flower and plant displays was the large number of groups and banks, there being fifteen competitive groups. The three large "island" groups, each occupying a space of 150 square feet, were a fine feature of the show. The trade exhibits occupied a large marquee. The marquees covered a space of over 15,000 square feet, and the show was the largest and finest seen in the west of England for many years. The society was started in 1917 with the object of stimulating interest in food production on allotments, and as each successive year has produced an exhibition greater than its predecessor, the annual event bids fair to become one of the largest in the provinces.

The following Medals were awarded:—

Gold Medal.—To Messrs. SUTTON AND SONS, Reading, for Sweet Peas; Messrs. J. CYPHER AND SON, Cheltenham, for Orchids and stove plants; Messrs. BLACKMORE AND LANGDON, Bath, for Begonias, Delphiniums and Border Carnations; Messrs. A. J. KEELING AND SONS, Bradford, for Orchids; and to Messrs. I. HOUSE AND SON, Westbury-on-Trym, for Scabious, etc.

Silver Medal.—To Messrs. BAKERS, Codsall, for Hardy Perennials; Messrs. RICH AND Co., Bath, for Phloxes; Messrs. A. A. WALTERS AND SON, Bath, for Roses and perennials; Mr. C. WALL, Bath, for Carnations; Mr. ROWLAND ADAMS, Bath, for Roses and Perennials; and to Messrs. T. CULLEN AND SON, Bristol, for Violas.

ANSWERS TO CORRESPONDENTS.

ALPINE PLANTS FOR SOUTH AFRICA: E. O. If plants are sent, the best time for sending them would be November. They should be packed firmly in nearly dry moss, but even under the best conditions it is very doubtful if they would arrive in a satisfactory condition. The far better plan would be to send seeds of the different species.

APPLE SHOOTS DAMAGED: W. H. It is probable that the damage to the young Apple shoots is due to an attack of some insect, but, as we could find no insects on the specimens received, we are unable to decide what species has caused the trouble.

BOOK: E. J. V. The best book on trees and shrubs is *Trees and Shrubs Hardy in the British Isles*, by Mr. W. J. Bean, which can be obtained from our publishing department, price three guineas; two volumes.

CALCIUM CARBIDE REFUSE: H. S. India. The calcium carbide refuse remaining after the manufacture of acetylene gas may be used on land in very much the same way as lime, but it should be sweetened somewhat before use.

CLAIM FOR COMPENSATION: C. R. In the circumstances which you mention you can only claim compensation for:—(1), Planting of standard or other trees permanently set out; (2), planting of fruit bushes permanently set out; (3), planting of Strawberry plants; and (4), planting of Asparagus, Rhubarb and other vegetable crops which continue productive for two or more years. The subjects which you mention do not appear to come botanically within the limitations of the foregoing definitions. As to your claim for disturbance, we assume you gave due notice beforehand of intention to claim compensation as provided by the Agriculture Act, 1920.

GRAPES DISEASED: G. K. and E. H. H. V. The Grapes are affected with spot disease, caused by the fungus *Gloeosporium ampelophagum*. Spray the vines and bunches with liver of sulphur at the strength of $\frac{1}{2}$ oz. in two gallons of water, or dust flowers of sulphur on the leaves and bunches, and again at intervals of ten days. Thoroughly wetting the rods with a solution of iron sulphate when the vines are dormant has been found of service. Do not feed the roots with an excessive amount of nitrogenous manure.

MUSCAT GRAPES DISEASED: J. M. D. The browning of the berries of Muscat of Alexandria Grape is due to the presence of the Botrytis form of Sclerotinia Funkeleana. Lack of ventilation in theinery encourages the disease, therefore fire heat coupled with ventilation should be used to produce a more buoyant atmosphere during dull and cool weather.

NAMES OF PLANTS: J. P. Spiraea Aruncus, var. Kneiffi.—C. L. Zephyranthes carinata.—E. O. White. Cistus cyprius: rose, C. Sunset.—A. B. C. (Unnumbered) white, Philadelphus Falconeri; yellow, Senecio Crustii; blue, Veronica Autumn Beauty. The fourth specimen was too withered to admit of identification.

TOMATO LEAF RUST: C. B. and J. H. The sappy condition of the growth and leaves suggests that the conditions under which the plants have been growing are unsuitable, as they produce growth which is extremely liable to disease. The disease present is Cladosporium fulvum, and where this is at all prevalent the plants should be sprayed with a solution of sulphide of potassium at intervals from the time they are established in their fruiting quarters. Remove and burn the most seriously affected portions, spray with sulphide of potassium, and by ventilation and other means secure a drier atmosphere.

COMMUNICATIONS RECEIVED.—H. M.—E. F. M. H.—J. P.—J. W. B.—E. W.—M. M.—J. C. S.—J. B.—S. A.—L. G. W.—J. M.—W. A. L.—F. K. Constant Reader.

THE

Gardeners' Chronicle

No. 1860.—SATURDAY, AUGUST 19, 1922.

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 62.2°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, August 16, 10 a.m. Bar. 30.0; temp. 61°. Weather—Sunny.

Growers of Potatoes will be interested in the account given by Mr. J. M. Hannah of the method of cultivation of Early Potatoes in Jersey, Cornwall, Lancashire and Ayrshire. Mr. Hannah's paper, which created considerable interest when it was read at the International Potato Conference in 1921, is now published in full in the Report of the Conference, which has been drawn up by Mr. W. R. Dykes and issued by the R.H.S.* Mr. Hannah points out that all the districts famous for early Potatoes are characterised by a heavy rainfall. In Jersey, the annual rainfall is 30 inches, in Cornwall, 40, in the Cheshire and Lancashire early districts, 32 inches, and in Ayrshire 38-40 inches. The view that a uniformly high temperature is the essential meteorological condition for the cultivation of early Potatoes is not confirmed by Mr. Hannah, who points out that no temperature difference exists between the E. and W. of Scotland, and yet it is only in the latter, along a narrow maritime strip of land running from Ballantrae in the south to West Kilbride in the north, that the industry flourishes. Rainfall and not high temperature appears to be the limiting factor

of early Potato cultivation. Needless to say the districts in which early Potato crops are raised are reasonably immune from spring frosts. Most favoured in this respect is Jersey, with a mean temperature of 60° F., and it is in this island that the industry reaches its maximum. One-third of the island—about 7,000 acres—is set apart for the cultivation of Potatoes and the annual produce amounts to some 50,000 tons. If, as Mr. Hannah states, it is rainfall which determines whether early Potatoes can be grown in a district, it would nevertheless seem to be true that temperature determines the amount of crop, for in Jersey, with a mean temperature of 60° F., the yield averages from 7-10 tons—from sets closely planted in rows sixteen inches apart, and sets 10-12 inches asunder; whereas with similar close planting, involving about two tons of "seed" per acre, the yield in Cornwall, where the mean temperature is 51° F., is not more than from 5-8 tons per acre.

The crop is treated liberally as regards manure. In Jersey, seaweed and stable manure are employed, together with a complete dressing of artificials. In Cornwall the same natural manures are applied lavishly—at the rate of forty to fifty tons per acre, and on these lands Potatoes are planted year after year instead of, as in Jersey, for three years only following grain, hay and pasture for two seasons. The varieties grown in Cornwall are May Queen and Sharpe's Express. Heavy manuring is practised also in the Ayrshire district—30-40 loads of seaweed per acre, or 12-15 tons of stable manure with dressings of complete fertiliser of 11-12 cwt. per acre drilled with the seed, and consisting of sulphate of ammonia, superphosphate and potash. Medium sized seed is used, saved from last year's crop, and sprouting the seed is universal. Mr. Hannah insists that sprouting should be done in the light. In Ayrshire, Epicure is now almost the only variety grown for early work. Signs are to be met with in Ayrshire that prolonged use of the same land leads to deterioration of crop, the yield sometimes falling from sixteen tons (in July) to less than half that quantity. It would seem that the soil has grown "sick" of the crop, for seed from such fields planted on fresh land yields satisfactorily. Of catch crops in the Ayrshire Potato district, Italian Rye Grass, Rape and Barley are grown.

Royal Visit to Westonbirt.—Her Majesty Queen Mary has honoured Sir George and Lady Holford with a visit to their delightful home at Westonbirt, near Tetbury, Gloucestershire. The beautiful grounds at Westonbirt, together with the wonderful collection of trees and unique collection of Orchids, will appeal to Her Majesty, who, as is so well known, has a great love of gardens and flowers.

Mr. E. H. Wilson, V.M.H.—After spending some time in this country, following his tour round the world on behalf of the Arnold Arboretum, Mr. E. H. Wilson sailed for the United States on Tuesday, the 15th inst., to take up his duties again as Assistant Director of the Arnold Arboretum, Harvard University.

Attack on the Director of Horticulture at Cairo. The news has reached us that Mr. Thomas William Brown, Director of the Horticultural Section of the Egyptian Ministry of Agriculture, was subjected to an atrocious outrage near Cairo on the 12th inst. It appears that Mr. Brown was driving his son from the Giza Gardens, to catch the Port Said night train for England. His little daughter, together with a nurse and groom accompanied them. Some short distance from home five or six men, fired revolvers and one of the shots killed the groom.

Another shot wounded the nurse, and from other shots Mr. Brown was wounded in one leg and arm and his son in both legs and one arm. Unfortunately, owing to the loneliness of the spot and the darkness, the assailants escaped. Mr. Brown is an old Kewite, and from his many friends of the Kew Guild he will receive the utmost sympathy, together with good wishes for the speedy recovery of himself and his son.

Golden Wedding of Mr. and Mrs. Owen Thomas.—Mr. and Mrs. Owen Thomas completed fifty years of married life on the 14th inst., but owing to the absence of several of their family on holidays, the celebration of this auspicious event was postponed until to-day, the 19th inst., at 25, Waldeck Road, Ealing. We need scarcely remind our readers that Mr. Owen Thomas, V.M.H., was for many years gardener to Queen Victoria and to King Edward VII. We join with his many friends in congratulations to Mr. and Mrs. Thomas upon their golden wedding and in the hope that both may long be spared to enjoy health and happiness.

New Park for Cardiff.—We learn that Lord Plymouth, the Lord-Lieutenant of Glamorgan-shire, has presented to the Cardiff Corporation a beautiful new open space. This new park is known as the Great Wood of St. Fagans. Its position is on the southern slopes of the river, its area is about fifty acres, and it will provide ample room for walks among the trees and sufficient open space for recreation purposes.

A Wild Flower Show in America.—Almost every local flower show in the British Isles has its children's section for wild flowers and grasses, and there are certain museums—Norwich and Leicester, we believe—where a small, but continuous display of wild flowers is maintained from spring to late autumn. In South Africa two or three exhibitions of wild flowers are held annually, and they create a great deal of interest. In the United States of America, Mr. A. C. Burrage, President of the Massachusetts Horticultural Society, organised a wild flower show that was held at Boston in May and continued for seven days, the attendance per day ranging from 5,000 to 10,000. The preparation of the show was a big business, as the arrangement was as natural as possible, streamlet, bog and rocky hill-side being provided to form a natural setting for the various kinds of plants. We learn from one report to hand that one hundred and fifty tons of rock were used, with masses of Balsam Fir and Hemlock as background. Eighty-seven species of flowering plants and forty-three species of native Ferns were displayed in this extraordinary show, so ably arranged and carried out by the man to whom the George R. White medal was recently awarded, an award made only to "those who have in recent years done the most for horticulture" in America.

Hop Cultivation in England.—During the year 1920 there were 21,000 acres under Hop cultivation in England, and this area was advanced to 25,130 in 1921, while the preliminary return for the present year gives the acreage as 26,330. Hop growing is most extensively carried out in Kent. In East Kent there are 4,010 acres, in mid-Kent 5,520, and in the Weald of Kent 7,110, giving a total of 16,640 acres of Hops cultivated in the county. The county next in importance with regard to Hop cultivation is Hereford, with 3,950 acres. This is followed by Sussex with 2,330 acres, Worcester 2,030 acres, Hampshire 1,070 acres, and Surrey 220 acres, while the area under Hops in all other counties totals only 90 acres.

Anthracnose of the Cucumber.—One of the most destructive of the several "spot" diseases which attack Cucumbers grown under glass for commercial purposes is *Colletotrichum oligochaetum*. This fungus attacks young plants at about the ground level, and causes such a shrinkage of the tissues that they collapse. The disease spreads rapidly and gives rise to spore masses in about five days. According to an account given by Dr. W. F. Bewley in the current issue of the *Journal of*

*The Early Potato Industry. By J. M. Hannah. Report of the International Potato Conference. Published for the R.H.S. by H. M. Pollett and Co., Fann Street, E.C.1. Price 3s. 4d., post free.

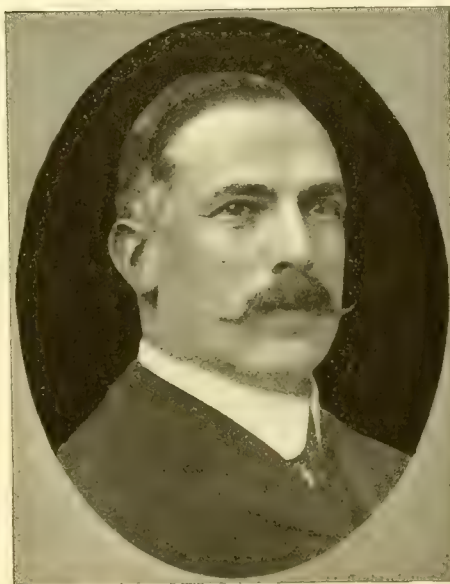
the Ministry of Agriculture, this disease does not appear generally until March or April, when the plants are well established in the house and some fruits have been cut. The necessity for cleanliness in connection with Cucumber culture is emphasised by the fact that this fungus will thrive upon such varied substances as new and rotten wood, straw, cotton wool, and manure. Dr. Bewley points out that the present method of cleansing greenhouses during the winter months is inefficient for the purpose of preventing further infection, and that infection is more abundant immediately after the diseased crop has been removed than after the period of winter rest, though in the latter case sufficient centres of infection remain to carry the disease over to another season. Dr. Bewley does not suggest means, other than cleanliness, whereby the disease may be combated; but he may do so in a subsequent issue of the *Journal*, and as this subject is of considerable economic importance, we shall look forward with considerable interest to his further contribution.

Deciduous Japanese Hollies.—Two deciduous Japanese Hollies flowered during July in the Arnold Arboretum. These are *Ilex serrata* and *I. geniculata*. The berries of the former are smaller than those of the American *Ilex verticillata*, but they are of a brighter colour and remain on the branches, although changed in colour by severe cold, until the leaves of the following year are fully grown. We learn from the *Bulletin of Popular Information*, published from the Arnold Arboretum, Harvard University, Mass., U.S.A., that in the autumn the leafless branches of these Hollies, covered with their brilliant red fruits, are sold in great quantities in the streets of Tokyo and other Japanese cities. *I. geniculata* is said to be a delightful little plant, with small, bright scarlet fruits gracefully hanging on long slender stems, and, although little known, is a good plant for any garden.

An Alphabetical Avenue.—Sir Wm. N. M. Geary has planted an alphabetical avenue at Oxonhoath, near Tonbridge. The trees composing it number sixty-eight, and are planted either in pairs or fours to form an avenue about six furlongs in length, and there is at least one kind of tree to represent each letter of the alphabet, which begins with the Aspen and ends with Zelkova.

Massachusetts Horticultural Society.—This old-established and leading American Horticultural Society, about two years ago, abandoned its long continued custom of issuing its transactions half-yearly. In place thereof it now publishes an *Annual Report*, with intervening "bulletins," which contain the text of various papers communicated to the Society. In the *Annual Report* for the past year, only just to hand, we notice that the Society, which will celebrate its centenary in seven years' time, now numbers 1,001 members. Reports of the various committees and officers are given, showing the scope of the Society's activities during the year. The membership comprises honorary, corresponding, life and annual members. Dr. Henry S. Pritchett, of New York, and M. Viger, the President of the National Horticultural Society of France, are the only two honorary members; but the next grade, i.e., corresponding members, are drawn from the ranks of well-known horticulturists of various countries. Great Britain is represented by Sir Isaac Bayley Balfour, Sir W. T. Thiselton Dyer, Professor Henry, Lt.-Col. Sir Geo. Holford, Sir Fredk. Moore, Sir Daniel Morris, Mr. W. J. Bean, Mr. H. J. Elwes, Sir David Prain, Sir Harry Veitch, Dr. Ridley, Mr. William Robinson, Mr. F. Gomer Waterer, Mr. Wm. Watson, Mr. Harman Payne, Mr. J. C. Williams, and Miss Willmott. To these have been added during the past year Mr. W. R. Dykes, Mr. F. J. Chittenden, Mr. Gurney Wilson, and some of our prominent Colonial botanical and horticultural officials. France and other countries, are also represented in this list of persons chosen by the Society in recognition of their services to horticulture.

Mr. Frank Cant.—All who attend horticultural exhibitions, and especially Rose shows, will recognise in the photograph published below a portrait of one of the most genial personages in the horticultural world, Mr. Frank Cant, of Colchester. He is a member of a family which has been honourably connected with the borough of Colchester for very many generations, and his great success as a Rose grower is well known to the majority of our readers. Roses have made the name of Colchester known wherever Roses are cultivated, for it is the home of several important Rose nurseries, including the Braiswick Rose Gardens, which Mr. F. Cant established over forty years ago, and in 1876, the year following his debut as a Rose grower, he won the first prize for 36 distinct varieties in the open class at Colchester. At the National Rose Society's show in 1902, he won the champion cup and also the first prize for thirty-six distinct varieties of garden Roses shown in large bunches, a feat which we believe has never before, or since, been accomplished by anyone. Since establishing the Braiswick Rose Nurseries, Mr. F. Cant has enjoyed almost uninterrupted success with Roses, and has won challenge



ALDERMAN FRANK CANT.

trophies at all the principal Rose exhibitions both in the metropolis and in the provinces. In addition to the large number of trophies, medals, and other prizes that he has won, including challenge and other silver cups, he has secured awards for new Roses, and is recognised as one of the most skilful cultivators and exhibitors of all classes of these beautiful flowers. Mr. Cant owes his success mainly to two outstanding qualities: First, keen business ability, and secondly, a charm of personality that has won for him the esteem of all with whom he has come in contact. He is not less highly esteemed in his native town than in the horticultural world, and as evidence of this, it may be stated that his fellow citizens conferred on him the highest distinction in their power in selecting him as Mayor of their famous city during 1911, and appointing him an Alderman. We well remember the occasion when, in his official capacity as mayor, he presided at the annual Oyster Feast of the ancient city of Colchester, an event which marked the approaching termination of his year's office as mayor. The distinguished company on that occasion included men of importance in the church, law, politics, business, arts and civic life, and of all the company there, none gave greater dignity to the proceedings than Mr. Frank Cant, for his commanding presence was outstanding. He had also invited many horticulturists and prominent rosarians, including

the President and Secretary of the National Rose Society, an association with which Mr. Cant has been long associated and in which he holds the distinguished office of an acting Vice-President.

The Cory Cup for Dahlias.—The cup presented to the Royal Horticultural Society by Reginald Cory, Esq., Duffryn, Cardiff, will be competed for at the meeting to be held at the Royal Horticultural Hall, Westminster, on August 22. The cup was presented solely with the object of encouraging raisers to produce Dahlias, of any class or section, of decorative value, and in the competing exhibits all flower stems must touch the water in their receptacles, and no wiring or artificial support is allowed. Hardy foliage or grasses may be used in the decoration of the display, but every variety must be distinctly labelled and nothing but the name of the variety must appear on the label. Competitors are allowed a space twenty-five feet by three feet, and their exhibits must not exceed eight feet in height from the ground level to the top of the flowers.

Appointments for the ensuing week.—Tuesday, August 22: Royal Horticultural Society's Committees meet. Wednesday, August 23: Highland Horticultural Society's show; Helensburgh and Gareloch Horticultural Society's show; Calne Horticultural Society's show; Royal Tunbridge Wells Gardeners' and Horticultural Society's show; Biggar Flower show; Inverness Flower show; Lanark Flower show. Thursday, August 24: Royal Botanic Society's meeting; Royal Horticultural Society of Aberdeen show (3 days); Ayton Flower show; Dunoon Flower show; Kilcreggan, Cove and Roseneath Flower show; Peebles Flower show. Friday, August 25: Dunfermline Horticultural Society's show (2 days); Paisley Florists' Society's meeting; Bargoed Horticultural Society's show (2 days); Blairgowrie Flower show (2 days); Carnwath Flower show; Holytown Flower show; Motherwell Flower show; Stranraer Flower show. Saturday, August 26: Dunbar Horticultural Exhibition; Dumfries and District Horticultural Society's show; Dalkeith Flower show; Langholm Horticultural Society's show; Dailly Flower show; Alexandria Flower show; Thornhill (Perthshire) Flower show; Auchterarder Flower show; Bannockburn Flower show; Bridge-of-Weir Flower show; Carstairs Flower show; Chirnside Flower show; Kilsyth Flower show; Swinton, Duns, Flower show; Inverkip and Wemyss Bay Flower show; Gartmore Flower show; Gatehouse Flower show; Gateside (Beith) Flower show; Newmarket Flower show; Springside Flower show; Markinch Flower show.

"The Gardeners' Chronicle" Seventy-five Years Ago.—Early Stewing Pears and Peaches.—It is singular that with the greatly improved taste in and knowledge of cookery, we do not cultivate the early stewing Pears and Peaches so much used on the Continent. I never see in England a dish of stewed Pears, as a compôte, till November or December; whereas all the tourists in France, and up the Rhine, by this time must see at every table some one preparation or other of Pears and Peaches. The Peach used is a standard. The fruit, when raw, is austere and slightly bitter, but, when stewed, excellent, and without the *fade* flavour of the wall Peaches. I find that Mr. Rivers has imported one of the kinds of Peach used for this purpose in France under the name of *Pêche des Vignes*. It is grown as a standard in the vineyards; it is much more hardy than our cultivated sorts and is a free bearer. Those who would wish to see a good representation of the fruit need only go to the British Institution, Pall Mall, and look at the dish of Peaches in the fine picture of Rubens, in the middle room. *Dodman, Gard. Chron., August 21, 1847.*

Publications Received.—*Romance of the Flora of New Zealand*. By Sir George Fenwick. Otago Daily Times and Witness Co., High Street, Dunedin.—*The Flora of the Malay Peninsula*. Vol. 1. By Henry N. Ridley. L. Reeve and Co., Ltd., 6, Henrietta Street, Covent Garden, W.C.2. Price 63s.

NOTICES OF BOOKS.

Shakespeare's Garden.*

THIS very attractive addition to the limited literature of Shakespearean gardening will unquestionably appeal to a large number of readers who have an interest in the home surroundings of the great writer. A well printed, neatly got-up thin octavo of thirty-four pages, most copiously illustrated with well executed photographic process blocks, *hors texte*, describes in a series of short articles much that is of interest concerning Shakespeare's garden in his lifetime and the restored garden of to-day, with its recently acquired stock of old-time plants and flowers. We select, as indicative of the scope covered by this excellent little book, a few of the chapter headings, which will be sufficient to whet the literary taste of those of our readers who occupy themselves with such matter, viz.: Shakespeare's Garden, its Origin and Extent; Shakespeare's Knowledge of Gardening; The Great Garden Since 1760; Scheme for an Elizabethan Garden; Flowers from Historic Houses and Castles; Old English Flowers with Old English Names; The "Knott" Garden; The Old Designs Carefully Followed; Bacon Echoes Shakespeare's Verse; Shakespeare and the Rose; Flowers in Shakespeare's Own Garden, etc.

The illustrations, in the main of unusual interest, are twenty-one in number, and we commend Mr. Law's work to the consideration of all literary horticulturists.

A Handbook of British Basidiomycetes.†

The British students of Fungi have hitherto laboured under the serious disadvantage that they had no modern English handbook to enable them to "run down" species. This disadvantage is now remedied so far as one great group of Fungi—the Basidiomycetæ—is concerned. It is true that the author of this handbook has confined his diagnoses to the larger fungi of this group and has omitted consideration of the parasitic sub-orders, the Puccinieæ and Ustilagineæ—the rusts and the smuts; but, even so, his work occupies nearly 800 pages, and to have included the parasitic forms would have involved far larger space and possibly, also, a different method of diagnostic treatment. The great group of Basidiomycetous fungi, in which are included, of course, Mushrooms and Toadstools and Puffballs, presents many difficulties to the systematist, and it is not surprising that numerous classifications have in the past been attempted. Mr. Carleton Rea separates the group into two main divisions, the Homobasidiæ and the Heterobasidiæ, the former characterised by an undivided basidium or spore-bearing cell and by the fact that the spores germinate to form a mycelium; and the latter distinguished by a septate basidium and indirect mycelium formation—the spores borne on a basidium germinating to form secondary spores (sporidia), which in turn produce a mycelium. The classification of the Homobasidiæ follows physiological lines—one subdivision, the Exobasidiæ, comprises parasitic forms, and the other, the Eu-Homobasidiæ, the saprophytic forms. In this classification the Gasteromycetes, which previously were regarded as forming a division co-equal with the Hymenomycetes, are now ranked as one of the three orders of the Eu-Homobasidiæ (Gasteromycetales, Agaricales, and Aphyllophorales). This classification has much to commend it. A key of the divisions and genera, which precedes the description of species, greatly facilitates the work of the student in identifying species. Anyone with access to this handbook should find no difficulty in determining the name of any of the common or rare fungi indigenous to this country.

* *Shakespeare's Garden, Stratford-upon-Avon*. By Ernest Law, C.B., one of the Trustees, with illustrations. Selwyn and Blount, Ltd., 21, York Buildings, Adelphi, W.C.2. Price 3/6 net.

† *British Basidiomycetæ*.—A Handbook to the larger British Fungi. By Carleton Rea, B.C.L., M.A. Published under the auspices of the British Mycological Society, Cambridge University Press. Price 30/- net.

WINTER-FLOWERING STOCKS IN THE LONDON AREA.

THE article by Mr. Thatcher (see p. 82) reminds me that the best time for sowing seeds of winter-flowering Stocks for withstanding the winter and flowering in the spring in North London is early August. I find the best varieties are Beauty of Nice and Queen Alexandra, preference being given to the first-named. Sow the seeds thinly in well-drained boxes of soil to which a sprinkling of wood-ash, lime and sand, and a little soot, has been added.

The soil should be made moderately firm and be well watered before the seeds are sown, allowing the boxes to stand and drain awhile. When ready for sowing, put a sprinkling of sand on the top of the soil, then sow the seeds and cover then with about one-eighth of an inch of

of rough sand, wood ash, leaf soil and a sprinkling of lime and soot. Place them back again on the shelf until the days become brighter and the atmosphere not so saturated with moisture, and then stand them in a cold pit or frame with a southern aspect. At the beginning of March plants so grown may be stood outside, after being staked, with lights over them, as this will allow the air to pass freely among them. Remove the lights in the day time on fine days and replace them in the evening. When showing flower remove the plants to the conservatory, or wherever they are needed. If possible, keep them close to the roof-glass until the flowers open.

When the soil is full of roots water with liquid manure, soot water, or a solution of Clay's Fertiliser. I find these Stocks rather difficult to grow here an account of dull weather and fogs, but by perseverance and care I have had batches in flower



FIG. 41.—*ATHYRIUM FILIX-FOEMINA ANGUSTATUM* MEDIODECIPIENS CORYMBIFERUM; R.H.S. AWARD OF MERIT, AUGUST 9 (SEE P. 101).

fine soil. Place the boxes in a cold frame; but before doing so dust the floor of the frame with lime as a protection against slugs until the seeds have germinated. Place the boxes as near as is convenient to the roof glass, and when the seedlings appear give shade during the hottest part of the day to reduce the need of frequent watering. When the soil is dry dip the boxes in a vessel of water and allow the water to rise gradually through the soil.

When ready, pot the seedlings singly in small 60-sized pots. I find this a better method than first pricking out the seedlings, as the plants get established before the dull, damp weather arrives. Damp is the chief enemy of these Stocks, not cold. Careless watering, and heavy condensation of moisture in the frame due to lack of air, will soon play havoc with a batch of plants. Keep the Stocks in the cold frame until early in November, and never allow the frame to be closed entirely. Then move them to a cold, light house, with convenience for ample ventilation, and place the pots on a shelf near the roof-glass. The aim all through the dark days should be to keep the plants dwarf, sturdy, and "on the dry side."

At about the end of January pot the plants into 48-sized pots in a mixture of two parts of turfy loam, and the other part composed

each of the two seasons I have been here, almost perfect and a pleasure to all who saw them. J. C. S., North London.

ERYNGIUM PANDANIFOLIUM.

THIS bold Sea Holly does not appear to do well in the north, where it is but little seen, but in the milder parts of the British Isles it is quite a striking and pleasing object. I have seen it in fine form, but with me it has never made any real progress, and this is quite a common experience in the colder parts of the kingdom. It is quite distinct from such well-known Sea Hollies as *E. planum*, *E. alpinum*, *E. amethystinum*, and others of that class. In the south it makes great plants with long narrow, spiny, glaucous leaves, and then throws up flower stalks which in favourable circumstances reach ten, twelve, and even fifteen feet in height. As a foliage plant it should be considered by those who can give it a rich, free, open, soil, with plenty of drainage, in the more southern counties of England and Ireland, but I regret that I cannot recommend it for the colder parts of the country. S. Arnott.

The Week's Work.

THE ORCHID HOUSES.

By J. T. BARBER, Gardener to His Grace the
Duke of Marlborough, K.G., Blenheim Palace,
Woodstock, Oxon.

Dendrobiums.—Many of the deciduous Dendrobiums will be completing their growth, and, when this has been fully made up, it is necessary to remove the plants to a cooler and drier atmosphere, where they may receive the benefit of extra sunlight and air, so as to thoroughly ripen and bring the newly made growth to maturity. It is not always advisable to remove Dendrobiums from their growing quarters immediately they appear to have finished growth, for it is at that time that the roots become very active, not only in lengthening themselves, but also in throwing out many lateral rootlets. Small as many of these latter are, they must not be despised, for it is through them that the plants gather strength both to flower and to bear uninjured the strain of flowering. It is better, where practicable, to select a position on one side of the house, where more air and light can be admitted and less moisture given, especially when damping down. This partial removal may be done immediately the leaf at the extremity of the new pseudo-bulb is completed, or where there is any fear of a plant starting into premature growth. The plants should be gradually exposed to the sun for a longer time than is usual in the morning, and the blinds pulled up earlier each afternoon. Should dull weather prevail, there will be no necessity for using the shading, but the plants should be gradually inured to withstand sunshine. Plants that have completed their growth should not suffer for want of water at the root or they may receive a check, which will cause them to finish up prematurely, and immediately afterwards start into growth. **D. Wardianum** and some of its hybrids are very liable to do this, with the result that the flowers of the following season are greatly weakened and much inferior to those on plants that have received careful attention.

Resting.—In order to retain a vigorous and healthy constitution, everything appertaining to the drying and resting stages must be gradual, as not only the successful flowering but the ultimate health of the plant depends upon its thorough ripening and consolidation. As far as possible, each plant should make but one set of growths annually, and, should they start into growth a second time, it is advisable to encourage them as far as possible by placing them in the most favourable quarters. After a week or two of such treatment in the growing house, the young shoots will have taken hold of the compost, and the plants may be removed to other quarters where they will be far less shaded and where a drier and less close atmosphere is maintained. It is generally easy to select positions for the Dendrobiums where they may gradually pass from moderate shade to clear sunshine, taking care to choose a position where they will be free from draughts or cold winds. When fully exposed to bright sunshine, the compost, being full of roots, dries out quickly, but careful judgment should be exercised in watering. Do not keep the roots in a constantly saturated condition. Plants well established in small pots will need water more often than the larger specimens; but in either case, when once a thorough watering has been given, they should receive no more until the whole compost has become dry again. The aim of the grower should be to water the plants sufficiently to keep the roots in a healthy condition, to prevent undue shrivelling of the pseudo-bulbs, and to prevent new growth by the admission of fresh air and sunshine. Among the earliest kinds to complete their growth are *Dendrobium aureum*, *D. Wardianum*, *D. nobile*, *D. crassinode*, and several hybrids.

HARDY FRUIT GARDEN.

By H. MARHAM, Gardener to the Earl of Strafford,
Wrotham Park, Barnet.

Apples.—Trees bearing heavy crops and making somewhat weak growth should be relieved of a goodly number of fruits, first removing those badly situated and deformed. Timely attention in this respect will allow the trees to develop finer fruit and also build up healthy growth and buds for producing a crop next season. Do not overlook the needs of the roots: a supply of liquid manure or guano water will do much to encourage both fruit and growth, and without such assistance at the right time the trees may need a season's rest in which to recover strength to fruit satisfactorily.

Cordon Pears.—Fruits of early Pears are best when gathered a trifle under-ripe, with the exception of a few very early kinds, such as *Doyenne d'Été*, *Citron des Caimes* and *Beurré Gifford*, which are usually at their best when and as gathered from the trees. William's Bon Crétien and others should be gathered at intervals of a few days and taken to the fruit-room to finish. All cordons worked on the Quince stock are bearing heavily, therefore later sorts should not be allowed to suffer from drought at the roots, otherwise the fruits will lack finish. *Nouvelle Fulvie*, *Duchesse de Bordeaux*, and *Josephine de Malines* were very good last year, and very late.

Plums.—These fruits are fast ripening, and should be afforded protection against birds. See that all the young shoots on wall-trees required for filling vacant space are neatly secured. Mice are sometimes very troublesome and destructive to Plums and other wall fruits, and should be duly checked by means of small traps. Examine fruits of dessert kinds that are ripening, and gather them when perfectly dry. Early *Transparent Gage*, *Oullin's Golden Gage*, *Jefferson*, *Washington*, and *Coe's Golden Drop* are all excellent dessert Plums, and will give satisfaction; but there are also other very good and dependable varieties. See that the roots of all trees bearing heavy crops are well supplied with moisture; a dressing of lime at intervals will prove very helpful both to growths and fruits. Plum trees growing in rather narrow borders and trained fan-shape against walls sometimes suffer at the roots when the border is cropped with vegetables too closely to the trees.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir C. Nall-Cain, Bart.,
The Node, Codicote, Welwyn, Hertfordshire.

Fuchsia.—Fuchsia cuttings may now be inserted to produce plants for flowering early next summer. The cutting should be selected from plants that have nearly finished blooming; insert them close to the sides of small pots and stand them in gentle warmth under a hand light. As soon as roots have formed place the pots of cuttings on a shelf near the roof glass in a cool house; later, pot the young plants singly in small pots, after which they may be kept growing steadily throughout the winter. Good standard plants may be obtained in one season if allowed to grow unchecked through the winter and stopped at the desired height in early spring, but if bushy plants are required they must be pinched at intervals as growth permits.

Hippeastrum.—As the earliest plants of *Hippeastrum* have completed their growth water should be gradually withheld and the plant exposed fully to sunshine in order to ripen the bulb. At this period they may be allowed a lower temperature and abundance of fresh air whenever outside conditions permit. Seedlings should not be dried off but kept growing in a moderate temperature throughout the winter.

Bush Chrysanthemums.—These plants have filled the soil with roots and will require some assistance to keep them in a healthy condition. Liquid farmyard manure supplied alternately with soot water, and concentrated *Chrysanthemum* manure used according to instructions, will keep the plants in good condition, but should the weather prove wet and dull care

must be taken not to overfeed them or the results will be soft, sappy growth, which will neither produce flowers in quantity nor develop large blooms. It often happens during spells of wet weather that plants are overlooked with regard to watering, and it is during such times that great care should be taken to ascertain the requirements of the roots; the leaves will prevent small quantities of rain from reaching the roots. Attend to staking and tying of the young growths to prevent them becoming broken by strong winds. Plants grown to produce large blooms should have each growth staked separately to keep them erect, but bush plants may be tied to one or more sticks according to their growth.

THE KITCHEN GARDEN.

By JAMES E. HATHAWAY, Gardener to JOHN BRENNAND,
Esq., Baldersby Park, Thirsk, Yorkshire.

Beet.—The recent wet weather has made this crop grow very fast, and the roots should be lifted before they become coarse. Store them in the coolest place available, in sand or ashes; the top of the "pie" should not be closed up, or the roots will heat and commence to grow again. Care should be taken not to damage the roots when lifting and storing them.

Climbing French Beans.—Seeds of the Princess of Wales variety of Climbing French Beans should be sown in gentle heat, placing three seeds in each $3\frac{1}{2}$ inch pot. As soon as the plants are large enough, plant them out in rows in a house with a temperature of 65°; these plants furnish late supplies of excellent Beans.

Thinning-out Crops.—Carrots, Beet, Turnips, and other crops sown last month should be thinned out to the required distances as soon as the seedlings are large enough to handle, and kept free from weeds.

Cucumbers.—A batch of plants should be raised now from seeds, and grown on in a light airy house for winter fruiting. As good, strong plants are essential to success, keep the growths well thinned out, and do not allow cropping to commence until the plants are well developed.

Corn Salad.—To provide late autumn supplies sow seeds now in drills 16 inches apart; thin out the seedlings as soon as possible 6 inches apart.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER CLAY,
M.P., Ford Manor, Lingfield, Surrey.

Succession Houses.—Vines will soon be clear of fruit, and must receive generous treatment both as regards root-watering and careful late syringing. If the Vines are old and not over vigorous, early maturity is certain and ventilation must be liberal. Vigorous young Vines, on the contrary, may require a good deal of ripening and may be kept a little closer, with top and bottom ventilation left on for the night, as there is nothing like sun-heat and fresh air for ripening the wood. Vines upon which ripe Grapes are hanging should have plenty of natural shade during the hottest part of the day, and this is best afforded by a few well-arranged laterals; but if the natural shade is too thin, a double thickness of netting laid on the roof of the house will break the sun's rays whilst letting in light. White Grapes delight in plenty of light and some sunshine, but there comes a time when fully ripe berries scorch and show signs of shrinking, and when this happens sheets of tissue paper may be placed over the most exposed bunches.

Early Muscats.—Early Muscat Vines may be treated in a similar manner to the earliest Vines which are cleared of fruit, syringing being regulated by the healthy and clean condition of the foliage. If the wood is hard and approaching maturity gross laterals may be removed. Wash the foliage well occasionally and keep the borders thoroughly moist, but not too wet. The main crops of Muscats, like Lady Downe's, repay for liberal treatment, there-

fore the roots must be kept well fed with liquid manure. If laterals are abundant they may be gradually reduced or tied down, until the berries have done swelling.

Pot Vines.—Pot Vines intended for early forcing should soon be fit for full exposure, not by removal to the open air, but by throwing open all the ventilators on fine hot days and closing them only in wet weather. If the vines are rooting through the holes in the pots the roots should be disturbed or cut before the leaves fall, but this rarely happens where top-dressing and feeding have been generous. Pot Vines should never become dry at the roots, but the ripening of the leaves must be accepted as a signal for a gradual reduction in the quantity of water supplied. As the Vines ripen the removal of the first laterals close down to the main buds, from the base upwards, is an important matter, as the buds cannot be too well ripened.

Vines for Planting.—Vines now in 8-inch pots and which were stopped when about 6 feet high, will now be thickening their stems fast and pushing many laterals. These must be encouraged to a certain extent by frequent syringing and judicious watering, but they should be pinched when they have more than two joints.

THE FLOWER GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

Annuals.—Late seedlings of Mignonette should be thinned out, as it will only retard development if they are left crowded together. Other annuals, as soon as their flowering period is over, should be cleared away to prevent any appearance of untidiness from spoiling the effect of borders. Pansy seeds should be sown now in light, sandy soil and germinated in cold frames. Only seed of the very best strains should be employed; there are many cheap and indifferent strains that will only disappoint the grower.

Viola and Pansy Propagation. Raising Pansies from seed has just been dealt with, but such remarks apply equally to Violas. Where, however, a good stock of named varieties is needed, the method of raising from cuttings should be employed. Now is a good period to commence the work, as strong healthy young growths will be observed growing right from the base of the plants. These should be inserted as cuttings in the ordinary way, in good sandy compost; I prefer the use of shallow boxes, inasmuch as they can be placed in cold frames until the cuttings are rooted, and then stood in the open until such time as they are required for planting out, thus leaving the frames free for other things without disturbing the plants. Straggling old growths will not provide good cuttings, for once the stems become hollow the chance of their rooting is practically nil. Where plants are backward in throwing up the young growths, they may be encouraged to develop by trimming the old growths right back.

Spanish and English Irises.—When these have died down, it is a good plan to lift the bulbs, and ripen and dry them off prior to storing them. Replanting may take place in the spring or before the end of November.

Montbretias.—These very valuable ornamental flowers are now throwing up their fine spikes, and as the later introductions are somewhat heavy-headed at times, they should be supported when and where required. Planted in good breadths in a garden, they form very striking features at this time of the year. Plenty of water is essential to their well-being, and the soil around the corms should not be allowed to dry out in hot weather. Every two, or three, years at most, the beds of Montbretias should be lifted and fresh ones prepared on good soil, otherwise the plants deteriorate. Select only the best corms for replanting.

Violets.—As runners are formed from the plants bedded out for planting in frames later on, remove them, or they will weaken the parent plant.

ORCHID NOTES AND GLEANINGS.

MORE ALLIES OF DENDROBIUM FORMOSUM.

THE species here referred to belong to the section *Formosae*, and are in addition to those mentioned on p. 80.

Dendrobium spectabile-simum, Rolfe, is one of the most interesting of the nigro-hirsute *Dendrobiums* and a close ally of *D. formosum*, but comes from a widely separated region. It was discovered by Sir Hugh Low on Mount Kina Balu, Borneo, in 1851, at about 6,000 feet elevation, who sent home dried specimens, one of which bore a short raceme of four flowers equal in size to *D. formosum*. The late Mr. F. W. Burbidge, in company with Mr. P. C. M. Veitch, also found it on the Marie Parie spur at 4,000 feet, the situation being described as similar to that of a warm Devonshire wood, the air being chilly at night. Beyond this, little was known of the exceedingly desirable plant until both the collectors of Messrs. Sanders and of Messrs. Low sent dried specimens which indicated the beauty of the



FIG. 42.—DENDROBIUM CRUENTUM.

species, and in 1895 both firms flowered specimens of it, and secured botanical certificates when it was in the immature stage and awards of merit later.

The announcement that it had been collected and some particulars given by Messrs. Low's collector, borne out by dried flowers from the same source, was given in *The Gardeners' Chronicle*, March 9, 1895, p. 295, where it is stated: "The flowers are pure white, except a blotch at the base of the lip, which is rich purple-red colour. The plant is of dwarf habit and very floriferous, bearing trusses of about four flowers, which are larger than those of *D. formosum giganteum*."

The description of the flowers of the plant which obtained the award of merit (*Gard. Chron.*, July 27, 1895, p. 103) states: "With large white flowers and orange and red base to the lip, the central yellow keel also having a red spot at the base." During 1895 and 1896 the plant was frequently shown and much admired, its flowers, although equal to those of *D. formosum*, proving quite distinct, especially in the rounded front lobe of the lip and the deeply cleft side lobes separating them from it. The colour also varied, some flowers showing more deep red at the base of the lip than others.

The species seems to have dropped out of notice as suddenly as it appeared, although it is to be hoped that specimens of it may yet be found in gardens. But it is very desirable that fresh importations of such a handsome

species should be obtained as soon as possible, and that it should be tried in the intermediate house, as its habitat, Borneo, probably induced growers to give the former importation too much heat.

D. cruentum, Rehb., *Gard. Chron.*, 1884, p. 604, of which Messrs. Sanders succeeded in getting a good importation from the West Coast of the Malay Peninsula in 1895, is another desirable species (Fig. 42), of rich and unusual colouring. The flowers are wax-like in substance, the sepals and petals ivory white tinged with green, the three-lobed lip having the lateral lobes crimson red, the middle lobe greenish, bordered with red and having a large raised red crest. J. O.B.

CYPRIPEDIUM NIVEUM SEEDLING.

A VERY large and beautifully formed flower of the Snowy *Cypripedium*, raised in his collection, is sent by Clive Cookson, Esq., Nether Warden, Hexham (gr. Mr. W. J. Stables). Since the introduction of the species, over fifty years ago, it has been frequently imported, the plants showing some variation in their flowers, but none appear to have come up to the standard of Mr. Cookson's home-raised form. The broad dorsal sepal and petals are circular in outline, snow white, with some very small violet spots on the inner parts of the petals. The pure white lip is of larger size than usual in the species, and the whole flower a decided advance on the typical form, some of its excellence being probably due to the better root action of a home-raised plant than of an imported specimen.

MILTONIA SEEDLINGS.

THE specimens of *Miltonia Charlesworthii*, each with two spikes proceeding from the only mature pseudo-bulb, and bearing eight to eleven flowers of large size and fine quality on each spike, as shown by Messrs. J. and A. McBean, Cook-bridge, at the recent meeting of the Royal Horticultural Society, afford a remarkable instance of what may be accomplished on the first flowering of some hybrids. The small plant from which the rich floral display proceeds is greatly "in the minority." The fact is that in such cases the active flower spikes get their energy direct from the root crown without being diverted to the sustaining of the plant and building it up for next season's flowering.

TREES AND SHRUBS.

LARGE TREES AND THEIR MEASUREMENTS.

THE following list of large trees I have copied from an old book, kept by an ancestor. It would be interesting to know how many still survive, and what increase of girth they have put on. Oak: Thorndon, Essex (12 apostles), (1818), at 5 feet, 23.11; Tredville, Kent (1818), at 5 feet, 29.3; *Panshanger, Herts (1828), at 5 feet, 18.4; Woodhall Park, Herts, at 5 feet (1822), 16.5. Ash: Edgcott, Northants (1818), at 5 feet, 12.1; (1825), at 5 feet, 19.0; Ashlyns, Herts (1825), at 5 feet, 16.9. Elm: Tewin Water, Herts (1816), at 5 feet, 17.10; Tintern, Monmouth (1816), at 5 feet, 22.6; (1816), at 5 feet, 20.0; Kew (1825), at 5 feet, 15.4; (1825), at 5 feet, 20.7; Cheltenham, on road to Tewkesbury (1813), at 5 feet, 19.0. Spanish Chestnut: Broxbourne, Herts (1816), 4 feet, 16.7; *Tortworth, Glos. (1759), 6 feet, 46.6; Digswell, Herts. (1816), 5 feet, 12.3. Scots Pine: Cats Hill, Stanstead, Herts. (1816), 5 feet, 8.4; Bayfordbury, Herts. (1821), 5 feet, 6.1. Yew: Thorpe, Northants (1817), at 5 feet, 15.5; Totteridge, Herts. (1825), at 5 feet, 25.4. Beech: (Chipping Norton, Northants (1817), at 5 feet, 15.5. Cedar: The Palace, Enfield (1816), at 5 feet, 13.2; Physic Gardens, Chelsea (1816), at 5 feet, 13.5; Ilex: Holkham, Suffolk (1816), at 5 feet, 6.5; (1816), at 5 feet, 6.8. A. Clinton Baker.

* At 4 feet in 1771, 15.7.

† Evelyn's *Silva*, p. 506.

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Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 5, Tavistock Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

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PLANTS OF MOUNT EVEREST.

It is possible that those who hoped great things for the garden and conservatory from the Mount Everest expedition may be suffering from a sense of disappointment. The number of new discoveries among rare plants has conceivably fallen far below expectations, but it is extremely difficult to add new plants to our extensive lists; moreover, though no real attempt to climb Mount Everest has hitherto been made, the district around has been well and carefully explored for three-quarters of a century. Then there are limits to the height at which plants can produce blossoms that appeal to the aesthetic sense.

The flowering plant found at the highest levels for phanerogams was a moss-leaved Sandwort (*Arenaria musciformis*), while at 20,000 feet a few grasses and mosses only were found. At present merely the records for 1921 are available, and it is not possible to state what additions may be in store when the results of this year's work are tabulated. Finally, some plants which were to have been revisited for the sake of their seeds last year had to be left without the seeds being collected on account of the difficulties of the season. This misfortune may have been remedied during the recent visit.

A few choice things, however, have been found. In an appendix to the delightful volume which has been published—*Mount Everest: The Reconnaissance*, 1921—there is a list of some 250 plants, and this is not a complete record. Among them is a large number of old-time favourites, with names that are perfectly familiar. Many genera are represented by species which grow wild in this country, as the following names, taken at random, show. There are three *Anemones*, five *Asters*, six *Senecios*, nearly twenty *Primulas*, ten *Gentians*, and as many species of *Lousewort* (*Pedicularis*), about half a dozen *Orchids*, three *Friillaries*, four *Alliums*, six *Potentillas*, a baker's dozen of *Saxifrages*, besides a large number of other plants belonging to the orders thus represented, and many have long been known, alike to the botanist and the gardener. There are also numbers of plants belonging to genera and orders whose names are less familiar, though many, even of these, have been in cultivation for years.

Two or three new *Primulas* are reported, and the brief descriptions supplied show that they maintain the record for charm which this fascinating genus has already secured.

While awaiting with interest the further revelations which are in store, it is worth while to look at a few of the facts which the naturalists have published. Scientists have long been familiar with the zones of growth in the Himalaya and other alpine ranges. Now we learn, among other things, that a wild

edible Rhubarb is found at a height of 14,000 feet, and a giant Rhubarb (*Rheum nobile*) at 16,000 feet. Two hundred feet higher flourishes a dwarf, blue, hairy Larkspur (*Delphinium*), which the Tibetans dry and use as a preventive against lice. A curious fact is recorded respecting this—a dead body to which this strong-smelling vermifuge is applied is left untouched by the vulture and wolf, which in the natural order of things would act as scavengers.

The smallest *Rhododendron* (*R. setosum*) disappears before the height of 19,000 feet is attained. After this, vegetation is almost non-existent, so that the last thousand feet yields little, if anything, which is attractive to botanist or gardener. It is along the lower zones that interest chiefly centres. Thus a blue *Scabious*, reaching a height of 3-4 feet, together with a yellow *Poppy* and a dark blue *Monkshood*, may be found at 14,000 feet. A little lower, *Rhododendrons*, *Birches*, and *Junipers* are vigorous. At 12,000 feet the *Juniper* is in some parts the dominating feature. This grows into a tree of immense size and is of very even and perfect growth; specimens measured 20 feet and more in girth and 120 feet to 150 feet in height.

It is of interest to note how frequently the delightful perfume of the wild flowers is placed on record. This fragrance is found in many different species of plants, and suggests that an abundance of insect life is to be found among the mountains. Among the butterflies observed there were *Colias*, *Parnassias*, and *Lycaenas*, while it is recorded that in one place hundreds of moths were attracted by the light of the camp fires, and an entomologist properly equipped would have been able to make very extensive and valuable collections.

Rhododendrons are seen on the Himalaya in great perfection. There are frequent references in the book to their number and variety, and the mass of colour is said to be enchanting. The tubers of an *Arum* were found (though not the flower), from which the Tibetans make an inferior kind of bread. A curious dark blue *Dead Nettle* (*Dracocephalum speciosum*) was discovered, together with some lovely *Gentians*, a little purple and yellow *Aster* (*A. heterochaeta*), and a bright yellow *Senecio* with shining, glossy leaves. Three species of *Edelweiss* (*Leontopodium*) were collected at heights varying from 16,000 to 20,000 feet. Also very noticeable were the curious forms of *Saussurea*. These composite flowers are packed naturally with a kind of cotton-wool, and we read that, if they are opened on the coldest day, even when covered with snow, they are quite warm within, and a bumble-bee may come buzzing out! At about 13,000 feet the collectors found, towards the end of May, a yellow *Primula* covering the ground more thickly than *Cowslips* do in this country, while the air was laden with the scent of it. Growing with this *Primula* was a pretty *Heath-like flower* (*Cassiope fastigiata*) with snow-white bells.

In one region the most conspicuous plants were a little bushy *Rock Rose* or *Cistus*, with golden flowers the size of half-a-crown; a dwarf *Rhododendron* (*R. lanatum*) with hairy leaves; a white *Potentilla* with a red centre; a white *Gentian* (*G. robusta*); and a very remarkable *Lousewort*. This last species (*Pedicularis megalantha*) gave two quite distinct forms, one with purple and the other with yellow flowers.

It is impossible to draw attention to all the floral treasures to which this fascinating volume refers. The plants enumerated in the chapter on the Natural History of Mount Everest, and indexed in an Appendix, were collected between May and September of last year, from about 12,000 feet to 20,000 feet elevation. It does not fall within our province to write about the half-score of mammals, the three-score birds, or the toads, lizards, and two new species of flea recorded, interesting as these must be to the naturalist. It is a long time since a book has caused me so much genuine excitement as this one, and I can assure all those who undertake to read it that they have a delightful experience in store. *Hilderic Friend.*

THE HISTORY OF THE MOSS ROSE.

(Continued from page 93.)

It was in Miller's *Figures*, etc., 1760, that the exact date is fixed of his first acquaintance with the Moss Rose. The grand old gardener, emphatically styled by his admiring Continental friends *hortulanorum princeps*, was then close upon seventy years of age, and was writing about an event which happened thirty-three years before. I do not doubt his word or distrust his memory, but I fail to see any reason why, as Major Hurst does, it is safer to accept Miller's date of 1727 than Furber's earlier one. This is what Miller wrote: "This Rose has not been many years known in England. The first time I saw it was in the year 1727, in the garden of Dr. Boerhaave, near Leyden, who was so good as to give me one of the plants, but from whence it originally came I could not learn." The figure which illustrates the text is Fig. 1 on Plate CCXXI., and is the one Miss Willmott quite erroneously states to be certainly the first. Both on the plate and in the text Boerhaave's Latin descriptive name is given *verb. et lit.*

It may assist some of our modern writers on Rose history if their attention is directed to the earliest authentic pictures of the Moss Rose that can be traced prior to Miss Willmott's so-called first one. They are as follows:—

1730. The Moss Province Rose. Furber's Subscription Plates of Flowers. Jan.-Dec. Pl. for June. Fig. 18. (Folio.)

1730. *Rosa provincialis spinosissima pedunculo muscoso*. Moss Province Rose. *Catalogue Plantarum*, etc. A Catalogue of Trees, Shrubs, Plants, and Flowers, etc.; by a Society of Gardeners. (Folio.)

1732. Moss Province Rose (in the text Province). *The Flower Garden Display'd*, etc. 1st Edit. June plate, No. 18.

1734. Do., 2nd Edit.

1740. Moss Province Rose. *The Compleat Florist*. Pl. 47. 1st Edit.

1747. Do., 2nd Edit.

The Moss Rose may have been growing at Leyden, or even in other parts of Holland, long before the publication of Boerhaave's Index, or, in fact, it may have originated as a sport at any time or in any place without having been recorded. Whatever may have been the case, no previous mention of it can be proved. It is not referred to in any work either Dutch or French, published in Holland between Munting's *Nauwkeurige Bescheyving der Aardgewassen*, etc., 1696 and *Nederlandsch bloemwerk*, 1794.

Miller was not alone in his ignorance of the country of origin of the Moss Rose. In *Planting and Ornamental Gardening*, 1785, the author states:—

"This Rose has not been many years in England, and from whence it was first brought is uncertain." *The Bot. Mag.*, Pl. 69, 1783, in the text to its first figure of a Moss Rose, also states: "We are ignorant of what country it is the product." And most of the eighteenth-century authors write in this strain until somebody in the next century started the apocryphal story about 1596 and Holland. Considering the position Miller occupied in the horticultural world, it would, indeed, be something approaching the miraculous if a Moss Rose had been in cultivation in England from 1596 and he never saw one till he went to Holland in 1727.

A few other direct mentions of the Moss Rose in English literature before the beginning of the next century (1800) may be useful. It is found in Benj. Whitmil's *Kalendarium Universale* in 1751, and doubtless earlier editions; in Weston's *Gardeners' and Planters' Calendar*, 1775; in Abercrombie's *The Gardeners' Daily Assistant*, 1786; in the same author's *The Garden Vade-Mecum*, 1789; in *Planting and Rural Adornment*, 1796; in *The British Garden*, 1799, etc. C. Harman Payne.

(To be continued.)

* *Mount Everest: The Reconnaissance*, 1921. Edward Arnold and Co., Maddox Street, 362 pp., with map and illustrations. Price 25s.

NOTES FROM GLASNEVIN.

DURING the month of July, many interesting and beautiful plants flowered at Glasnevin, in spite of the dry and often cold weather. Even although the weather broke towards the end of the month, since when we have had many heavy showers, the soil is still very dry an inch or two below the surface.

The rock garden in July owes much of its attractiveness to the Campanulas, and even now, in early August, many are still in full beauty. During the end of July, *Campanula mirabilis* (Fig. 43) was particularly attractive, the flowers hanging in pendulous sprays down the face of rocks. They are almost as large as a Canterbury Bell and pale, milky blue in colour. Unfortunately, the plant is not perennial, but is easily raised from seeds; at first, a rosette of shining green leaves is formed which may go on increasing in size for two or three years before flowering. By sowing a pinch of seed each year it is possible always to have plants of flowering size.

Notwithstanding the drought of last year, and this year up to July, established trees and shrubs have made remarkably fine growth. I have never seen finer shoots on young trees of *Abies Delavayi*, *A. Forrestii*, *A. Faxomiana*, *Picea asperata* and other Conifers, and the same may be said of most broad-leaved trees.

Chinese plants, now so conspicuous in most gardens, have flourished and seem to have thoroughly enjoyed the sunshine of last year, especially in Ireland, where our skies are often overcast. *Liriodendron tulipifera* has lately flowered with remarkable freedom for this garden, and the Chinese *L. chinense*, which

month. The ample, pinnate leaves are, in themselves, of striking beauty, and when surmounted by the tall panicles of pink flowers the picture is complete.

Iris Kaempferi is said by some growers to dislike lime; here we have too much of that

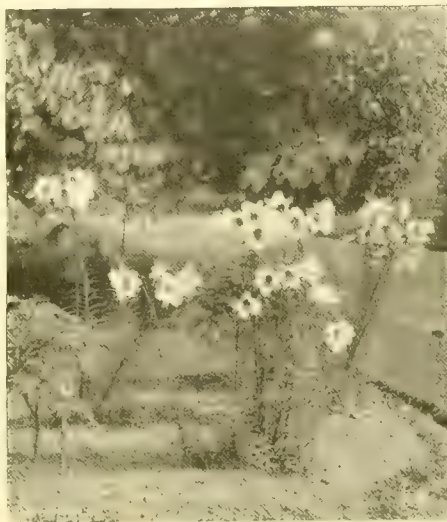


FIG. 44.—*LILIUM REGALE* AT GLASNEVIN.

material for our comfort in gardening, yet with attention to occasional division in September and the addition of cow manure to the soil, they succeed fairly well by the margins of the pond.

Morning Mists, a variety bought some years ago from Messrs. R. Wallace and Co., Tunbridge Wells, is remarkably attractive by reason of its large white flowers; other colours, including deep purple, are also represented and now, in conjunction with the masses of pink *Astilbes*, they make a pretty picture.

An uncommon plant in flower is *Yucca glauca*, now in bloom on the rock garden (Fig. 45). This plant was purchased as *Yucca glauca variegata*, but shows no variegation whatever. The stiff, linear leaves are of a glaucous green colour and the flowers are, when fully open and fresh, almost creamy white. The inflorescence is simple, except for a few short branches at the base and about on a level with the leaves. I am not quite certain of the identity of this plant, as we have others called *Y. angustifolia stricta* which, though not in flower, seem remarkably similar in habit and foliage. The latter name is, of course, a synonym of *Y. glauca stricta*, and our plant seems to agree fairly well with the description given by Prof. Trelease in his fine "Monograph of the Yuccae" in the *Report of the Missouri Botanic Garden*, 1902, and with the figure of *Y. glauca stricta*, plate 26, of the same volume.

Of a different nature is *Pitcairnia spathacea*, a Bromeliad from the Argentine, and quite hardy here, planted outside at the base of the Cactus House wall. Last year, our plant produced one large, much-branched inflorescence; this year, it has three (Fig. 46), and being near a main walk, attracts a good deal of attention on account of its unusual appearance. The stiff, spiny leaves are themselves striking, but the beauty of the plant lies in the rose-coloured bracts and sepals, the latter tipped with green, and the bluish-green petals which overlap in such a way as to form a tube protruding half an inch beyond the sepals. *J. W. Besant, Glasnevin.*

NOTES FROM WISLEY.

If the various trials at Wisley Sweet Peas, *Violas*, *Stocks*, and *Phloxes* could be dextrously arranged in a single garden, they would create a beautiful picture. Even under the necessarily prim conditions of a trial they make a most attractive show. The Sweet Peas (which were

judged on July 31) are magnificent, and the results of the trial will be awaited with interest.

Although the herbaceous borders have not yet arrived at their full beauty, they are well worthy of attention. Large numbers of varieties of *Chrysanthemum maximum* are in flower, some of the blooms measuring six inches in diameter. Another good plant is *Malva Alcea fastigiata*, a pink Mallow, which maintains a profusion of bloom for a considerable time.

On the pond banks the Japanese *Iris* are over, but their place is to some extent taken by the great yellow and the purple *Loosestrifes*, which, however, do not belong to the same natural order, the former being a member of *Primulaceae*, and the latter of *Lytharieae*.

In the wild garden, *Gentiana asclepiadea* is beginning to flower. This is a most useful plant for providing colour from now onwards, and is not difficult to naturalise. A white form frequently occurs, but is not so attractive as the coloured ones. On the rock garden the bright orange *Cheiranthus Allioni* is very conspicuous, as also are the pure yellow flowers of a late-flowering *Cistus*, *C. halimifolius*, which are supported by very long, rigid peduncles, and show up brightly against the grey foliage. Rambling among a bed of *Primula rosea* is *Myosotis Welwitschii*, which is somewhat similar to *M. palustris*, except that it is dwarter and more hairy. It is useful as a carpeting plant for damp places. Another plant of the same family is the annual *Cynoglossum Wallichii*, with flowers of a beautiful blue, much more intense than in *C. amabile*.

Yellow is not a common colour among



FIG. 45.—*YUCCA GLAUCA* (?) AT GLASNEVIN.

Dianthus, but *D. Knappii*, now in bloom, has flowers of a fine lemon shade. The unique inflorescences of *Primula Latemiana* are also to be seen. These greatly resemble the purplish spike of a wild Orchid, with the tip dyed scarlet. Lower down in the bog numbers of *Spiraeas* are flowering, notably *S. gigantea*, *S. g. rosea*, and the red *S. palmata*. An exceptionally beautiful plant is *Spiraea venusta* with rosy pink flowers. Among the shrubby *Spiraeas*, *S. japonica*, with its many varieties, is common, and the graceful and feathery *S. arnefolia discolor* which, though it has finished flowering, is still very handsome.

In the herb bed, *Atropa Belladonna*, the Deadly Nightshade, is in flower. It grows about 4 feet high and bears dingy purple flowers followed by Cherry like fruits that change from green to a shining black. *J. E. G. White.*



FIG. 43.—*CAMPANULA MIRABILIS* AT GLASNEVIN.

has been very slow to establish, is now growing skywards rapidly, probably in response to the warm sun of last summer.

Among plants which have been conspicuous during the last month, none has gained more admiration than *Lilium regale* (Fig. 44) in a bed among young Japanese Maples. This I consider one of Mr. Wilson's best introductions. Owing to the ease with which it can be raised from seeds, it is now well known and will continue to be popular so long as it is propagated by that method—without doubt the best way of maintaining all *Liliums* in health. Another Chinese plant of great beauty is *Rodgersia pinnata*, which requires rich, moist soil for its full development. Here it flourishes in the bog garden, and has been a wonderful sight for a

GARDEN NOTES FROM S.W. SCOTLAND.

THE Veronicas of New Zealand contain so many species closely similar to each other that I feel sure Mr. Richardson will excuse me if I ask whether he is sure that it is *V. salicifolia* that has colonised near Edinburgh (page 86). Of the two forms of *V. parviflora*, tall and dwarf, the former often passes under the name of *V. salicifolia*; in fact, it came here forty years ago under that title. In foliage and flowers the two species closely resemble each other, but the racemes of *V. salicifolia* are considerably longer than those of *V. parviflora*, and are pendent, whereas those of the other do not exceed five inches in length and are held horizontally. *V. salicifolia* is the handsomer shrub when in bloom, but passes out of flower much quicker than the other. It is not reckoned so hardy as *V. parviflora*; indeed, I have never seen it flourishing except in mild districts, but whereas it is indigenous to both the North and South Islands of New Zealand, much depends upon which island it is brought from to this country, plants from the South Island being less tender than those from the North Island.

We grow a Bell Flower here under the name of *Campanula amabilis* about which I should be grateful for information. It is not in the *Kew Hand List*, nor can I find mention of it in any work on gardening, except Mr. Reginald Farrer's (from whom I suppose I got the plant). He describes it as being "pleasant as its name: a stout rosette, with three foot spires, loose and graceful, of big, shallow cups, soft blue with a dark purple eye." (*Alpines and Bog-plants*, page 140). Here the whole flower is rich purplish blue, with a lustrous sheen on the petals, and the radical leaves are fleshy with undulate margins. It is a very choice border plant, and I would fain learn its origin.

Accidental harmony or contrast is always worth noting. Such has occurred by chance in the Orange Lily—*L. croceum* having been planted beside the double-flowered form of *Geranium pratense*, which flowers a month later than the single form. Another happy accident consists in a spread of *Papaver umbrosum*, which furnishes a setting of blood-red to one of Lemoine's hybrid *Philadelphus*—a low-growing variety with cataracts of snowy bloom.

No shrub is more generous of blossom than *Abutilon vitifolium*, where the climate is mild enough. Like so many Chilian plants, it revels in the humid atmosphere of the west coast. Our specimen continued covered with pale lavender flowers throughout June and July, and is only passing over now (August 5). It is not a case of "glut and famish"—profusion one year and scantiness the next—as is the habit of some good shrubs. This *Abutilon* repeats the display annually; but as it is not a long-lived species, it is well to keep up a young stock from seed, which it ripens in abundance.

If it were inexorably decreed that I should grow but a single species of Lily, I declare that it would be *L. Browni*—provided I could grow it. But I cannot. From all the many bulbs that have been coddled and coaxed here, we have this year only two flowering stems, and despair is deepened by remembrance of the splendid bed of this Lily which flourished of yore in the late Mr. York's woodland at Iver Heath. I was about to write that *L. Browni* had no peer, but before doing so I went out to compare it once more with *L. regale*, whereof the golden anthers turned the scale and restored my allegiance to that noble flower. Moreover, *L. regale* is as easily grown as the common *Martagon*. Herbert Maxwell.

THE FLOWERING CRABS.

I READ with great interest an article by Lady Moore, under the above heading, in the May issue of *Irish Gardening*, and think that, complete as it is, there is still room for another paper on the same subject. Besides the wild

crabs, *P. sylvestris*, *P. mitis* and *P. paradisica*, Lady Moore described about twenty-five ornamental species, hybrids, and varieties, all of which are growing at Aldenham except the double-flowered variety of *P. malus Halliana* and *P. m. theifera*, called *rosea*, which has, I presume, pink instead of white flowers. Lady Moore calls the former of these two *P. m. Parkmanni*, but I have always regarded the two names as synonymous, and on turning to Bean's standard work on British trees and shrubs I find that he, too, treats *Parkmanni* as being merely a synonym of *P. m. Halliana*, which tree he records as occasionally bearing double flowers.

I observe that Lady Moore has found *P. m. Sargentii* to dislike the knife, but, so far as my experience goes, I have not found this to be the case; its natural habit is to form a bush, and, having raised a great many from seed, I converted several of them into trees by very drastic cutting, without, so far as I can judge, their resenting the surgical operation at all. Lady Moore does not mention that the red fruit of this species is freely produced and no bigger than a small *Pea*.

Except for this trifling criticism I agree with every word Lady Moore has written, and especially do I confirm the high estimate which she has formed of the beauty of *P. m. theifera*, with its fine, Medlar-like flowers. To my thinking, Lady Moore hardly says enough in praise of *P. m. spectabilis* Kaido (Dippel). Here it bears double parti coloured flowers, which I consider the most brilliant and showy of the seventy or eighty grown here. Setting aside the all red blooms, which are so different as not to be comparable, it certainly is superior to *P. Scheideckeri* and that at its best, as it was on May 19 last, takes a lot of beating.

It might also have been worth noting that the habit of *P. m. magdeburgensis* is strictly fastigate, for it is often convenient to know of a beautiful flowering tree which will take up little room. I have said that *P. m. magdeburgensis* is "strictly fastigate," but I should have been wiser if I had written my example has that habit, for, like most people, I have here fallen into the error of arguing from particulars to generals, and, whereas I am only familiar with one plant, I have written as if I had known many. This same failing has led to frequent praise and denunciation of the health, appearance, habit or vigour of plants, all ill-founded, because the basis on which true opinion can alone be formed has not been sufficiently extended.

Besides the long list of Crabs recorded by Lady Moore, there are between forty and fifty growing here of which she makes no mention, and some of them are so beautiful that it cannot be their unworthiness which has caused the omission. I will give all their names, as then the two articles, taken together, will enable your readers to have a fairly complete list of these beautiful fruiting and flowering subjects. However, out of consideration for your space, I will only comment on those which appear to me specially to deserve notice, and before beginning I will add a warning to the effect that with anything of the Apple class it is practically impossible to raise plants true to name from seed gathered in this country, and neglect of this truth has led to a great many mongrels masquerading, and, alas! being sold, under names to which they are at most only half entitled. I am not in favour of grafted plants when grafting can be avoided, but in the case of *Pyrus malus* the operation can be easily and satisfactorily performed on the *Paradise* or other good stock, and only by these means can many of these beautiful species and varieties be obtained with a certainty that no adulteration has taken place.

P. m. abjecta.

P. m. aldenhamensis.—A chance hybrid which first occurred here, it is the finest of the red-flowered ones, blooms three weeks later than *Niedzwetzkyana* and *purpurea*, and instead of having an ugly, Potato-like fruit, as has the former, it carries in autumn a bright, dark red *Cherry*.

P. m. Arnoldiana.—This is a handsome, vigorous hybrid produced at the Arnold Arboretum in Massachusetts.

P. m. asiatica.

P. m. astracantha sphaerocarpa.

P. m. baccata fructu flavo as its name implies—is a variety bearing yellow instead of the usual red fruit.

P. m. baccata × *prunifolia*.

P. m. baccata × *sylyvestris*.

P. m. coronaria elongata.

P. m. crataegifolia.—Makes an excellent little tree with Hawthorn-like leaves, and is a delightful sight when loaded with its yellowish-red fruit about the size of a *Pea*.

P. m. Dawsoniana.—A fine hybrid raised at the Arnold Arboretum, and named after the propagator there.

P. m. domestica Rinkii Koidzume.—This is one of Wilson's introductions under No. 7,619, and may be synonymous with *P. m. prunifolia Rinkii* mentioned below.

P. m. Ellwangeriana.—Named after the senior partner in the well-known firm of nurserymen at Rochester in New York State, and valuable principally for its bright red *Cherry*-like fruits.

P. m. fol. arg. var. and *P. m. fol. aur. var.*—Silver and gold variegated forms of the common Apple, not of special merit.

P. m. formosana.—I have not had this species long enough to report as to its ornamental value.

P. m. glaucescens.—Is a pretty, grey-leaved Crab with leaves like a Hawthorn, but larger. It flowers freely and has a good habit; the Apple-coloured fruit is the size of a large *Cherry*.

P. m. kansuensis.

P. m. laurifolia.

P. m. Maximowiczii.—Bears very showy blossom equal in merit and very similar to *P. m. Scheideckeri*.

P. m. orthocarpa.

P. m. pendula ("Eva Rathke" and *P. m. pendula* "Excellenz Thiel").—These two are both weeping trees, but are very distinct in appearance. The former has large leaves like an ordinary orchard Apple, and has stiff, stout boughs which grow at right angles to the stem for about 3 ft. before they begin to droop. The large, yellowish fruit is like that of a *Codling*. The latter is a very graceful, narrow-leaved tree, of which the boughs hang down quite close to the trunk. It is a German product, and but rarely seen in English gardens.

P. m. prunifolia coccinea, *P. m. prunifolia edulis*, *P. m. prunifolia lutea*, and *P. m. prunifolia Rinkii*.—These four are all varieties of *prunifolia*, the last being, I suspect, a synonym of *P. m. domestica Rinkii* Koidzume above mentioned.

P. m. Ringo fastigiata bifera.

P. m. Sieboldii.

P. m. Sieboldii arborescens.

P. m. spectabilis fl. pl.

P. m. spectabilis Riversii.

P. m. transitoria toningoides.—This is one of Wilson's excellent introductions from China. The flower is white and freely produced, the fruit most showy, like a white-heart *Cherry*, and the foliage in the Hawthorn style, but more ornamental.

P. m. Veitchii.—I bought this from Coombe Wood, and, as might be expected, from Sir Harry Veitch having given his name to it, it has great ornamental value. Some regard it as synonymous with *P. m. yunnanensis*, but, though in the same style, it is certainly distinct from the plants which bear that name in this garden.

The following fourteen are for the most part hybrids of garden origin, and are mainly worth growing for their beautiful fruit, in which respect "Cheal's Crimson" and "Veitch's Scarlet" are unsurpassed. In nearly every case the fruits make excellent jelly, and "John Downie," which Lady Moore mentions, is often used for this purpose, and this kind also deserves praise for its graceful habit:—

P. m. "Cashmere Crab," *P. m.* "Cheal's Crimson," *P. m.* "Dartmouth Crab," *P. m.*

"Fairy," P. m. "Golden Gem," P. m. "Hyslop Crab," P. m. "Lady Northcliffe," P. m. "Le Prey," P. m. "Marshal Oyama," P. m. "Mexican Crab," P. m. "Montreal Beauty," P. m. "Mrs. J. Seden," P. m. "Transcendent," and P. m. "Veitch's Scarlet."

There is one beautiful Crab which I have not mentioned because I am not fortunate enough to possess it, though my friend Mr. Charles Eley, at whose beautiful place, East Bergholt, in Suffolk, it originated, has promised to give it me this autumn. It has been named P. m. Eleyi, and is a hybrid between P. m. spectabilis and P. m. Niedzwetzkyana. In colour of flower it resembles the latter, being a bright red self, but in freedom of production it has the merit of its other parent; the fruit, again, is like the former, though much smaller, and is quite distinct from the Cherries borne by P. m. aldenhamensis. A full and good account of this valuable ornament to our gardens is given in the *Gardeners' Chronicle*, August 14, 1920.—*Ficary Gibbs, Aldenham, Elstree.*

THE SHRUBBERY IN LATE SUMMER.

THE period of late summer is a trying one to the owners of shrubberies, inasmuch as there is probably a dearth of flowers. *Philadelphus*, *Diervillas*, *Deutzias* and other early flowering shrubs are over, and unless precaution has been taken to arrange for other kinds of flowering subjects, the whole appearance of the shrubberies may be dull and uninteresting. There are two ways of preventing this dullness; firstly, by planting suitable flowering shrubs for the later season, and, secondly, by the employment of variegated and coloured foliaged trees and shrubs, carefully associated with the others in such a way as to give a bright and interesting aspect to the scheme.

Dealing with the first point, I have looked carefully around to note some of the plants that are in flower and likely to continue for some little while, and also such as are coming into flower in the near future, as such a list may well prove a useful assistance to those who have come up against the dullness referred to above.

Among the many late-flowering subjects *Potentilla fruticosa* in all its varieties is very useful and flowers over a long period, making bushes of various sizes and habits, some being erect growing, some gracefully arching, and some quite prostrate, but all flowering well. One new variety which we owe to the efforts of that intrepid collector, the late Mr. Reginald Farrer, we still have under the number given when he sent it home from China, as there seems to be a little confusion as to its true nomenclature. "*Potentilla*, Farrer 188," is its record, and it has the most lovely pure golden-yellow flowers of practically any shrub I know.

Fuchsias, such as *F. Thompsonii*, *F. macrostemma*, *F. corallina*, and *F. conica*, are also in season; Lavenders of different sorts are carrying their many sweet-scented spikes; *Cytisus*, such as *C. Rochelii*, *C. horniflorus*, and various *Cistuses* are flowering freely. Genistas, especially *G. tinctoria* fl. pl., the double-flowering form of the Dyer's Greenweed, and its near relation *G. tinctoria apennina*, are carrying their golden spikes, whilst *Hypericums* are also bearing a wealth of yellow blossom, some of the finest being those of the *Patulum* group. White flowers are provided by *Spiraea assiniensis*, and the *Ligustrums*, *L. lucidum* being especially good, and will soon be followed by the giant-spiked *L. Quihoui*.

Blue and pink flowers are found in the *Ceanothuses*, notably *C. azureus* vars. *Topaze*, *Indigo*, and *Gloire de Versailles*, and *C. Fendleri* giving the former colour, and *C. azureus* vars. *Pinquet Guindon*, *Marie Simon* and *Perle Rose* the latter. *Deutzia corymbosa* is opening its pretty umbels of white bloom. *Spiraea glabrata* and its variety *rubra* are giving good tones of red. *Dorycnium rectum*, a pretty dwarf, half-shrubby plant, is lovely with its pale rose-pink flowers, and the hybrid *Veronicas* such as *V. Gauntlettii* (bright red), *V. Tunon Delux* (deep red), *V. Scarlet Gem* (scarlet), *V. Mt. Blanc* (pure white), *V.*

Hermione (pale purple), and *V. Autumn Glory* (deep purple), are all glorious subjects just commencing their flowering periods, and they are accompanied by *V. parviflora* with its spikes of white-tinged purple flowers. One climbing plant calls for special note, *Clematis coccinea*, this being especially fine with its scarlet, pitcher-shaped, solitary flowers. Another beautiful plant that will soon come into blossom is *Eucyphia pinnatifolia*, which, with its wealth of white blossom, is undoubtedly one of the loveliest flowering shrubs in our gardens to-day.

Variegated subjects especially useful for the second portion of the scheme include *Rhamnus alternatus variegatus*, most handsome, *Diervilla versicolor* and *D. floribunda variegata*; *Cornus alba Spaethii* (golden); *Acer Negundo fol. aureo marginata* and *Euonymus radicans* var. for bush plants of varying size; and *Cornus brachypoda variegata*. *Ulmus campestris variegata* and *Quercus Cerris variegata* as trees, are extra good.

LEAF SCORCH OF APPLES.

Two patches amongst my trees of Beauty of Bath are suffering severely from leaf scorch. The leaves at first showed the characteristic scorching at the margins and tips, but now many of the leaves have dropped. The first stage of the attack is much like spray injury, and is, no doubt, often mistaken for it; but that cannot be suspected in the present case, because these trees have not been sprayed since just before blooming, and then it was only with a harmless soap and nicotine wash.

A very interesting account of investigation into the causes of leaf scorch is to be found in the Report of the Long Ashton Research Station for 1921. It is shown that varied conditions may cause scorching. Usually, but not entirely, it is confined to trees on light soils. It seldom occurs on trees grown on grass land, or on Apples on free stocks. Although it takes place



FIG. 46.—PITCAIRNEA SPATHACEA AT GLASNEVIN (SEE P. 109).

There is the bright yellow foliage of *Catalpa bignonioides aurea*, the silver of *Pyrus salicifolia pendula*, *Salix alba*, and *Populus alba Richardii* (as trees), and *Senecio laxifolius*, *S. Munroi*, and *S. Greyi*, *Santolina Chamaecyparissus*, *Convolvulus Cneorum* (also good for its bright pink bells), *Phlomis chrysophylla*—the "Jerusalem Sage" (yellowish grey), *Atriplex Halimus*, and *Perowskia atriplicifolia*, as small shrubs, while the purple leaves of trees of the *Prunus cerasifera* group, *Copper Beech*, and *Acer palmatum purpureum*, and shrubs of *Berberis vulgaris purpurea* and *Corylus maxima purpurea*, are all useful in the direction of brightening up otherwise uninteresting shrubberies. *E. Beckett.*

Trial of Carrots at Wisley.—The Royal Horticultural Society will carry out a trial of Carrots for cultivation in frames during the coming autumn and winter. The Director, R.H.S. Gardens, Wisley, Ripley, Surrey, will be glad to send entry forms to those desiring to enter varieties for this purpose, and one packet of seed of each variety should reach him on or before August 31.

during summer drought, and is nearly or quite absent during a moist season, it is not altogether a question of moisture supply, for Apples in water culture experiments have developed the trouble. It is probably caused by soil conditions which are unfavourable to healthy root development and action. This is indicated by the fact that the roots of scorched trees are nearly always loose in the ground, so that the trees can be swayed about easily. It is probable that the unsatisfactory state of the roots, however it may be brought about, prevents them from keeping up an adequate supply of moisture for the leaves. Thus, whilst the cause of leaf scorch has not yet been definitely decided, there is not much doubt that defective rooting conditions may usually be suspected.

With regard to remedies for leaf scorch, the liberal use of potash fertilisers is the most hopeful, for it has often proved successful. Grassing an orchard is said to have mitigated the trouble. Where the soil is known to cause scorch, Apples on free stocks only should be planted. *Market Grower.*

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(See Tables and Summaries, Ante. pp. 95-100).

SCOTLAND, N.

ROSS-SHIRE.—The promise of fruit of all kinds during the flowering season was never better, the wealth of blossoms being comparable only to trees covered with snow. On the whole the "set" was good, and no untoward circumstances happened to blast the blossoms during their all too short period of beauty. Apples are the crop of the season, and a few of the best fruited kinds are *Mère de Ménage*, *Bramley's Seedling*, *Lady Sudeley*, *Beauty of Bath*, *Alfriston*, *Ribston Pippin*, *Keswick Codlin*, *Early Victoria*, *Golden Spire*, *Mr. Gladstone*, *Royal Jubilee*, *Wealthy*, *Irish Peach*, *Stirling Castle*, and *Hawthornden*. Pears flowered remarkably well, but, as usual in such cases, failed to set satisfactorily; however, the crop is an average one, and good for the district. Amongst the best cropping varieties may be cited *William's Bon Chrétien*, *Jargonelle*, *Beurré Diel*, *Pitmaston Duchess*, *Marguerite Marillat*, *Dr. Jules Guyot*, *Souvenir du Congrès*, *Clapp's Favourite*, *Louise Bonne of Jersey*, *Fair Maggie*, *Benvie*, *Swans' Egg*, *Hazel*, and *Early Crawford*. Plums on walls carry an extra good crop, the most prolific being *Czar*, *Victoria*, *Transparent Gage*, *Goliath*, *Jefferson's*, *Coe's Golden Drop*, *Monarch*, and *Nukes*. This is not an Apricot or sweet Cherry district, and the crop is disappointing, except for *Morellos*, which are usually good here—this year being no exception. Small fruits are remarkably good, and altogether the crop is a record one. This we attribute to the fine warm autumn of last year, and to the absence of severe frosts during winter and spring. The soil is mainly overlying a somewhat hard clay subsoil, rather impervious to water; the garden stands 450 feet above sea level. Grubs of the *Gooseberry Sawfly*, and aphids on Plums were rather prevalent, as were *Apple Chermes* or *Peylla*, but owing to the cold summer these were not so numerous as usual. *William L. Minty*, *Adross Castle Gardens, Alness*.

SUTHERLANDSHIRE. Apples promise a wonder ful crop, Pears are excellent and good, while *Victoria Plums* have set splendidly. Sweet Cherries are a very light crop, although there was an abundance of blossom; *Morellos* are very good. Strawberries, Raspberries, Gooseberries, Red and Black Currants, are also bearing good crops. The soil is of a very light and sandy nature, the subsoil being gravel. The season is very late in the north of Scotland this year, *Elton Pine Strawberry* being hardly yet out of flower. *W. F. Game*, *Dunrobin Castle Gardens, Golspie*.

SCOTLAND, E.

ABERDEENSHIRE.—Most fruit trees are yielding good crops, and Apples are the largest crop I have seen for years; this success I attribute to the very warm summer we had last year, the wood being finely ripened. *James Grant*, *Rothienormans Gardens*.

BERWICKSHIRE.—The fruit crops in this district are highly satisfactory, most of them being over the average and fairly clean. Apples, Apricots, Peaches and Plums required thinning, especially *Allington Pippin*, *Bailie Neilson*, *Bramley's Seedling*, *James Grieve*, and *Peasgood Nonsuch* Apples, though the last is rather a shy bearer with us. Apples and Pears are swelling fast after the welcome rains, although the nights were very cold in July. *William Clayton*, *Milne Graden Gardens, Coldstream*.

EAST LOTHIAN.—This has been one of the most remarkable years for fruit. Blossom was superabundant, and set more freely than usual, which necessitated much labour in thinning. The foliage of all fruit trees is clean and large, but Apples are much affected by American Blight. Strawberries were large and a great crop, but everywhere in this locality they have

failed to colour and ripen perfectly. Raspberries also promised well, but Black Currants are perhaps a smaller crop than usual. Figs constitute a large crop, and, notwithstanding the cold weather, are swelling satisfactorily. The soil is light, suited more for Apples than Pears, and Plums than Peaches. Apricots generally fruit satisfactorily. *R. P. Brotherston*, *Tynninghame Gardens, Prestonkirke*.

FORTHSHIRE.—All crops of fruit are very late in this district, but in most cases identical and of good quality. The dry summer of 1921 enabled all fruit trees to ripen their bearing wood, with the result that there was an exceptional amount of blossom and fruit is abundant. The long spell of cold, wet weather has kept all forms of insect life in check, and has also helped to swell and improve the appearance of most fruits. The soil here is of a medium nature, and very cold. *J. B. Peffers*, *The Gardens, Panmure, Carnoustie*.

KINGARDINESHIRE.—I have to report an exceptionally heavy crop of Apples, Pears, Plums and Cherries this year. I have three young Plum trees, about ten years old, and have taken off about six stones of fruit, and still they are too heavily cropped. I have seen nearly as good a show of flowers on fruit trees before, but never such a successful set. The rainfall here is a little over one inch more than the total for 1921, which was 18.38 inches. *William Thomson*, *The Gardens, Ury House, Stonehaven*.

PERTHSHIRE.—The Apple crop is the heaviest I have seen in this district, very few varieties having a light crop; indeed, the majority have had to be thinned considerably. Raspberries, Strawberries, and small fruits generally are at least a fortnight late this year, but are a good average both in quality and quantity. Owing to rain, the sweet Cherries are splitting badly. *Morello* Cherries promise well, as do Plums and Pears, but all require sunshine and heat to mature them properly. *Malcolm Macnaughton*, *Scone Palace Gardens, Perth*.

AYRSHIRE.—With a little protection for Peaches and Pears, the fruit crops here are promising well. Peaches have had to be severely thinned, while Apples are a bumper crop, if only a little warmth would come to swell the fruits. Insect pests were rather troublesome in May, but have now almost disappeared from the garden. *D. Buchanan*, *Bargany Gardens, Dailly*.

BUTHESHIRE.—In the early spring the prospects for fruit crops were good, but during the flowering period the weather was very variable. Plums and Pears suffered a good deal from very cold winds when in flower, and as a consequence crops are scarce, except in sheltered situations. Apples, however, had very good weather and carry an excessive crop of fruit, which necessitates a good deal of thinning. Since June 1, the weather has been very wet and cold, therefore all fruits are late. Strawberries especially suffered from the cold, as only on eight days during June did the maximum thermometer register 60° or over, and in July, up to the 17th, so far it has only reached 60° on two days. Our soil is heavy loam on marl rock. *T. Davidson*, *Ardenraig, Rothesay*.

DUMBARTONSHIRE.—In this district we had a fine, dry spring, with plenty of blossom, but the promise has not been fulfilled. We have had a poor and cold summer so far, and everything is at least a month later than the normal. *John Brown*, *Cairndhu Gardens, Helensburgh*.

DUMFRIESHIRE.—Apples are a good average crop; but, while some trees are heavily laden with fruit, others are almost bare. Pears and Cherries are poor. Small fruits are excellent, especially Red Currants and Gooseberries. Strawberries are a grand crop—fruit very large and the flavour good. Our soil is a medium sandy loam. *James McDonald*, *Dryfeholm Gardens, Lockerbie*.

(To be continued.)

HOME CORRESPONDENCE.

The Dunkeld Larches.—I fail to see how the 1888 measurement of 15 ft. 1 in. at 5 ft. from the ground of the parent Larch which was destroyed by lightning in 1909, about the accuracy of which there can be no dispute whatever, verifies Mr. Clinton Baker's 1817 measurement of 13 ft. at that height. We have two 1831 measurements, namely, that made by Dr. Blackadder of 10 ft. 6½ in., at 5 ft. up, as given by Loudon, and that given by Hunter, of 12 ft., at 4 ft. above the ground, and if these measurements are correct, clearly Mr. Clinton Baker's must be wrong. As regards the remarks of Mr. Mark Mills, I need only say that before I sent the communication on the Arniston Larches to *The Gardeners' Chronicle* I had consulted Grigor and all the other modern writers I could discover, but all I found was the usual legend, with, of course, variations, about the Dunkeld plants having been brought from London as already described. All these modern authors have merely taken their data from one or other of the earlier ones, but none of them gives a single fact of importance which can be relied upon to settle the question. Dr. Walker (in whose opinion Loudon evidently placed great reliance) gives the year of their introduction as 1727, and he evidently was convinced that they were the first Larches to be introduced into Scotland. But if they were introduced in 1738, and assuming that the Dawyck Larches were planted in 1725 (which Loudon doubted), then it is quite clear that the Arniston Larches took precedence of them, and that they are not even entitled to second place. For if they were brought from London in a portmanteau in 1738, planted in a greenhouse, cast out on a rubbish heap as being dead, left to take root there, and subsequently planted in the open ground, all of this could scarcely have taken place before February 8 of that year, the date on which the Arniston Larches were supplied. *A. D. Richardson*, *Edinburgh*.

Canon Hall Grape.—When reading the notes on Vine Pruning in a recent issue of the *Gard. Chron.*, I remembered a promise to send further details of our failure or success in getting Canon Hall Grape to set its fruits satisfactorily, and of my son following a different mode of winter pruning, the summer pinching of the fruiting shoots, and also of feeding the vines. Firstly, as to pruning: on every alternate lateral we left seven or eight buds, but others were spurred back in the usual way. All broke strong and regularly and showed immense bunches, 15 inches to 16 inches in length and a mass of flower. These were not pollinated in any way, but dewed over very slightly, and the shoots carrying the bunches were allowed to grow on in place of stopping them in the usual way two or three leaves above the bunch. The result was a great improvement on last year. Some are plump bunches, yet the long-stemmed ones are thin and straggly, but carrying enormous berries like Greengage Plums, and of a lovely amber colour. No feeding was given, as the Canon Hall vine appears to be a very robust grower, making strong wood that may fail to get well ripened, which may account for its bad setting qualities. My son and I conclude that the Canon Hall vine requires unrestricted growth, not too high feeding, leaving it alone while in bloom, except for slightly dewing the branches while they are in bloom, a high temperature together with an inch or two of ventilation, careful watering, and no rank manure, but rich loam, old lime rubbish, ashes from the bonfire, and charcoal as rooting medium in a well-drained border. I consider this Grape, when in condition, the noblest of all varieties. I should like Mr. Macnaughton's or other growers' opinion of it. A certain large firm advertised for 300 buds of it last winter, which shows that this Grape is in demand. *William Irvine, sen.*, *Bradley Gardens, Grimsby*.

SOCIETIES.

MIDLAND CARNATION AND PICOTEE.

JULY 28, 29.—The thirty-second annual exhibition of this once progressive Society was held in conjunction with the National Viola and Pansy Society at the Botanical Gardens, Edgbaston, on the above dates. Both shows were small, but many flowers of good quality were exhibited. The gold medal offered by Mr. W. Nevill for the best vase of Carnations in the show was won by Mr. H. WOOLMAN, with the variety Bookham Rose.

OPEN CLASSES.

Of the four contestants in the first twelve open classes for triplets, Mr. H. WOOLMAN, Shirley, was the most successful exhibitor, winning seven first prizes and four second prizes. He thus holds the Waters Butler twenty guinea Challenge Cup for another year. The second most successful exhibitor was Mr. C. H. HERBERT.

Mr. H. WOOLMAN's first prizes were for (1) yellow-ground Fancy, suffused type like Hercules, with superb flowers of that well-known variety; (2) Rose or Pink, with extra large well-shaped specimens of Bookham Rose; (3) yellow-ground Fancy, with Frank Woodward; (4) maroon, purple or heliotrope, with exquisite flowers of Grey Douglas; (5) yellow-ground Picotee, with F. W. Goodfellow; (6) yellow-ground Fancy, edged and marked like Linkman, with Peace Treaty—a magnificent flower; and (7) White-ground Picotee, with Mrs. W. H. Twist.

Mr. C. H. HERBERT, Acocks Green, had the winning vases of (1) Scarlet Red or Cherry self, with Fujiyama; (2) white self with delightful flowers of Prairie Belle; and (3) white-ground Fancy, with Mrs. G. D. Murray.

Mr. P. SMITH, Selby Park, led for the best vase of a buff, yellow, orange, or terra cotta self, with refined blooms of Glamour. Messrs. A. R. BROWN, LTD., Kings Norton, led in a class for White-ground Fancies, marked like Othello type, with excellent flowers of Sir Douglas Haig.

FIRST DIVISION.

Here again Mr. H. WOOLMAN took the lead. He won four first prizes and two second prizes. The principal awards were for (1) twelve vases of Carnations and Picotees, to include Selfs, white-ground Fancies, yellow-ground Fancies, and yellow-ground Picotees, for which a Gold Medal was given by Mr. W. Nevill. He showed splendid flowers of Grey Douglas, Hercules, Lieutenant Shackleton, Bookham Rose, and The King; (2) three vases of yellow-ground Fancy Carnations, dissimilar, with Hercules, Lieut. Shackleton and Peace Treaty; (3) three vases of white-ground Picotees, dissimilar, with beautiful blooms of Edmund Shorthouse, Mrs. W. H. Twist, and Ganymede; and (4) one vase of Fancy Carnations, other than white or yellow grounds, with Saladin in splendid condition.

Mr. C. H. HERBERT had the best three vases of Self Carnations, showing Fireman, Prairie Belle and Bookham Rose; as well as the best set of yellow-ground Picotees with Neal Kenyon, Romance and W. E. Goodfellow.

From Messrs. A. R. BROWN, LTD., came the winning exhibit of white-ground Fancies, Mrs. G. D. Murray, Melton, and Mrs. Hawksbee. Other prize winners were Mr. P. SMITH and Mr. R. G. RUDD, of King's Heath.

SECOND DIVISION (AMATEURS).

Competition in the classes reserved for amateurs resulted in a duel between Mr. E. KENWRIGHT, Smethwick, and Mr. F. BAYLISS, Walsall. The first-named exhibitor was awarded six first and two second prizes, and Mr. BAYLISS won two first and four second prizes. Mr. E. KENWRIGHT's first prizes were for (1) six vases dissimilar, two each of Selfs, Fancies, and Yellow-ground Picotees; (2) one vase of yellow-ground Fancies; (3) one vase of white-ground Fancies; (4) one vase of yellow-ground Picotees; (5) one vase of white-ground Picotees, and (6) two vases of Fancy Carnations.

Mr. F. BAYLISS's principal prizes were for (1) one vase of Selfs; and (2) two vases of Selfs.

The sole exhibitor in the Third Division, which is open only to those who do not grow more than 300 plants, was Mr. J. DAINTY, Wellington, who was awarded first prizes in five classes.

BLOOMS ON STANDS.

The dressed flowers shown on boards did not make a very big show, there being only fourteen entries in the six open classes. Mr. P. SMITH won first prizes for (1) twelve Self Carnations, with good quality flowers of Primrose Dame, Alpha, Titan, Gordon Douglas, Glamour, General French, Bookham Rose, Lapwing, Peach Blossom, The King, Grey Douglas, and Prairie Belle; (2) for twelve Yellow-ground Picotees in which Professor Burstall, Eclipse, Santa Claus, Jewel and Zena Dare were of outstanding merit. Mr. H. WOOLMAN excelled in a class for twelve Fancy Carnations, which included exquisite specimens of Lord Steyne, Skirmisher, Lieut. Shackleton (sport), Hercules and Peace Treaty; and in another class for twelve white-ground Fancies, his best varieties being Mrs. G. D. Murray, Mrs. Hawksbee, Jackie and Fair Ellen.

Mr. C. H. HERBERT was the only exhibitor in the classes for twelve white-ground Picotees and twelve Bizarre or Flake Carnations.

In the classes open only to amateurs, the first and second prizes were divided between Mr. E. KENWRIGHT and Mr. F. BAYLISS.

PREMIER FLOWERS.

Flowers shown in vases: Self Carnation, Grenadier, exhibited by Mr. H. WOOLMAN; Fancy Carnation, Peace Treaty, exhibited by Mr. H. WOOLMAN; yellow-ground Picotee, F. W. Goodfellow, exhibited by Mr. P. SMITH; white-ground Picotee, Mrs. W. H. Twist, exhibited by Mr. H. WOOLMAN; white-ground Fancy, Mrs. G. D. Murray, exhibited by Messrs. A. R. BROWN, LTD.

FLOWERS SHOWN ON STANDS.

Bizarre Carnation, Quakeress, exhibited by Mr. C. H. HERBERT; Flake Carnation, Cleopatra, exhibited by Mr. C. H. HERBERT; Heavy-edged White-ground Picotee, Mrs. W. H. Twist, exhibited by Mr. C. H. HERBERT; Light or Wire-edged White-ground Picotee, Clytie, exhibited by Mr. E. KENWRIGHT; Heavy-edged, yellow-ground Picotee, P. Burstall, exhibited by Mr. P. SMITH; Light-edged, white-ground Picotee, W. L. Hodgkinson, exhibited by Mr. E. KENWRIGHT; Fancy Carnation, Rhea, exhibited by Mr. F. BAYLISS; Self Carnation, Primrose Dame, exhibited by Mr. P. SMITH; white-ground Fancy Carnation, Mrs. G. D. Murray, exhibited by Mr. P. SMITH.

HONORARY EXHIBITS.

A Gold Medal was awarded to Messrs. W. H. SIMPSON and SONS, Birmingham, for Antirrhinums and miscellaneous flowers; and a Silver Medal to Mr. C. H. HERBERT, Acocks Green, for Pinks.

ROYAL CALEDONIAN HORTICULTURAL.

August 1.—The ordinary monthly meeting of this society was held at 5, St. Andrew Square, Edinburgh on this date, Mr. David King, president, in the chair.

A paper, on the Rhododendrons, by Mr. James Cameron, Auchterarder House, was read by the Secretary.

The exhibits were:—Roses, from Messrs. DOBBIE and Co., LTD. (Silver Medal); seedling Strawberry (Garibaldi × Givon's Late), from Mr. W. G. PIRIE, Dalhousie (First-class Certificate); Ox-eye Daisies, David King and Matthew Todd, and Hedgehog Gooseberry seedlings, from Mr. F. BAILLIE, Liberton; Statice Suworowi, from Mr. A. INNES, Dean Cemetery, Edinburgh; seedling Streptocarpus, from Mr. G. BROWN, Ashley Terrace, Edinburgh; Anemone glaucifolia, from the Royal Botanic Garden, Edinburgh.

NATIONAL VIOLA AND PANSY.

THE ninth annual show of the above Society was held at the Botanical Gardens, Edgbaston, Birmingham, on July 28 and 29. There was a record entry, especially in the Amateur Classes, no fewer than eight exhibits being staged in the class for 12 Vases of Violas, and nine exhibits in the 6 Vase class, which made a wonderful bank of bloom.

In the leading class, the blue riband of the Viola world was again won by Mr. W. H. C. TOOBY-DESMOND with a fine collection of flowers. The handsome 25 guineas Silver Challenge Cup, presented by W. Waters Butler, Esq., was won outright by Mr. TOOBY-DESMOND, together with a cash award, and the Society's Silver Medal. Mr. J. R. BASTOCK came second, there being very little difference between the first and second prize sets; both were admirably set up and consisted of extra large blooms. In the open decorative class for a display of Violas, 8 ft. by 3 ft., the first prize was won by Mr. H. J. TANNER, of Sparkhill; Mr. H. CLARKE, of Taunton, coming second. Much credit is due to Mr. Clarke, whose exhibit contained an abundance of excellent flowers, which arrived in good condition, but were staged rather heavily.

Exhibitors in the open decorative class should have paid particular attention to the amateurs' decorative class, in which the premier award was won by Mr. O. KINSMAN, of King's Heath, with one of the most effective and natural exhibits ever staged at the Society's shows. Mr. C. HARLAND also must be congratulated on his second prize exhibit in this class.

Flowers on boards were not so numerous as usual, but the vase classes easily compensated for their deficit. Mr. CHAS. COCKBURN, Pensaitland, again gave the public a glimpse of his wonderful show Pansies; he was awarded the Society's Bronze Medal for a vase of these pretty flowers. The principal prize winners in the open classes were:—Messrs. TOOBY-DESMOND, J. R. BASTOCK, H. CLARKE, H. J. TANNER, MACALPINE, A. BASTOCK, G. W. SANDERSON, T. H. JUSTICE, and H. LEES. In the amateur classes:—Messrs. G. W. SANDERSON, T. MANTLE, S. BUSHELL, A. HOLBROOK, W. HALLDEARN, O. KINSMAN, T. H. JUSTICE, S. CARLESS, W. NEWMAN and H. LEES.

The Society's Medals were awarded as follow:—Silver-Gilt, to Mr. W. H. C. TOOBY-DESMOND, for most points in the open vase classes; Silver, to Mr. W. H. C. TOOBY-DESMOND, for most points in the open board classes; Silver-Gilt, to Mr. T. MANTLE, for most points in the amateurs' vase classes; Silver, to Mr. H. LEES, for most points in the amateurs' board classes; Silver to Mr. W. COWDRY, for the premier vase in the amateurs' classes (Milton Jumbo).

ROYAL HORTICULTURAL.

Trial of Spring Cabbages at Wisley.

The following awards have been made to Spring Cabbages by the Council of the Royal Horticultural Society, after trial at Wisley:—

AWARDS OF MERIT.

No. 26, *Ellam's Dwarf Early Spring*, sent by Messrs. DICKSON and ROBINSON; No. 34, *Early Feltham*, sent by Messrs. WATKINS and SIMPSON; No. 56, *First Early Market*, No. 3, sent by Mr. J. L. CLUCAS.

HIGHLY COMMENDED.

No. 17, *Conqueror Selected*, sent by Mr. HOLMES; No. 20, *Chirton Selected*, sent by Mr. ORD; Nos. 40, 42, *Early Offenham*, sent by Messrs. WATKINS and SIMPSON and Messrs. TOO-COOD and SONS; No. 42, *Early Offenham Selected*, sent by Mr. HARRISON; No. 51, *Imperial (Wheeters)*, sent by Messrs. COOPER, TABER and Co.; No. 52, *Early Market*, sent by Messrs. WATKINS and SIMPSON; No. 67, *East Ham*, sent by Messrs. BARR and SON; No. 75, *Yorkshire Market*, sent by Mr. F. DICKS.

COMMENDED.

No. 9, *Flower of Spring*, sent by Messrs. SIMPSON; No. 62, *First and Best*, sent by Messrs. DICKSON and ROBINSON; No. 80, *Early Evesham*, sent by Messrs. NUTTING.

SHROPSHIRE HORTICULTURAL.

AUGUST 16 AND 17.—It is a capital sign of the times that the Shrewsbury Floral Fete held in the Quarry Gardens on the above dates showed a marked advance upon the last two years, and approached within measurable distance to the grand pre-war exhibitions for which Shrewsbury is famed. We congratulate the executive of the Shropshire Horticultural Society upon its enterprise and initiative and upon its success. The exhibition was of large extent and the larger part was under one canvas roof, though two other large tents and some outdoor accommodation had to be provided for the horticultural exhibits. Judging commenced at 9 a.m., and subscribers were admitted at 11 a.m. and by 11.10 a.m. the place was crowded with interested visitors.

Groups and specimen plants were not up to the high quality nor were they so numerous as in well-remembered years before the war, but Roses, Sweet Peas, Hardy Flowers, and artistic groups were probably finer than ever, while vegetables were wonderfully fine and the rock garden group class a distinct feature. Floral designs fell below the previous average, but the non-competitive exhibits were numerous, extensive, interesting and diversely attractive.

The marvellously fine exhibit of vegetables from the Hon. VICARY GIBBS (gr. Mr. Edwin Beckett), Aldenham House, Elstree, Herts., was one of the wonders of a wonderful show. It is always a little difficult to know whether Mr. Beckett has beaten himself, but, having seen large numbers of his exhibits during a period of many years, we cannot remember one quite so attractive as this. It goes without saying that every specimen in the one hundred and twenty "dishes" was as perfect as the best of cultivators could get it, but, in addition, the colour effect was so fine that no group of plants and flowers received more attention or was more admired. Tomatoes, red and yellow, coloured Potatoes, Aubergines, Radishes, Beet, Kohl Rabi, Carrots, Marrows, Turnips, Beans and Onions provided the colour and set off to advantage the superb Runner Beans, Cauliflowers, Leeks, Peas, Artichokes, big, clean Onions, Cucumbers and many other kinds. In short, Shrewsbury show of 1922 will long be remembered as the one at which the Aldenham vegetables were such a striking feature. The Shropshire Society not only awarded the only large Gold Medal to this exhibit, but decided to make a special and personal award to the Hon. VICARY GIBBS as a memento of his grand contribution to the show.

Groups.

Always a great attraction at Shrewsbury, the two principal group classes were even more attractive than usual on this occasion. The space allowed each competitor was 250 sq. ft., and if we remember rightly there was a wider frontage and less depth than usual. In the class for flowering and foliage plants grouped for effect Messrs. J. CYPHER AND SONS, Cheltenham, once again won the chief award of £35 with a beautiful exhibit in which grace and colour were combined in a most delightful manner. Tall Palms, Ixoras and waving Humeas occupied the background; in front of these brilliant Codiaeums, finely flowered Cattleyas and Laelio-Cattleyas, Ixoras, Liliiums, and Fuchsia triphylla were placed so that each plant did its duty without crowding or overhanging its neighbour. *Nandina domestica*, *Odontiodas*, *Cypripediums*, dwarf Ixoras, *Rex Begonias*, the variegated form of *Saxifraga sarmentosa*, and brightly berried patches of *Nertera depressa*, provided the material for the foreground. But tall spikes of *Francoa ramosa*, a few tall spikes of white *Odontoglossums* and two fine examples of *Lilium auratum* rose above all else and without hiding anything they added that gracefulness to the display which was its most charming feature. Sir G. H. KENRICK (gr. Mr. J. V. Macdonald), Edgbaston, Birmingham, gained second prize with a fine effort, but his *Codiaeums* lacked the brilliant colouring of those in the premier group, nevertheless he used *On-*

cidium spikes and *Lilium speciosum* to good effect. Mr. W. R. MANNING, Dudley, gained third prize.

In the class for a group of similar size, but where the desired effect had to be produced without the aid of flowers, Messrs. JAS. CYPHER AND SONS were again winners of the first prize. Here they used Palms, Bamboos and *Jacaranda mimosaeifolia* as a background and secured their colour effect with bright *Codiaeums* and *Acalyphas*, while the ground work and the front margin consisted chiefly of *Nandina domestica*, *Dracaenas* in variety, various Ferns, *Rex Begonias* and small *Caladiums*; 2nd, Sir G. H. KENRICK; 3rd, Mr. W. R. MANNING, Dudley.

Sir JOHN LEIGH was awarded first prize for a smaller group of flowering and foliage plants; with Mr. A. M. BARBER 2nd, and Mr. H. HOWELLS, 3rd.

The plant classes are now but ghosts of former years. The principal prize winners were Mr. J. B. DAVIES, Upper Greenfields, for *Pelargoniums*; Sir JOHN LEIGH (gr. Mr. T. Young), Lilleshall, for *Begonias*; A. M. BARBER, Esq. (gr. Mr. T. G. Bremmer), Wellington, for fringed and double *Begonias*; Mr. H. HOWELLS, Belle Vue, for six trained *Pelargoniums*; Mr. H. HOWELLS, for pyramidal *Fuchsias*; and Lady MARY HERBERT (gr. Mr. J. Birch), Styche, for Ferns.

Hardy Flowers.

Three capital entries in the class for a collection of herbaceous flowers arranged naturally on a space of 250 sq. ft. produced a very fine effect, and were a great attraction to visitors. The £20 offered as first prize was won by Messrs. M. PRICHARD AND SONS, Christchurch, with a grand lot of flowers, bright in colour and pleasingly arranged. Outstanding features were the *Kniphofias*, of which K. E. M. Prichard, K. Royal Standard, K. July Scarlet, K. nobilis and K. Rufus were the finest. Other fine things were *Crimm Powellii*, *Galtonia candicans*, *Yucca filamentosa* and the *Montbretias*, but the lack of formality was what commended the display to most people, and in this connection we would add that the tall plumes of *Astilbes* and *Thalictrum dipterocarpum* rendered excellent service.

MESSRS. HARKNESS AND SON, Bedale, were awarded second prize, and they presented *Gaillardias*, *Verbascums*, *Liliums*, *Phloxes* and *Gladioli* in good form, but had a far too formal arrangement; 3rd, Messrs. G. GIBSON AND CO., Bedale.

MESSRS. M. PRICHARD AND SONS were also first prize winners in the class for eighteen bunches of hardy flowers, while Mr. E. H. SHORTING, Bromley, led for a dozen bunches.

Sweet Peas and Carnations.

Sweet Peas were shown in fine condition, the recent cool weather having favoured them. Competition, however, was not very keen. For eighteen bunches, distinct varieties, Mr. THOS. JONES, Ruabon, won the premier award of £8, with lovely blooms of *Conquest*, *Gloriosa*, *Mascotts White*, *Cicely*, *Jean Ireland*, *Tangerine*, *Sunset*, *Royal Purple*, *R. F. Felton*, *Hawthorn Pink*, *Matchless*, *Mrs. T. Jones*, *King Mauve*, *Royal Scot*, *Hebe*, *Bunt*, *Picture* and *Warrior*; 2nd, Mr. A. DUNTON, Wolverhampton.

Mr. J. HAYCOCKS, Gyffelia, Wolverhampton, led in the class for a dozen bunches, but he had arranged his flowers in a too formal manner for good effect; 2nd, Mr. F. R. MINSHALL, Market Drayton, also with a formal arrangement; 3rd A. BRADBURY, Esq. (gr. Mr. H. G. Shaw, Llandudno).

There was keen competition in the class for six bunches, distinct varieties, and here Mr. W. DODD, Ruabon, gained the first prize with fine examples of *Bridesmaid*, *Conquest*, *Annie Ireland*, *Colne Valley*, *Glory* and *Mascotts Scarlet*; 2nd, Mr. A. BRADBURY; 3rd, Mr. F. R. MINSHALL.

The leading class for Carnations was one for a group of perpetual varieties, arranged on a space 18 ft. by 4 ft., and the chief award offered is a silver challenge cup, value 50 guineas, presented by the late Annabelle Lady Boughiey, and to be owned by anyone winning

it three times, not necessarily in succession. Mr. C. WALL, of Bath, won it in 1920 and 1921, but on this occasion he had to take second place to Mr. C. ENGELMANN, Saffron Walden, who won with a grand display of fine flowers set up in bold masses of each variety, and yet arranged with great taste and elegance; the yellow Saffron, and the scarlet Thor were his outstanding varieties, but White Wonder and Laddie were also grandly shown. Mr. WALL's exhibit was a fine one, and prettily arranged, but he used double *Gypsophila* too freely among his Carnations flowers.

For a group of border Carnations and Picotees Mr. H. WOOLMAN, Shirley, Birmingham, was awarded first prize, and the feature of his display was a column of Border Yellow.

Roses and Begonias.

For the second time in succession Messrs. GUNN AND SONS, Olton, won the Philipps Silver Rose Bowl offered as first prize for a display of Roses arranged on a space 20 ft. by 4 ft. There were two entrants, and Messrs. Gunn and Sons were easily first with a superb arrangement, in which pillars of White Dorothy, K. of K. Dorothy Dennison, Mdme. Abel Chatenay, and Lady Gay were the outstanding features. Beneath these and also behind them were fine stands of Isobel, Mrs. John Laing, Cheerful, Queen Alexandra, George Dickson and James McArthur. Mr. A. J. S. DUNTON gained the second prize with a very formal design.

There were four entries in the class for three bunches of cut Roses, and here the leading award was won by Mr. J. MATLOCK, Headington, Oxford, with beautiful, clean flowers of Los Angeles, Mrs. Henry Morse and Irish Elegance; 2nd, Messrs. GUNN AND SONS, Olton, with George Dickson, Annie Crawford and Ophelia; 3rd, Mr. C. VICKERS, Leicester.

Cut blooms of Roses on boards were not a success; Mr. W. J. COLE, Treherbert, Mr. W. LEWIS, Llanelly, and Mr. T. JONES, Ruabon, being the most successful competitors.

A grand group of magnificently grown *Begonias*, representing superb double varieties, won for Messrs. BLACKMORE AND LANGDON the first prize in an important class. A space 25 ft. by 4 ft. was allowed. The Bath firm showed three of their "basket" *Begonias*, on tall stands, and showed wonderful plants of the big-flowered varieties Peace, Mrs. J. Davidson, Lord Lambourne, Mrs. F. Bedford, and Hilda Langdon; 2nd, Mr. F. DAVIES, Pershore.

Rock Gardens.

An interesting class was the one for a rock and water garden, and the exhibits were arranged out of doors. The first prize of £50, together with the Lord Howard de Walden Cup, value 50 guineas, and to be won outright, was won by Mr. F. R. HAYES, Keswick, with a very pleasing arrangement in which no extravagant use had been made of rock, in fact, plants and rock were entirely in harmony, and the little stream running down the little ravine was a pretty feature. Some of the more important plants noted were *Erica vagans* St. Keverne, *Gentiana septemfida*, *Campanula White Star*, *Thalictrum minus*, *Daboecia polifolia*, and *Papaver alpina*. Mr. HAYES won with 89 points out of a possible 100. The second prize was awarded to Mr. P. GARDNER, Ilkley, who obtained 65 points; 3rd, Messrs. S. BROADHEAD AND SON, Huddersfield, with 62 points.

Floral Designs.

First prize for a bowl of hardy flowers was awarded to Messrs. CHAS. HUNT, Baschurch, for a blue and white bowl filled with *Eryngiums*, cluster of *Barberries* and *Maple foliage*. As the class specification admitted hardy garden flowers, foliage, grasses, "etc.," no doubt the judges allowed the fruits to pass. It was a charming and unusual design; 2nd, Miss NEWSHAM, Ormskirk, with pale blue *Delphiniums* and *Montbretias*. In another bowl class Miss NEWSHAM led with brilliant Roses in a dark bowl; 3rd, Mrs. J. NIXON, Alderley Edge, with pink Carnations and *Francoa* sprays.

Premier position for one brides' and two bridesmaids' bouquets was won by Mr. C. J. VICKERS, Leicester, with pleasing designs in

Orchids, but in one or two instances the flowers were faded; Mrs. NIXON, 2nd.

The basket class was a good one, and here Mrs. J. NIXON led with a brilliant arrangement of Anthurium Andreanum, Odontiodas, Francoa sprays and Codiaem leaves; Mrs. A. ADSHEAD, Gately, 2nd, with yellow Carnations, Anthurium Scherzerianum and Francoa sprays; 3rd, Mrs. C. J. VICKERS.

Eight competitors came forward in the class for a floral table decoration. To the surprise of many visitors the first prize was awarded to Miss NEWSHAM, Ormskirk, for four corner vases and a central bowl of Independence Day Roses; the arrangement was at once simple and effective, and though many judges would have given first prize to the elegant and light arrangement by Miss NIXON, Alderley Edge, we find no fault with the judges' decision; one lady put the case rather well when she considered the Rose table to be "so satisfying." A design in pink Carnations won third prize for Mr. E. WINCHESTER, Rubey, Birmingham. One competitor had a quaint and somewhat funeral design composed of four vases of "Travellers' Joy" Clematis and a central bowl containing two huge flowers of Magnolia grandiflora. Four white candles in black iron candlesticks completed the arrangement!

Choice Dessert Fruits.

A most attractive and interesting class at Shrewsbury of late years has been the one for a collection of thirty dishes of dessert fruits, not fewer than nine distinct kinds, not more than fourteen bunches of Grapes being admissible, and these in not fewer than four varieties; the whole to be arranged on a table 10 ft. by 4 ft., with floral decorations. In this class the chief prize is a Silver Challenge Cup, value £65, and £25 in cash.

The famous Cup now becomes the property of Lord HOWARD DE WALDEN (gr. Mr. Jas. Vert), Chirk Castle, as he has won it three times in succession, and on this occasion he led with 167 points out of a possible 200 odd. The table was admirably decorated with Carnations and Francoa sprays. The items were Muscat of Alexandria, Muscat Hamburg, Madresfield Court and Black Hamburg Grapes, two bunches of each; Emerald Gem, Countess and Hero of Lockinge Melons; Brown Turkey Figs (two dishes); Peregrine (2) and Crimson Galande Peaches; Byron Pineapple (2) and Humboldt Nectarines; Jefferson and Transparent Gage (2), Plums; Large Early and Moorpark Apricots; Red Astrachan, and Red Victoria Apples; Bigarreau Napoleon Cherries; and Marguerite Marillat Pears—a fine exhibit, in which the judges did not err on the side of Eberality as regards pointing. Sir JOHN LEIGH (gr. Mr. Thos. Young), Lilleshall, 2nd, with 160½ points, his Grapes being in good condition, especially his Muscat of Alexandria; 3rd, Mrs. T. S. HALL (gr. Mr. G. Richardson), Chard, with 148 points, his Noblesse, Dymond and Royal George Peaches being particularly good.

Two competitors came forward in the class for nine dishes of dessert fruits, the leading prize winner being Col. HEYWOOD LONSDALE (gr. Mr. J. Mills), Shavington Hall, who staged small bunches of Black Hamburg and Muscat of Alexandria Grapes; Monro's Little Heath Melon; Lord Napier Nectarines; Sterling Castle Peaches; James Grieve and Duchess of Oldenburg Apples; Large Red Apricots and Clapp's Favourite Pears; 2nd, Capt. W. W. HAYES (gr. Mr. F. Maddock), Harcourt.

Apparently only a second prize was awarded in the class for twelve dishes of dessert fruits, the only exhibit we could find being the one from Major A. A. HUMPHREYS OWEN (gr. Mr. A. Oakley), Glansevern.

Grapes.

In the interesting class for a decorated display of twelve bunches of Grapes, there were three competitors, and the whole class produced a fine effect. The chief award of £20 was won by R. J. CORBETT, Esq. (gr. Mr. J. Jones), Towyn, with Black Hamburg, 8, 8, 8 and 8½ points (10); Appley Towers 5 (9); Muscat of Alexandria 8½, 8½, 8 and 8 (11); Mrs. Pince

5½, 7, and 6 (11); a total of 89 points out of a possible 124—the figures in brackets show the possible points and the other figures the points obtained. In this exhibit the bunches were of very even size and one of the bunches of Muscat of Alexandria (No. 8) was nicely berried and beautifully coloured. The second prize fell to Lady MACALPINE (gr. Mr. S. H. North), Accrington, who had heavy bunches that would have been the better had they been thinned more. His points were: Madresfield Court 7½, 7, 6½ and 7 (11); Alicante 7, 7½ and 6½ (9); Muscat of Alexandria 6½, 6½ and 6 (11); and Black Hamburg 6½ and 7½ (10); total 82 points out of a possible 120. Messrs. J. WEBBER AND SONS, Minehead, 3rd, with 76 out of a possible 118 points.

Lt.-Col. LEIGH led for four bunches of Grapes with fair-sized, nicely finished clusters of Madresfield Court and Muscat of Alexandria; 2nd, the EARL OF COVENTRY with Black Hamburg and Muscat of Alexandria. The last-named competitor excelled in the class for a pair of bunches of Black Hamburg Grapes, A. BRADBURY, Esq., Llandudno, coming second; five entries.

Lt.-Col. LEIGH led for two bunches of black Muscat Grapes with large but rather small-berried clusters of Muscat Hamburg; Col. HEYWOOD LONSDALE, 2nd, with the same variety. Lt.-Col. LEIGH continued his successes in the class for two bunches of Madresfield Court Grapes. Messrs. J. WEBBER AND SONS led in the class for Alicante with finely berried bunches, well-coloured for the time of year.

Major ALDERSON, Franklin, and Capt. W. W. HAYES, Harcourt, were first prize winners in classes for Black Hamburg and Madresfield Court Grapes respectively.

The Rt. Hon. the EARL OF COVENTRY (gr. Mr. W. H. Wilson), Croome Court, had the best pair of bunches of white Muscat Grapes (Muscat of Alexandria), just beating Lt.-Col. H. C. LEIGH, Knutsford, in a class of four entries. In another class for white Grapes Messrs. J. WEBBER AND SONS, Minehead, led with well-furnished clusters of Buckland Sweetwater.

Hardy and Other Fruits.

Col. HEYWOOD LONSDALE won first prize for six dishes of hardy fruits in a class of four entries. Lord HOWARD DE WALDEN (gr. Mr. J. Vert) won first place for Morello Cherries in a severe competition. The Rev. J. DAVIES, Crowle, had the best purple or red Plums, and also the best yellow Plums, in Jefferson.

In the Melon classes Lt.-Col. DICKIN (gr. Mr. Gilbert), Loppington House, and Mr. A. BRADBURY were the leading prizewinners. R. J. CORBETT, Esq., Towyn, led for Peaches with Violet Hative in fine condition; Mr. S. WITHERS, Sandhurst, 2nd; Mr. CORBETT was also successful in the class for Nectarines with superbly coloured fruits of Dryden; Mr. WITHERS, 2nd. T. F. KYNERSLEY, Esq. (gr. Mr. Phillips), Leighton Hall, had the best dish of Apricots.

In the Apple classes the fruits indicated the backwardness of the season. For culinary Apples Sir J. LEIGH led with excellent fruits of Peasgood's Nonsuch; E. C. TANNER, Esq., Eytton-on-Severn, 2nd, with Bramley's Seedling. Sir JOHN LEIGH was also first prizewinner for dessert Apples, with Lady Sudeley, and Col. HEYWOOD LONSDALE, Shavington Hall, was 2nd with small examples of James Grieve.

Vegetables.

Vegetables were grandly exhibited and presented in large numbers, one big tent being required to accommodate the splendid produce.

There were eight entries in the Society's open class for twelve dishes of vegetables; distinct kinds, and in this keen competition Mr. J. JONES, of Ammanford, won the chief award with Leeks, Cauliflowers, Onions, Potatoes, Turnips, Runner Beans, Peas, Carrots, Beet, Celery and Cucumbers; 2nd, Mr. E. MILLINGTON, Hadnall; 3rd, Mr. E. WINCHESTER.

In the Robert Sydenham class for nine kinds of vegetables Mr. W. TAYLOR, Grimshill, led with excellent Celery, Ailsa Craig Onions and The King Tomatoes; 2nd, Mr. E. WINCHESTER, Rubey, Birmingham; four entries.

In Messrs. Webb and Sons' class Mr. W. J. JONES, Ammanford, led with nine splendid dishes in which the Onions were of outstanding quality; 2nd, Mr. E. WINCHESTER; six entries.

Lt.-Col. DAVID DAVIES (gr. Mr. F. H. Pugh), Llandinam Hall, won the premier prize in the class for six kinds, provided by Messrs. Jas. Carter and Co., and he had grand Giant Pink Celery and Ailsa Craig Onions; 2nd, Mr. T. BOWEN, Aberaman; five entries.

In Messrs. Clibran's class for nine kinds Mr. T. M. JONES, Llandilo, led, his Exhibition Runner Beans, Ailsa Craig Onions and Holme's Supreme Tomatoes being his best dishes; 2nd, Mr. T. BOWEN, Aberaman.

The prizes in Messrs. Dickson and Robinson's class for nine kinds were keenly competed for. J. THOMAS, Esq. (gr. Mr. David Jones), Kidwelly, led, and showed Standwell Cauliflowers, Kondine Red Tomatoes and King Edward Potatoes in fine condition; 2nd, Mr. T. M. JONES, Llandilo; four entries.

There were three fine entries in Messrs. Sutton and Sons' class for nine kinds, and here Mr. W. J. JONES was once again the leading prizewinner, showing fine Prizetaker Leeks, Prince of Wales Tomatoes, Prizewinner Runner Beans, and Ailsa Craig Onions; 2nd, Col. HEYWOOD LONSDALE; 3rd, W. MALCOLM WATSON, Esq. (gr. Mr. W. H. Jones), Clive Hall.

C. J. GWYER, Esq. (gr. Mr. H. Sowman), Hereford, had the best six dishes of Potatoes, his varieties being Eclipse, Stirling Castle, Victory, Midlothian Early, Abundance and Rhoderick Dhu—a grand lot.

In the numerous single-dish classes there were literally crowds of competitors, and the judges' task must have been a difficult one, as scarcely a poor dish was to be found.

Lt.-Col. D. DAVIES led for Tomatoes; R. C. PALMER MOREWOOD, Esq., Alfreton Park, for Cucumbers; A. H. HICKMAN, Esq., Cookley, for Peas; Mr. J. GRIFFITHS, Shepherd's Lane, for dwarf Beans; Mr. J. DAVIES, Weston Crewe, for Runner Beans; Mr. C. J. GWYER, Titley, for Potatoes (The Bishop); Mr. G. W. SHEPHERD, Bridgnorth, for Cauliflowers; Mr. W. WEAVER, Mold, for Celery; Mr. T. JONES, Ammanford, for Onions; Rev. J. DAVIES, Worcester, for Parsnips, and for Carrots; Lt.-Col. D. DAVIES, for Turnips; and Mr. J. JONES, Ammanford, for Spring Onions.

In cottagers' and local classes the vegetables were of a very high standard of excellence, and the competition was very keen throughout.

Awards to Non-Competitive Exhibits.

Large Gold Medal and Special Additional Award.—To the Hon. VICARY GIBBS (gr. Mr. E. Beckett), Aldenham House, Elstree, for a collection of vegetables.

Gold Medal.—To Mr. E. MURRELL, Shrewsbury, for a miscellaneous group; to Messrs. JOHN PEED AND SON, West Norwood, for stove and greenhouse plants; to Messrs. ROBERT BOLTON AND SON, Halstead, for Sweet Peas, splendidly staged; to Messrs. E. WEBB AND SONS, Stourbridge, for vegetables and Sweet Peas; to Messrs. BEES, LTD., Chester, for Liliums and herbaceous flowers; to Messrs. SUTTON AND SONS, Reading, for fruits, flowers and vegetables; to Messrs. DOBBIE AND CO., Edinburgh, for Roses; to Messrs. BAKERS, Codsall, for herbaceous flowers and water plants; to Messrs. ALEX. DICKSON AND SONS, Belfast, for Sweet Peas; to the KING'S ACRE NURSERIES, Hereford, for pot fruit trees and Roses; and to Messrs. GUNN AND SONS, Olton, for Phloxes.

Small Gold Medal.—To Mr. H. N. ELLISON, West Bromwich, for Ferns and Cacti; to Messrs. M. PRITCHARD AND SONS, Shrewsbury, for Ferns and flowers; to Messrs. J. CYPHER AND SONS, Cheltenham, for stove and greenhouse plants; to Messrs. STUART LOW AND CO., Bush Hill Park, for Orchids and Carnations; to Messrs. WM. CUTHBERT AND SON, Barnet, for Liliums and other flowering plants; to Messrs. HERD BROS., Penrith, for Sweet Peas; to Messrs. STOUTENBEK VAN TIL, Hillegom, for Gladioli; to Mr. H. CLARKE, Taunton, for au-

nials; to Messrs. JONES AND SON, Shrewsbury, for Sweet Peas, etc.; to Messrs. SANDER, St. Albans, for Orchids; and to Messrs. DICKSON AND ROBINSON, Manchester, for Gladioli and Tomatoes.

Silver Medal.—To Mr. ALEX. W. THORPE, Lichfield, for early Chrysanthemums; to the CHALK HILL NURSERIES, Reading, for Antirrhinums, etc.; to Messrs. ISAAC HOUSE AND SON, Bristol, for Scabious and other hardy flowers; to Messrs. W. H. SIMPSON AND SON, Birmingham, for Antirrhinums; to Messrs. JAMES VERT AND SON, Saffron Walden, for Hollyhocks; to the Rev. J. H. PEMBERTON, Romford, for Roses; to Messrs. JOHN K. KING AND SONS, Coggeshall, for Sweet Peas; to Messrs. BLACKMORE AND LANGDON, Bath, for Delphiniums; to Messrs. BOWELL AND SKARRATT, Cheltenham, for Alpines, etc.; to Mr. C. ENGELMANN, Saffron Walden, for Carnations; to Mr. E. BAYLEY, Shrewsbury, for plants and flowers; to Mr. HENRY ECKFORD, Wem, for Sweet Peas; to Messrs. JARMAN AND CO., Chard, for Roses, Dahlias, etc.; to Messrs. RYDER AND SON, LTD., St. Albans, for vegetables; and to Messrs. J. FORBES (HAWICK), LTD., Hawick, for Pentstemons and Phloxes.

Certificates of Merit.—To Mr. E. J. PARSONS, Worcester, for the Worcester Berry; to Miss S. S. THOMPSON, Handsworth, for Cacti; to Messrs. MAXWELL AND BEALE, Broadstone, for a Rock Garden exhibit; to Mr. JOHN JONES, Wem, for Violas; and to the SALOP COUNTY COUNCIL, Horticultural Section, for an educational exhibit, including wild flowers.

Award of Merit.—To Mrs. A. O. PITCAIRN-CAMPBELL, Bangor, for Phlox decussata, Seedling No. 979; to Messrs. T. R. HAYES AND SON, Keswick, for Erica vagans, var. St. Keverne; and to Messrs. F. WOOLMAN AND SON, Leicester, for an unnamed Ivy-leaved Pelargonium.

WOOLWICH WAR MEMORIAL HORTICULTURAL.

THE Annual Show of the above Association, held on Bank Holiday Monday, beat all previous records, over 20,000 persons paying for admission. In addition to £150 in cash prizes, fourteen challenge cups, fourteen silver cups, and twenty-nine medals were offered. The entries numbered over 700, and there were also thirty-one trade exhibits. The promoters of the show have great ambitions, and it is possible that in the near future the event will rank in importance with the best shows in the country. There were numerous side attractions, and the 16-acre field at Shooter's Hill is admirably suited for such a show.

The chief prize-winners in the trade classes were as follows:—Group of cut Roses, 10 feet by 4 feet: 1st, Mr. ELISHA J. HICKS, Twyford challenge trophy and 1 silver cup, also the "Sir Harry North" 50-guinea challenge cup for best Rose exhibit; 2nd, Messrs. CHAPLIN BROS., Waltham Cross; 3rd, Messrs. FRANK CANT AND CO., Colchester. For 36 blooms, distinct: 1st, Messrs. D. PRIOR AND SON, Colchester (challenge trophy and cup); 2nd, Messrs. CHAPLIN BROS.; 3rd, Messrs. FRANK CANT AND CO. For 12 distinct varieties: 1st, Messrs. D. PRIOR AND SON; 2nd, Messrs. CHAPLIN BROS.; 3rd, Messrs. FRANK CANT AND CO. For 12 distinct Tea Roses: 1st, Messrs. D. PRIOR AND SON; 2nd, Messrs. FRANK CANT AND CO.; 3rd, Messrs. CHAPLIN BROS.

For Sweet Peas: 1st, Mr. L. HORTON, Coalway Road, Wolverhampton (silver cup).

The chief non-competitive exhibits were those staged by Messrs. S. BIDE AND SON, LTD., Farnham, Sweet Peas (silver cup); Mr. H. J. JONES, Ryecroft Nursery, Lewisham, Phloxes, Cannas, and Delphiniums (silver cup); Messrs. E. FISHER AND SON, Thornton Heath, Sweet Peas; Mr. J. ROBINSON, New Eltham; Mr. GEO. HERBERT, Ruislip, Sweet Peas; Messrs. R. TAYLOR AND SON, New Eltham; Messrs. WARD AND PRIOR, Bromley, Kent; and Messrs. POPE AND KING, Abbey Wood.

Obituary.

Sir Albert Kaye Rolitt.—The death of Sir Albert Rolitt, LL.D., D.C.L., Litt.D., will be deeply regretted by horticulturists, for he took a keen interest in gardening and did much to advance its interest. He died at his home, St. Anne's Hill, Chertsey, on Saturday, the 12th inst., in his eightieth year. Sir Albert Rolitt possessed a striking personality and his interests were remarkable and varied. He commenced life as a solicitor, and his success in that capacity may be gauged by the fact of his being appointed president of the Incorporated Law Society. Meanwhile, he became a ship owner, and his commercial career was equally successful. He became one of the most important citizens of Hull, where he had offices as well as in Mincing Lane, London. He next concerned himself with politics, and in Parliament he was regarded as an authority on commercial and legal questions. While at Hull he occupied the position of Chairman of the Hull Botanic Gardens, and closely identified himself with all the horticultural activities of the borough. As Mayor of Hull, he opened the first of the long series of magnificent exhibitions of Chrysanthemums that were held in that city. He maintained an especial interest in the Chrysanthemum, and for many years was president of the National Chrysanthemum Society, an office which he still held at the time of his death. He also served for very many years as a member of the council of the Royal Horticultural Society, and his wide knowledge, especially of business matters, was of the utmost value to that Society. He was always ready to lend his influence and patronage for the furtherance of gardening, and often presided at horticultural meetings. He made an ideal chairman, and his extensive knowledge, enlivened with witty remarks, generally resulted in some concrete proposals and sound advice for the furtherance of the interests of the particular association. The greatest debt, however, which horticulture owes to him is the institution of the National Diploma of Horticulture, which he brought about through his connection both with the University of London and with the Royal Horticultural Society. He gave powerful support to all aspects of education, and his effort to raise the status of horticultural education by the institution of this Diploma has had the happiest results. During the whole of his busy life he found pleasure and relaxation in practical gardening, and his gardens in the East Riding of Yorkshire were unsurpassed in beauty and extent by any other in the locality. Later, when he came South, he pursued horticulture with equal interest both at The Willows, Windsor, and in later years at St. Anne's Hill, Chertsey.

David Storrie.—It is with deep regret that we learn of the death of Mr. David Storrie, of Glencarse Nurseries, Perthshire, which took place at Dundee on the 3rd inst. Mr. Storrie, who was a native of the Lothians, entered the service of Messrs. Laird and Sinclair about forty years ago and after spending a few years with that firm set up on his own account as a seedsman and at the same time rented a nursery at Binrock. It is now some thirty years ago since Mr. Storrie went to Glencarse where he established a most successful business in the cultivation of fruit trees and in the production of very fine strains of Cinerarias, alpine Auriculas and other florists' flowers, all of which have been shown at various exhibitions in different parts of the country on several occasions. In 1920, the Royal Caledonian Society awarded Mr. Storrie the Neill prize, which is probably the highest honour in Scottish horticulture. This award was taken advantage of by many Scottish horticulturists, who gathered at Glencarse in July of 1920, to honour its recipient, and at the same time Mr. Storrie was presented with a handsome tea and coffee service on behalf of the Dundee Society in recognition of the valuable services he had rendered to horticulture over a period of many years. The deceased gentleman was a great advocate of training centres for young

gardeners and of educational facilities for all who desired to enter the horticultural profession. He was 67 years of age and leaves a widow, a son and daughter.

Miss Lilian Masters.—It is with deep regret we learn of the death of Miss Lilian Masters, who died of septic pneumonia, at 9, Mount Avenue, Ealing, on the 13th inst. Miss Lilian Masters, the youngest daughter of the late Dr. Maxwell T. Masters, F.R.S. (Editor of *The Gardeners' Chronicle* for many years), was at one time a frequent contributor to our pages, and rendered considerable help to her father in certain branches of his editorial work.

J. H. Goodacre.—It is with deep regret we learn, as these pages are being prepared for press, of the death, on Sunday last, of Mr. J. H. Goodacre, who was gardener to the Earl of Harrington at Elvaston Castle for a great number of years. Mr. Goodacre had a high reputation as a gardener, and his successes with choice fruits on the show board during the past forty years or so have been unsurpassed by any other gardener within living memory. We hope to publish details of Mr. Goodacre's professional career in our subsequent issue.

ANSWERS TO CORRESPONDENTS.

GARDENER'S HOUSING ACCOMMODATION: H. B. Your present employer should find you fresh accommodation; but, if this is impossible, your late employer would find it very difficult to get an order for immediate possession. In any event, this would take him some time. You had better inform your late employer that you will give up possession of his cottage immediately you can find other accommodation.

GOOSEBERRY SHOOTS SHRIVELLED: N. Q. R. Reading: The shrivelling of the growth and the falling of the leaves are not due to a fungous attack. Drought at the roots is the probable cause, following an attack of the Gooseberry Saw Fly, or the caterpillars of the Magpie Moth.

LARGE ORANGE: L. G. W. The specimen received is a variety of Orange, but evidently quite unsuitable for dessert purposes, although possibly the tree might develop succulent fruits if grown in heat.

MELON PLANTS DYING: Constant Reader. The small plants received were kept under cultivation and did not die off as yours appear to have done. The trouble is certainly not due to bacterial rot, but may possibly be caused by unsuitable conditions of soil and atmosphere.

NAMES OF PLANTS: E. W. Inula Helenium (Elecampane).—*M. L.* 1, Spiraea Filipendula (Dropwort); 2, Lychnis chalcidonica (Jerusalem Cross); 3, Geranium sanguineum; 4, Waldsteinia trifolia; 5, Aster acris; 6, Thalictrum aquilegifolium; 7, Verbascum nigrum; 8, Tradescantia virginiana (Flower of a Day or Virginian Spiderwort); 9, Veronica spicata hybrida (a garden form); 10, Potentilla, not recognised; 11, Echinops Ritro; 12, Mentha rotundifolia variegata. The Potentilla seems allied to *P. palustris*, but has no petals.—*Gardener, Herts.* Amelanchier canadensis (Snowy Mespilus, or June Berry).—*H. E. P.* Melilotus officinalis (common Melilot). It is fragrant as well as effective, and sows itself freely.—*J. F.* 1, Campanula rapunculoides; 2, Felicia petiolata (also named Aster petiolatus in the *Flora Capensis*).

PEACH FRUITS CRACKING: J. M. W. No fungus could be found on the Peach fruits, and undoubtedly the cracking is due to some cultural error, such as excessive watering of the border following a period of drought.

Communications Received.—J. H. P.—L. Bros.—A. O. W.—H. S.—W. G.—C. J. W.—W. H. J.—J. C. W. & Son—A. J. S.—R. & Co.

THE

Gardeners' Chronicle

No. 1861.—SATURDAY, AUGUST 26, 1922.

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 62.0°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, August 23, 10 a.m. Bar. 29.9; temp. 62°. Weather—Sunny.

The Control of Orchard Pests.

The numerous experiments which have been carried out in the chief fruit-growing countries, and particularly in the United States and in Nova Scotia, have demonstrated that by spraying with suitable material at the proper times it is possible to hold in check the numerous insect and fungus pests which infest Apples and Pears. In spite, however, of the publication of these results, there is still considerable doubt in the minds of some growers as to the best means to employ. They require a spray fluid which is easily procured and one, moreover, which will destroy or hold in check as many as possible of the diverse pests which beset their trees. Recent experiments carried out by the French South Eastern Entomological Station* had for their object the discovery of the most serviceable mixed insecticide and fungicide. Experiments were made with copper-arsenical and lime-sulphur-arsenical compounds. The copper salts used were sulphate or acetate and arsenic was added either as lead arsenate or lime arsenate. In the French experiments, good results were obtained with several combinations, copper acetate and lead arsenate, a preparation easy to make but liable to scorch

young leaves and fruit unless applied at the right moment; lime arsenate-Bordeaux mixture gave good results and produced less scorching than did lead arsenate-Bordeaux mixture; it should, however, not be used during the flowering period, when the spraying should be done with lead arsenate alone. By using these preparations yield was doubled and the percentage of scab on the fruits reduced from 50 to 4 per cent. Arsenical lime-sulphur mixtures, which have hitherto been but little employed in France, were also tried. One compounded of concentrated commercial liquid lime sulphur, lead arsenate and water proved useful in the control of scab and caterpillars on Pears, but was not so effective when used on Apples. The conclusion reached is that for control of pests there is little to choose between the copper and lime-sulphur mixtures, the latter possessing, however, the advantage of cheapness. Whichever is used, three sprayings are recommended, the first when the blossom buds are bursting, the second when the petals begin to fall, and the third from ten to fifteen days after the second when the fruit is distinctly formed. In the first spraying particularly, all parts of the tree, including the bark, should be covered. In the second it is important to get the fluid well into flowering clusters, and to ensure this a high-power spray is recommended and also the holding of the nozzle as near as may be to the blossoms. These conditions also apply to the third application.

The King's Congratulations to a Gardener.—

Mr. Owen Thomas has, on the occasion of his golden wedding, to which we referred on p. 103 in last week's issue, received the following letter from Lord Stamfordham:—

Buckingham Palace,

18th August, 1922.

Dear Mr. Thomas.—The King has learned that on the 19th instant, you and Mrs. Thomas celebrate your golden wedding, and I am commanded to convey to you His Majesty's congratulations on this happy occasion, and trust that you are both in the enjoyment of good health.

It gives me much pleasure to be the medium of His Majesty's gracious communication.—Yours sincerely,
OWEN THOMAS, Esq.

Railway Station Gardens.—The annual inspection of the station gardens on the system of the Portpatrick and Wigtownshire Joint Railways took place on August 15. The following is the order of merit in which the stations were placed:—Parton, Kirkcubright, Sorbie, Glenluce, Cross-michael, Millisle, Dunragit, Creetown, Castle Kennedy, Gatehouse, New Galloway, Wigtown, Newton-Stewart, Palnure and Stranraer.

Centenary Celebration of Messrs. Vilmorin, Andrieux and Co.—On Thursday, the 27th July, a double event was celebrated at the famous nursery of Messrs. Vilmorin, Andrieux and Co., at Verrières-le-Buisson. The fête was designed to mark the occasion of the nomination of Mme. Philippe de Vilmorin, the present proprietor, as a member of the Legion of Honour, and to commemorate the centenary of the establishment of the Verrières nursery. A special train from Paris to Verrières carried the guests and the employees at the Paris and Reuilly branches of the business—in all some 960 persons. It was in 1815, rather more than a hundred years ago, that the famous Verrières establishment was formed out of a plot of ground which then contained a pavilion built by Louis the Fourteenth for the use of Mlle. de la Vallière. This residence is now that of the Vilmorin family. Since 1815, the interest of the property has steadily increased, as more and more valuable plants and trees have been added to the original collections. The chemical laboratory was added in 1891, and contains every facility for agricultural

and horticultural research. In 1901 the Alpine garden was formed, by the late Philippe de Vilmorin, and is the admiration of every visitor to the nursery. The déjeuner, which was the principal feature of the celebration, was a great success, and everyone was gratified at the presence of Mme. Henry de Vilmorin, the widow of the late proprietor's father. Mme. Philippe presided over the chief table, at which were a number of distinguished guests. After the déjeuner she rose and addressed the company in well chosen terms, alluding with much feeling to her late husband, who died in 1917, and expressing gratitude for the presentation which had been made to her, of a gold *plaque* bearing a portrait of M. Philippe. She then proceeded to thank the personnel of the various branches for their devoted service to her since her husband's death. M. Sauvage, the Secretary of the Fédération des Syndicats Horticoles de France, congratulated Mme. de Vilmorin on her newly conferred membership of the Legion of Honour and on her excellent discharge of her duties as the mother of a family. Other speeches followed on the same lines, and all who spoke rendered a tribute to M. Philippe de Vilmorin, whose untimely death was such a loss to French horticulture in general.

The Highest Waterfalls.—Mr. F. E. Matthes, of the U.S. Geological Survey, has given in the American *Journal of Science* the height of some of the chief waterfalls of the world. The greatest descent is made by the waters of the Yosemite falls, which descend from the uplands to the floor of the valley, a vertical distance of 2,565 feet, by an upper and lower fall, joined by a series of cascades. The upper fall drops by a single leap 1,360 feet, and this is by far the largest single fall known in the world. Another large fall, in New Zealand, known as the Sutherland Fall, is 1,904 feet in height; it is broken midway by series of ledges. The Gavnarnie fall, in the Pyrenees, drops some 1,385 feet, although this is interrupted by braided streamlets with only short, clear drops. The most imposing waterfall, of course, is the Niagara, which is really a huge river roaring over a precipice. Another waterfall of gigantic proportions is the Kaieteur Fall, in British Guiana, which is stated to have a drop of 804 feet, and still another notable fall, known as the Wooloomambi Fall, is found on a branch of the Macleay River, in New South Wales, the water of which drops about 900 feet.

Pomological Congress in Paris.—The arrangements for the Pomological Congress to be held by the French Pomological Society are now made, and it has been decided that the opening session will be held at 9 a.m., on the 11th September, at the offices of the Société Nationale d'Horticulture de France, in the Rue de Grenelle, Paris. Conferences, visits to gardens, and other activities will make up a full programme, which is to terminate on the 13th September.

An Old Scottish Flower Show.—Glenkens flower show, which was held at Dalry, Galloway, on August 17, has an interesting history. The Society was founded some years before 1831, the object being: "To improve the condition of the labouring classes in the parishes of Dalry and Kells by stimulating their exertions in their different occupations by means of premiums." In 1831, the late Mr. W. Grierson Yorston, of Garroch, left an annuity of £25 per annum to the Society. It did not begin its horticultural shows until 1848, when prizes were given for vegetables grown in cottage gardens, and classes for pot or window flowers were added in 1865. The exhibits in these cottage garden classes are limited to exhibitors paying not more than £8 rent.

Amended Seeds Regulations.—The Ministry of Agriculture and Fisheries informs us that the "Seeds Regulations, 1921," which were made in pursuance of the provisions of the Seeds Act, 1920, were withdrawn as from August 10, 1922, and have been replaced by the "Seeds Regulations, 1922." The terms of the new regulations are practically identical

* Summarised in *Review of Applied Mycology*, Issued by the Imperial Bureau of Mycology. Vol. I., Part 4, April, 1922.

with those of the previous regulations, except as regards the following points:—1. Grass and Clover seed when sold, or exposed for sale, for other than agricultural purposes (e.g., as lawn grass seed) will be excluded from the operations of the Seeds Act. 2. A statement as to the percentage of pure germinating seed or "real value" of Grasses and Clovers is no longer required. 3. Alsike and White Clover, when grown together, may be treated for the purpose of the Regulations as one seed, provided they are declared to have been grown together. 4. Sprouted Cereal seeds are not to be treated as impurities for the purpose of testing, that is to say they are not to be picked out of the sample put up for the germination test. 5. The authorised minimum percentage of germination in the case of Broccoli and Cauliflower seed is reduced from 65 per cent. to 60 per cent. 6. Seed Potatoes the variety of which in less than the Standard Purity of 97 per cent. may now be sold as seed Potatoes, provided such Potatoes are declared as being of mixed varieties. Copies of the Seeds Act, 1920, and of the Seeds Regulations, 1922, may be obtained through any bookseller, or directly from H.M. Stationery Office, Imperial House, Kingsway, net price 3d. each.

Sandy Flower Show.—The annual exhibition of the Sandy and District Floral and Horticultural Society will be held on the 31st inst. The Secretary informs us that a very large number of entries have been received, and the exhibition promises to be a great success. Particulars may be obtained from the Secretary, Mr. F. W. Western, Sandy, Beds.

Paris Autumn Show.—The Autumn Exhibition of the French National Horticultural Society will take place from the 27th October to the 5th November, at the Jardin d'Acclimatation in Paris.

Uses of the Common Chickweed.—In an interesting article entitled "Good Services of our Commonest Weeds" in *Chambers' Journal* for August, Mr. H. Brierley refers to some of the uses to which the common Chickweed, *Stellaria media*, may be put. He states that it may be used for a cure of recent rheumatism of an inflammatory kind applied either as hot fomentations or in poultice form. The Gael of Northern Scotland has long used Chickweed for poulticing inflamed and even suppurated breasts. He refers to Nicholas Culpeper's statement that it is effectual for swellings and imposthumes, for all redness in the face, wheals, itch, and scabs, and states that Culpeper had faith in it even for virulent sores and ulcers of the legs. The use of Chickweed as a green food for cage birds is well known, and it is regularly hawked around Paris each morning: in pre-war times the Paris hawkers sold about one thousand pounds worth weekly.

Forest Fires.—Those in charge of large estates where there is much woodland will be interested in a leaflet issued by the Forestry Commission on Forest Fires. Such fires are usually due to careless people dropping lighted matches, cigarettes, etc., and setting fire to the dry grass, Heather, and other herbage in the vicinity of plantations. Considerable damage is also caused by sparks from railway locomotives and steam-driven vehicles on roads. The most frequent outbreaks of fire occur in coniferous woods, as these trees are usually grown in dry, sandy districts, but in the case of surface fires, the thick, corky bark of the Pine affords the tree some measure of protection, and it is not so easily injured as the thin-bark trees, such as the Beech. The best control measure is to make wide rides or roads, kept free from vegetation, running at right angles to the direction of the prevailing wind, and to border these rides with broad-leaved species, such as Birch, white Poplar, grey Alder, Acacia and Spanish Chestnut. The removal of lop and top from felling areas, and the branchwood where thinning has taken place, should be done early; and in the case of Scots Pine, the lower branches, which hold up large quantities of dry needles, should be trimmed off trees bordering rides. In the case

of surface fire, the digging of a trench is recommended, throwing up the soil to the side from which the fire is advancing. It is important to see that fires which are got under are thoroughly spent, otherwise a change in the direction of the wind frequently causes a fresh outbreak.

Mr. James O'Brien, V.M.H.—There are few men better known in the gardening world than Mr. James O'Brien, or with a greater experience of general gardening. Although his wide and varied knowledge of Orchids entitles him to be regarded as the doyen of Orchidists, and his name is almost inseparably bound up with that race of beautiful plants, it will be seen from the short account we give below of his career that he is almost as well acquainted with stove and greenhouse plants generally as with Orchids. This is evident from the ease with which he is able to recognise and name the most out-of-the-way plants, and to offer information on their cultivation; he has a remarkably retentive memory and never seems to forget anything.

Mr. O'Brien was born at Llanelly, in South Wales, on January 28, 1842, but his family settled in London whilst he was quite young, and he was educated with a view to entering



MR. JAMES O'BRIEN, V.M.H.

the Civil Service. However, one of his brothers was in charge of an important collection of Orchids, and on a visit to this brother during a holiday the younger man became so fascinated with these plants that he decided to accept an engagement in the same gardens. His next post was in Messrs. Parker and Williams' Paradise Nursery at Holloway; from thence he went to Chelmsford and spent three years with Mr. Robert Warner, being subsequently engaged in Messrs. Hugh Low and Co's nursery at Clapton, where he became greatly interested in the new and rare plants that this celebrated firm imported in large numbers at that time. Whilst at Messrs. Hugh Low and Co's he was offered the post of Orchid and plant foreman to Mr. R. S. Holford, of Westonbirt, the father of Lieut.-Col. Sir George Holford, who owned one of the most extensive private collections of indoor plants in the country. During all this time he added greatly to his knowledge of gardening, and especially of the cultivation of choice plants under glass, so that when he was offered the post of general manager to Messrs. F. G. Henderson and Son, of Wellington Road, St. John's Wood, and the Pineapple Nurseries, Maida Vale, he was recognised as one of the leading plantmen in the country. Our older readers will remember the high status this firm enjoyed, as the introducers and raisers of new

plants of all kinds; and many of the popular garden plants of to-day first passed through Mr. O'Brien's hands, whilst with Messrs. Henderson and Son. Ferns, Abutilons, Begonias, Nerines, Sonerilas, Dracaenas, Coleus, Gloxinias, and Hippeastrums, to mention only a few subjects, especially interested him, and much of the improvement of many of these plants is due to his pioneer work on them. Mr. O'Brien has been for so long the Orchid correspondent of this paper as to be almost one of the permanent staff, and his weekly visit to the office, an event which he never misses, is of very great service to the Editors. His connection with the Royal Horticultural Society extends over a large number of years, and he has been Secretary of the Orchid Committee since it was instituted in March, 1889. His high personal qualities are well known to a wide circle of friends and acquaintances, not only in this country, but abroad; he is always anxious to assist others and place his wealth of information on gardening matters at their disposal. In his eighty-first year, he is still hale and hearty and as energetic as ever. Our readers will join with us in hoping that he will be spared to us yet for many years.

Ghent Quinquennial Exhibition.—We learn that the King and Queen of the Belgians have sent to the Secretary of the Ghent Quinquennial Exhibition, to be held in 1923, two Gold Medals, to be competed for at the Exhibition, with a very cordial note, wishing success to the show. The King's Medal is to be awarded for a collection of Orchids, the Queen's for a group of Azaleas, a speciality of the growers around Ghent.

Appointments for the Ensuing Week.—Wednesday, August 30: Glasgow, International Flower Show (4 days); Irish Gardeners' Association's meeting; Elgin Horticultural Society's meeting.—Thursday, August 31: Sandy and District Horticultural Society's show; Bristol and District Gardeners' Association's meeting; Dundee Horticultural Society's show (3 days); Islay Flower show.—Friday, September 1: Alloa Flower show; Darvel Flower show.—Saturday, September 2.—Kilmaurs Flower show; Metropolitan Vegetable and Flower show to be held at the Guildhall; Polmont Flower show; Renfrew Flower show; Cambuslang Flower show; Coldstream Flower show; Old Cumnock Flower show; Douglas (Lanarkshire) Flower show; Duns Flower show; Gairloch Flower show.

"The Gardeners' Chronicle" Seventy-five Years Ago.—*Potato Disease in India.*—We have had a disease in our Potatoes grown in the mountains, for the last four years at least. The tubers form well and are of large size, and to all appearance are fine healthy roots, but on cutting them open they are found to be studded with round, dark brown spots. When boiled, the healthy portion of the root is often very mealy, but the brown spots are disseminated through the meal, in the form of hard, round balls, about the size of shot generally, but often as large as Peas, and the Potato is useless. They do not rot, however, at all faster than the healthy tubers, but being occupied internally by so many of these hard spots, they are not eatable. Externally, the Potato thus affected has a smooth, white skin; is of lengthened form usually somewhat flattened, but not always so; the spots are not visible externally, and from the fine healthy appearance and large size of the Potato, strangers arriving in the hills are induced to buy them in preference to others until they find out their mistake. I attribute it, with what justice I know not, to all such white-looking Potatoes having been produced in stiff, red clay soils, holding much moisture during the rainy season; while, on the other hand, the Potatoes grown in black vegetable mould are always free from spots and perfectly healthy. In every case, where the spots have been present, I have ascertained that the Potatoes were produced in stiff clay soils. I mention this merely in case it may furnish a hint on the subject of our Potato disease at home. *T. Hutton. Musscoree, Gard. Chron., August 28, 1847.*

HARDY FLOWER BORDER

INULA GLANDULOSA.

ONE of the hardy flowers which it has been rather a surprise to see in gardens of the "highest inhabited village in Scotland," the highest house in which is said to be upwards of 1,500 feet above the sea level, is the noble *Inula glandulosa*. It has been long known to me as a splendid border plant of great hardiness and easily grown, but somehow its radiant, sun-like flowers have always conveyed to me the impression that this *Inula* would be happiest in warmer districts with a smaller rainfall. I was, therefore, surprised to see it in cottage gardens in this elevated district with flowers larger in size and, if possible, more brilliant in their superb orange colouring than in the lowlands. This does not occur in one or two plants alone, but in considerable numbers seen in different gardens. With a heavy rainfall and a correspondingly low temperature in this S. of Scotland district among the Lowthers, and in a season of little sun, one gains fresh ideas of how to grow this brilliant flower. The plants, though apparently the typical *I. glandulosa*, and not the superior form *I. g. superba*, are more magnificent than those of the latter in apparently more favoured localities. These "mimic suns," with their bright orange discs and thread-like ray florets, are magnificent indeed. They would have rejoiced the heart of that fine old flower-lover the late Rev. Charles Wolley-Dod, with whom I had at one time much friendly correspondence about the *Inulas*, and who had a special liking for *I. glandulosa*, of which he had some good varieties. *S. Arnott*.

CHINESE TREES AT ALDENHAM.

WHEN it is considered how comparatively short a time has elapsed since the seeds from which the under-mentioned trees have sprung were received, it will be seen from the heights given of each specimen that they have made most satisfactory growth. Notwithstanding the climatic disadvantages which exist at Aldenham, the majority of trees, when once established, and particularly members of such genera as *Ulmus*, *Crataegus*, *Quercus* and *Pyrus*, find the heavy, clay soil, after it has been thoroughly drained and well broken up, congenial to them, and, after reaching a sufficient height to escape the ground frosts, their growth is strong.

In the development of choice trees, it should be remembered that their training should be begun, in a young state, by the gradual removal of the lower branches, to obtain a clear stem, and by a moderate shortening back of those remaining, which tends more quickly to increase the height of the particular plants. This needs to be done until the tree becomes of sufficient size to support itself.

Of the large number of trees introduced by Mr. E. H. Wilson, and now growing at Aldenham, I have selected the following for their distinctness from previously grown varieties, their hardiness and vigour, and their satisfactory behaviour as ornamental objects in British gardens. I give the present heights of the plants:—

ACER DAVIDII.—Twenty feet. This species was originally introduced by Maries in 1879, and later by Wilson, the Aldenham plant having been grown from seeds of the latter's introduction. The large, entire leaves and conspicuous striped stems (see Fig. 47), combined with its hardiness and free growth, make this one of the most striking and satisfactory of Eastern Maples.

ACER ERIANTHUM, twelve feet, and **ACER ROBUSTUM**, ten feet.—These are two distinct, small-leaved Maples, belonging to the same group as the popular *Acer palmatum*.

ACER TETRAMERUM TILIIFOLIUM.—Ten feet. A species of graceful habit, with foliage resembling that of a small-leaved Linden.

ESCLUSUS CHINENSIS and **A. WILSONI.**—These are two extremely rare Chinese Chestnuts,

giving promise of becoming satisfactory trees, and both have proved quite hardy at Aldenham. They are closely related to that fine species, *A. indica*.

ALNUS CREMASTOGYNE and **A. LANATA.**—Now both thirty feet tall. These are two very distinct Alders, which, with moderate pruning, soon grow into shapely trees. The latter species is distinguished by the woolly covering on the under-side of the foliage, whilst both have solitary fruits.

ARALIA CHINENSIS GLABRESCENS.—Twenty feet. The bold foliage and strong growth of this

becoming equally valuable in gardens for its brilliant bark.

There are also to be seen at Aldenham examples of another variety of this Birch, viz., *B. japonica szechuanica*. These are from twelve to fifteen feet high, and from an ornamental standpoint are of about equal merit to the Mandschurian variety.

CARPINUS LAXIFLORA MACROSTACHYA.—Ten feet. The Hornbeams, when unfolding their pale green leaves in spring, are among the most attractive of trees, and also in summer when laden with their drooping bunches of fruit. This



FIG. 47.—*ACER DAVIDII*, SHOWING THE BEAUTIFUL STRIPING ON THE STEM.

variety render it a conspicuous object in the garden, and particularly when planted near the water's edge.

China has proved particularly rich in species and varieties of Birch, and many promising kinds are being grown at Aldenham.

BETULA ALBO-SINENSIS SEPTENTRIONALIS.—Twelve feet. This is one of the most attractive of all Birches, even in a young state. It is common on high mountains in Western Szechuan, and is remarkable for the rich orange-coloured bark, so much so that Mr. Wilson told me it is one of the handsomest trees he saw in China. Until the tree becomes of sufficient age for the bark to shed, the stem is of a singularly beautiful reddish-brown colour.

BETULA JAPONICA MANDSCHURICA.—Twenty feet. This is a striking tree, with a beautiful white stem. In general appearance it resembles the American *B. papyrifera*, and gives promise of

variety has the special merit that the second growth in late summer is of a bright red. In the North-Eastern United States the native representative, *Carpinus caroliniana*, although only a small tree, of somewhat straggling growth, produces a most beautiful effect, through the short spring and early summer months, especially when growing close to the edge of a stream, or pond, a position which it thoroughly enjoys. The Far-Eastern members of the genus are all desirable, and this Chinese introduction gives promise of becoming an elegant tree.

CATALPA FARGESII.—(See Fig. 48.) Eighteen feet. A free-growing tree, of upright habit, which will be undoubtedly, with age, as handsome as the other members of the genus. The flowers are pink, spotted with brownish-red, but they are not produced in the tree's young state. *A. E. Thatcher*.

(To be continued.)

The Week's Work.

HARDY FRUIT GARDEN.

By H. MABHAM, Gardener to the EARL OF STRAFFORD, Wrotham Park, Barnet.

Gooseberries.—As soon as all the berries have been gathered, remove the nets and other protecting materials forthwith and put them aside for another season. Clear the ground amongst the bushes of all weeds, rubbish, etc., and if the heads of the plants are very thick and crowded with useless wood, some amount of thinning should be done so that the fruiting shoots of next year may have a better chance to develop strong buds. After the work of thinning and cleaning is finished, fork the surface of the soil lightly. Should the ground be very light in texture and of a hungry nature, feed the roots of the plants with a suitable stimulant.

Morello Cherries.—Our crop of Morello Cherries this season has been very good, and the fruits of exceptional size and rich in colour. As fast as the trees are divested of their crop, wash them thoroughly with clear water; if red spider or other insect pests have been troublesome, spray them on two occasions with nicotine insecticide. Like the Peach, the shoots of the current year produce the best crops of fruits, and the trees will need timely attention as regards training in suitable young growths. I prune and regulate the branches of these trees very early in the season.

Young Standard Trees.—Examine these trees very carefully and make good any defective ties and stakes before the heads get damaged and probably completely broken asunder in stormy weather. Remove all suckers and other young, useless shoots that may be pushing forth from the stems. If the growths of this season are long and spindly they may be shortened more or less, according to circumstances. After the recent heavy rains, land of a somewhat clayey character should be lightly disturbed on the surface with a fork to prevent it cracking. Keep down all weeds as fast as they spring up amongst the trees; should the latter be planted in a grass orchard, keep the grass short and well clear of the stems and roots.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENNER CLAY, M.P., Ford Manor, Lingfield, Surrey.

Figs.—Early trees from which the second crop of fruit has been gathered may be divested of all small fruits and useless shoots and well syringed to cleanse the foliage from all insects. If trained over fixed trellises and not too near the glass, tying down may now be omitted, as shoots which draw up to sun and light always become thoroughly ripened. If root-pruning is considered necessary, now is the time to commence operations by forking down the old turf walls, and removing some of the compost, care being taken that the soil is made thoroughly moist prior to the operation. If the trees are extra strong shorten back all the roots, but otherwise cut away all the strongest, shorten the weakest, and relay the points of the roots in rich calcareous compost. This process will hasten the ripening of the old leaves, but by keeping them well moistened, they will remain until fresh roots take hold of the new compost.

Pot Figs.—Figs in pots may be treated in a somewhat similar manner. Remove the crocks, cut away all roots among the crocks, and repot the plants in pots of the same size as those they previously occupied. These remarks apply to old trees when the use of larger pots would be impracticable. Young trees in small pots will not require such dras-

tic treatment if they were potted on at the proper time, as the new compost will not be too full of roots for successful forcing.

Late Figs.—Successional trees now producing highly-flavoured fruits will require an abundance of air by day and night, otherwise the fruits will become spotted. In the absence of fire-heat all watering should be done early, and if the trees are clean, syringing may be dispensed with altogether. Later trees now in full bearing require very similar treatment, but syringing and damping should be carefully done on fine mornings only.

THE ORCHID HOUSES.

By J. T. BARBER, Gardener to His Grace the DUKE OF MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Cattleyas.—Plants of *Cattleya Warscewiczii* (gigas) and other species that have recently gone out of flower, as well as those that have completed their season's growth without producing flowers, should now be exposed to more sunlight and air, and at the same time the supply of water at the root should be gradually decreased. The repotting of these *Cattleyas* should be done, if needful, immediately new roots are seen to be pushing from the last-made pseudo-bulb. After repotting, only sufficient water will be needed to prevent undue shrivelling of the pseudo-bulbs. They will then enter upon a long season of rest, so far as top growths are concerned, but the roots will continue to extend in the new compost all through the winter months, provided the proper conditions are maintained. A slight shrivelling in the bulbs may be allowed as they will readily plump again when the plants become re-established. The beginner should remember that overpotting is an evil to be guarded against; the smaller the pot the better the safeguard against injury from excessive moisture at the roots. The careful observer will notice great diversity in the nature of the roots of this complicated family; some kinds are very robust rooters, others quite feeble. The thick, robust rooters are generally plants of strong growth, and capable of filling a larger receptacle with roots than those which make roots of a finer nature. The latter should be placed in the smallest receptacle possible.

Cattleya Warneri.—Having passed its flowering period this species may be treated in precisely the same manner as the above, but as the plants are at rest only sufficient water should be given to keep them plump and healthy until they start into growth in the spring. To my mind this is the secret of flowering any of the so-called shy-flowering *Cattleyas*. *Cattleya Dowiana*, *C. D. aurea*, *C. Rex*, and several of their hybrids are now growing freely, and some are already developing their flower buds; these should be kept at the warmer end of the house, so that the flowers may develop properly. The plants should be elevated closely to the roof-glass, so that they may receive the benefit of clear light and plenty of fresh air. After growth is completed, and the flowers have been cut, the plants should be treated as advised above. The idea that extreme drought is a means of making shy bloomers produce flowers is a fallacy.

Sophrontis grandiflora.—Plants of this delightful little Orchid may now be potted and treated as a miniature *Cattleya*, except that it is best grown in the cool house. *Sophrontis* and other complex hybrids in which the *Sophrontis* is one parent, may be treated in precisely the same manner as advised for *Cattleyas*, but being, as a rule, small, delicate growers, they should be grown in small receptacles, suspended from the roof of the intermediate house. Each hybrid has its own individuality, and, in order to make the best of them, their requirements must be closely studied and their wants supplied. Most hybrids in this class generally follow closely one parent or the other, and if cultivation follows the line of treatment given to the predominant partner success is generally assured.

THE KITCHEN GARDEN.

By JAMES E. HATHAWAY, Gardener to JOHN BRENNAND, Esq., Baldersby Park, Thirsk, Yorkshire.

Celery.—If the plants show signs of Celery maggot, the affected parts should be picked off and burnt, and the plants well dusted with soot and lime. Celery that has been banded with brown paper to blanch the stems should be examined and the bands loosened if necessary. Where soil is used for blanching, the earth should be in a fine condition and packed closely around the stems with the hand; but before doing this see that the roots are moist and, if necessary, water them or apply liquid manure.

Carrots.—A sowing should be made in frames of Champion Scarlet Horn and Indomitable Forcing Carrots. The soil should be finely prepared and well dressed with soot and lime, as slugs are often troublesome to Carrots in frames. Arrange the soil close up to the glass of the light. Sow the seed in drills made six inches apart.

Onions.—Spring-sown onions were checked by the dry weather of May, and many varieties will soon be ready for harvesting. If the ground is wet when the crop is harvested, place the bulbs on trellis-work to get them well ripened. Large specimens should be examined and any decaying leaves should be removed; the bulbs should be pulled before they crack, which the recent wet weather will have a tendency to make them do. If the weather is wet place them in a frame or under spare lights to finish maturing.

Spinach.—Make a sowing of prickly Spinach in drills drawn 15 inches apart. Make the soil fine and add a good dressing of soot to it.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir C. NALL-CAIN, Bart., The Node, Codicote, Welwyn, Hertfordshire.

Gloxinias.—As the earliest plants pass out of flower they may be removed to cold frame, but water must not be withheld so long as any foliage remains green. Once the leaves have died down the roots may be kept dry and finally stored in a moderately warm house.

Perpetual Flowering Carnations.—The earliest batch of these plants that have been grown outside in cold frames during the summer to produce flower in winter should now, if convenient, be removed to a cool house where they are intended to flower. If not already done, the plants should be staked and all growths made secure with a neat tie. These early plants have well filled their receptacles with roots, and should be given some assistance occasionally in the form of soot water and a reliable Carnation manure used on alternate occasions.

The Conservatory.—Where this structure adjoins the dwelling house, it cannot at all times be overhauled. But when opportunity avails, the fullest advantage should be taken to carry out this work. Where the climbing plants have become dense they should be thinned and regulated, but not to the extent as to cause them to look bare. At this season of the year flowering plants are scarce, but there are other subjects that may be used in the conservatory without much fear of injuring them. *Crotons*, *Acalyphas* and *Dracaenas* may be employed, especially if they are not required for stock purposes, and they may remain until no further use is required of them.

Malmaison Carnation.—Plants layered in July are ready for potting. The young plants should have plenty of light and air, therefore remove gradually the shading they received at the time of layering. It is also advisable to cut the layers from the parent plant several days before lifting them. A suitable compost for the young plants consists of good, open loam, lime rubble, sand and a little wood ash. If the loam is inclined to be heavy in texture, a little manure from a spent Mushroom bed should be added, after first passing it through a fine sieve. The roots should be potted firmly, keeping the collar of the plant above the soil. After potting the plants should,

for preference, be stood in a cool house, but failing this they may be grown in a cold frame. The advantage gained by standing them in a cold house is that the foliage grows hardy, which makes it less susceptible to attacks of spot and rust diseases. Water the plants well after potting them, and spray them lightly overhead until they have recovered from the check to the roots, when overhead spraying should be discontinued. Older plants intended to be grown on for another season should now be potted into larger receptacles, using similar compost to that advised for the layers.

THE FLOWER GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

Rambler Roses.—Climbing Roses of all kinds have been particularly fine this season, no doubt owing to the wood being extra well ripened last summer and autumn; in all aspects and positions they have given a glorious display of flowers. Rambler Roses may be used in many ways, and brief consideration of a few may give guidance to those who desire to plant them largely this autumn, and wish also to do so to the very best effect. Trained on pillars, they constitute fine ornaments in shrubberies, and where, say, three plants are trained up supports attached to a central stout pole, the mass of flowers, when all the plants are in bloom, makes a most picturesque effect in the midst of a large group of shrubs. This method of training Roses up poles may well be adopted in the place of the more formal pergola to edge a garden path, and where more than one plant is used to a pole they should, for preference, be all of one variety, though, of course, for different poles varied sorts may be employed. Used for covering dead tree trunks, rambler Roses will soon transform an eyesore into an object of living beauty, and even when the tree lies prostrate this idea may be carried out; in fact, wherever large portions of tree trunks, roots, etc., are "dumped," the rambler Rose is an ideal plant to grow for covering purposes. On wire or wood arches, or pergolas, Roses are ideal subjects, and extensively employed for the furnishing of such supports. Another way in which we grow Ramblers at Aldenham is on an iron, five-rail boundary fence, about four feet high, and about 400 yards long. On this fence, despite the general belief that Roses should not be trained to iron supports, the plants flourish exceedingly well, and do not show signs of injury from frost. Rambler Roses may also, by judicious pruning, be grown as bush plants of varying heights.

Delphiniums.—Named varieties of Delphiniums may be propagated at this season of the year by taking off shoots springing from the base of the plants, inserting them as cuttings in good, sandy compost, and keeping them close in a cold frame until they have become well rooted.

Propagation by Root Cuttings.—It is not, perhaps, so well known as it should be, that many herbaceous plants may be propagated by means of root-cuttings inserted during the autumn. The operation consists in taking portions of the roots and cutting them, similar to the manner adopted for Sea Kale, into lengths of about an inch and a half, and inserting these pieces in sandy soil with the top just above the surface. Shallow pans, or boxes, are the best receptacles for the cuttings, which may be struck in a cold frame, though an even temperature of about 50 degrees is the most suitable. Anemones may be increased from root cuttings inserted now, and later, say, about the end of October until the beginning of February. Others, such as Gaillardias, Oriental Poppies, Statice, Japanese Anemones, Eryngiums, Stokesia, and the tall growing Senecios, such as *S. Veitchii*. Even such plants as Phloxes and Primulas will respond readily to the treatment; in fact, when it is found that plants are difficult to increase by the ordinary methods of propagation, and the roots are "fleshy" enough, it is a good plan to try and raise them from root-cuttings.

THE ALPINE GARDEN.

SAXIFRAGA PRIMULOIDES.

WE have among the Saxifrages of the London Pride section a number of plants of the easiest possible culture. They have, perhaps, suffered in the estimation of certain growers, because the typical plant of the section, *S. umbrosa*, is so common in gardens. It is ungrateful of us to despise it. It was the "None-so-pretty," the "London Pride," of London and Wise, the florists, and the Queen Anne's Lace Work of its early days in our gardens, so it should not be

THE BULB GARDEN.

PLANTING LILIES.

THE present is a suitable time to plant bulbs of various Lilies, where they are required to grow in the open, and especially the beautiful Madonna Lily—*Lilium candidum*. Carefully selected, Lilies will give a long season of flowering from the different kinds; for instance, *L. bulbiferum* will come into flower in May and June; *L. croceum*, the Saffron Lily, in June and July; *L. candidum*, in June; *L. chalcedonicum*, during July and August, whilst *L. Alexandræ*.



FIG. 48.—CATALPA FARGESSII AT ALDENHAM HOUSE GARDENS. (SEE P. 119)

despised apart even from its intrinsic beauty. But there are others of the section which are distinct in their charms, either of foliage or flower, or of both; as easy to cultivate, and much less common, which we should consider well before excluding them from our gardens. Of such is *S. primuloides*, reputed to be the progeny of *S. cuneifolia* and *S. umbrosa*. If that is the case, the latter has had little influence, as *S. primuloides* is in every way a neat and beautiful little plant. It has small, prettily formed leaves and clouds of little bright carmine-rosy flowers. It grows only a few inches high, its stature depending on the soil. *S. primuloides* seems to be one of the most indomitable plants, caring little where it is planted, happy in poor soil or moraine, in sun or shade, but happier still in a moderate loam. It is one of the easiest and most obliging of the smaller Saxifragas in the border or in the rock garden, and may be recommended for planting in all collections. *S. Arnott*.

a variety of *L. japonicum*, and *L. Henryi* will flower from July to September.

There is a very large selection of fine Lilies that may be grown in the open, and most of them should be planted from the end of August and during September or October.

It is advisable to place a handful or two of sand at the bottom of the hole, and except in the case of stem rooting kinds, to fill the hole with sharp sand, which should be well pressed in position.

With regard to the proper depth for planting, a good general rule is to allow twice the depth of the bulb, so as to ensure the top roots being underground. It should be noted that the magnificent *L. giganteum* is best planted during the spring, leaving the top of the bulb just above the surface of the ground. Where Lilies are hardy enough to withstand the winter they do better if left for several seasons without disturbance, top-dressing the soil with a rich mixture during autumn to provide the necessary food for them. *B.*

EDITORIAL NOTICE.

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Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 5, Tavistock Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.

MR. KINGDON WARD'S SIXTH EXPEDITION IN ASIA.*

No 22.—AN OLD CAMP REVISITED.

WHAT with the transference of the Mu-li government, religious and secular, to a place called Wa-kin, situated higher up the Litang river; and the conscription of all able-bodied men under the grand lama's jurisdiction, to cope with a threatened invasion by the Mantzw, we found ourselves completely immobilised for nine days. All transport was away. To add to our embarrassments, I found the lamas left in charge at the lamasery hostile, and at no great pains to conceal the fact. Evidently the grand lama was before his time; the smaller men did not hold with his liberal views.

There was nothing for it but patience and perseverance with the lamas; it is not much use trying to rush things in Asia.

The first time I sent to the monastery as usual for transport, the answer came back: "Return to Yung-ning!" This gave me the clue to the situation, and thenceforward I knew where I stood. Next day I myself went to the monastery. Transport was promised for the day following; but then came that unlucky letter saying that the Mantzw were preparing for their annual raid, and calling up the lama's soldiers, and the promise of mules was cancelled.

However, by dint of daily visits to the monastery a start was at last made on August 14; in fact, we got five miles that day. Five miles!

In the meantime, we had not been idle at Mu-li, and the cliffs received further attention at our hands.

One of the commonest weeds now scrambling through every bush to open its violet flowers in the sunshine was a *Codonopsis*; it was very similar to *C. convolvulaceae*, but unless my memory of that gay plant is at fault, not the same. Down in the hot valley, where on sunny days the shade temperature probably reached 90°F. (it touched 85° at Mu-li), the shady banks were pink with *Begonias*. A *Hedychium* was in flower, and a bright crimson *Lythrum*. Another *Roscoea* with lemon-yellow flowers was opening its buds, and the narrow pale blue cylinders of a *Leptocodon* dangled from thread-like stems. Down below the monastery I found the first and last species of *Buddleia* we met with—rather a change after Western Yunnan, where the genus is in an expansive mood. A purple-flowered *Thalictrum*, growing amongst the shrubs on sheltered slopes, had now reached the astonishing height of ten feet in some cases; it appeared to be only *T. dictyocarpum*, very happily situated. A small, bushy *Berberis* was also in flower, but the flowers, though crowded, were very small, and it was a plant of no merit whatever.

Numerous *Compositae* and *Labiatae* were making themselves conspicuous, but none of them was attractive, save one *Composite* with pale, creamy-white, nodding flowers (rather like a *Cremanthodium* in habit) and dark, glossy green leaves, brilliantly silvered beneath, which grew upon the cliffs.

However, there were not nearly so many plants on the cliff as I expected, or indeed as a cursory glance would lead one to expect; and this for a good reason. There were flowers down in the valley and flowers upon the mountain top, but none, or few, in between, simply for lack of moisture. Rain fell on the high tops, and kept the flora happy as it sank through the limestone and reappeared at the foot of the cliffs, watering the vegetation there.

On the 16th we pitched our tents at the old spot just below the pass to Yung-ning, where we had camped in June on our way to Mu-li; and here we spent the next nine days. A lot of rain fell—indeed, the weather was almost as bad as it had been in July, except that we did have a few fine days. On clear nights there was a sharp ground frost, though we were not above 13,000 feet; and this alternation of sunshine,

of slender foliage on which the flowers reclined; they clashed musically with the yellow *Saxifrage*. This, too, was quaint. I would as soon think of looking for *Anemones* in the sea as for *Gentians* in a bog!

On the cliffs were a few *Saxifrages*, mostly such as we had already met with. One of the most charming cliff plants which had at last broken out into flower, was a dwarf *Campanula*, whose tiny tufts of leaves had long since attracted my attention. These were reniform, of a dull obsidian green, veined with malachite. The violet bells hung from short stalks, and clung close to the foliage. It liked the sun, but cowered into crannies nevertheless, as though afraid to trust it too far. Poor mite! It saw little sunshine these days—its time was scarcely come.

Most splendid of all was the sky-blue *Gentian*, which on the screes here was seen at its best. Some plants bore upwards of thirty blooms, which, staring up to heaven from a bed of tiny crumpled leaves, put the very skies to shame. The southern slopes were now warmly clad with lanky herbs, chiefly *Compositae* of various kinds, with species of *Delphinium*, *Aconitum*, *Pedicularis*, yellow-flowered *Corydalis*, and a few *Labiatae*, with quantities of a crushed-*Strawberry* coloured *Impatiens*. At rather lower altitudes the rich violet *Gentiana de-tonsa* struck a colour note of its own, and the banks were lined with pale blue *Campanula*; but the blood-shot bells of the meadow *Codonopsis* were already withered.

On the whole, the journey was rather a disappointment, and might just as well have been omitted; yet it added variety to the life.

When we got back to Mu-li, on August 28, after a fortnight's absence, we found that the late summer rain had brought out quite a crop of flowers, far more than on the mountain tops as yet. Climbing plants were especially prevalent—indeed, there was quite an epidemic of them. Besides the large violet *Codonopsis*, and the dainty *Leptocodon*, with tubular, blue flowers, there were two species of *Clematis* recalled to life, several species of *Leguminosae*, including a violet-flowered *Kidney Vetch*, yellow *Convolvulus*, a dusky violet *Aconitum*, and a *Corydalis*. This last crept up inside the hedges, and having reached the summit, suddenly announced its arrival by spreading out and lying on top of the vegetation in all directions; it had bright yellow, pendent flowers in tight little clusters.

The two species of *Clematis* were in marked contrast to each other. One had flowers of a glowing crimson-purple—little inverted cups from the mouth of which projected a brush of silvery stamens. It grew everywhere, erect as often as not, and did not seem to care whether support was at hand or altogether wanting. When it was tired, it just fell over and lay on the ground. The other was a lazy, lanky plant which sprawled over the hedges; it had similar flowers, but of a straw-yellow colour, gracefully dangling. *Primula blaitaniformis* was still in flower, and so was the last discovered muscarioid *Primula*, scarcely past its prime yet; both continued well into September. But *P. littoniana*, which was flourishing in mid-August on our way up the mountain, was practically over on our return, though the long spikes still glowed dully, like cooling ore.

The cliffs above the monastery, which had on the whole yielded good spoil, were now almost bare of flowers; they had shot their bolt. A few seeds were ripe—the *Suffruticosa* *Primula*, a silky-leaved *Campanula*, and others; but the best things still waited, probably for a further bath of sunshine.

Two forms of *Didissandra lanuginosa* were still in lingering bloom. One—the smaller plant in all its parts, with more rounded leaves—has deep violet flowers and grows in the open, on crassy slopes and rocks; the other, with paler flowers, milk-white, splashed with watery violet, grows in shady places, with another species of *Didissandra*, and species of *Oreocharis*.

A couple of brilliant yellow starry *Sedums* were also much in evidence. F. Kingdon Ward.



FIG. 49.—YUCCA VOMERENSIS. (SEE P. 123.)

rain, and frost rapidly ripened the seeds of many species. The *Primulas*, which had made such a brave show two months ago, were now but a wreck, and the seeds were tumbling out of their capsules. Few flowers had come forward to fill the breach, though the meadow slopes facing south were now more generously clothed. We hardly found fifty new species of plants during our sojourn, and only a very small proportion of those were of sufficiently distinguished appearance to merit inclusion in an English garden. However, we found yet another *Rhododendron*, the under-surface of the leaves covered, as usual, with a thick, white, woolly coat. I must have walked past hundreds of bushes in June without noticing that it was a distinct species; but such is often the way—it is almost impossible with only one pair of eyes to see every vegetable even in this comparatively poor area. Then there were two brightly coloured *Saxifrages* growing by streams and in bogs and marshes—an odd place to find them, as though there was not room for them on the cliffs! One had bright lemon-yellow, the other dark orange flowers. Associated with the lemon-yellow species in open bogs was a sunny blue trumpet *Gentian*, which formed wide, spreading carpets

* The previous articles by Mr. Kingdon Ward were published in our issue of May 14, June 18, July 23, August 20, September 3, October 8, October 29, 1921; January 7, January 21, March 11, March 25, April 8, April 23, May 6, May 20, June 3, June 17, July 1, July 15, July 22, and August 5, 1922.

PLANTS NEW OR NOTEWORTHY.

YUCCA VOMERENSIS.

GARDENERS are supposed to be never wholly satisfied with the weather; but now and again we have reason to be grateful when the beneficent baking of a previous season results in an unusual wealth of flower. Those who grow Yuccas should surely express their gratitude this season, and I here return thanks to the long-continued sunshine of 1921, and place on record the flowering for the first time in this garden of two very fine Yuccas. The first, *Y. glauca*, has grown slowly during the dozen or so years it has lived in the rock garden. The plant had outpaced its brethren and formed a fine rosette of the characteristic narrow, grey-green leaves on a stem of six inches. This June it threw up a fine spike of greenish-white globular flowers. Their arrangement in a simple central spike, with only a few short, branching spikes close to the base of the main one, is different from that of most other hardy Yuccas, which bear freely-branched flower spikes.

The subject of the accompanying illustration (fig. 49) is one of the hybrids raised by the late Carl Sprenger, of Naples. I bought it from him in 1904 as *Y. vomerensis*, which is stated in Trelease's *Monograph* to be a cross between *aloifolia* and *gloriosa*; but I feel certain there is some mistake, as my plant must have *Y. recurvifolia* as one parent, this being so clearly shown in the drooping, bent leaves of a well-grown specimen. By referring to one of Sprenger's lists of these hybrid Yuccas, I see he used the name *vomerensis* for various crosses with *aloifolia*, and mine may be what he named *Heliodorus*, calling it a *vomerensis* variety, with *aloifolia gigantea* × *recurvifolia* as parentage. Anyway, it is a fine plant, and has proved hardier than any other of his hybrids. Its stem is now about four feet in height, and the central leaves stand up above it for another two feet, the lower ones bending over and reaching to the ground. The flower spike was one of the largest I have ever seen on a Yucca, being so densely crowded with side branches, and was a fine sight in the early weeks of July. The inflorescence itself measured a little over five feet in length, and so reached to a height of nine feet four inches from the ground. In the dusk of the evenings, when the flowers were more fully expanded than by day, it was a remarkably fine pillar of whiteness towering above the shrubs on a well-drained ridge of the rock garden.

Y. rupicola, a fine, stemless species, with strikingly blue leaves, flowered well last summer, and is now making a good central growth beside the dead flower stem, instead of from the underground tubers, as is the case with the commoner acaulescent species, *Y. filamentosa* and *Y. flaccida*. A. E. Bowles, *Myddelton House, Waltham Cross*.

PETUNIAS AT KEW.

THE collections of Petunias in the glass houses at the Royal Botanic Gardens, Kew, admirably illustrate the origin of present-day varieties. The presence of neatly-typed cards setting forth the whole story is "good and laudable, and the practice should continue," as the old Courts leet officers would have put it. From these cards visitors may learn that *Petunia integrifolia* (syn. *P. violacea*), one of the parents of the garden Petunia, was first grown at the Glasgow Botanic Gardens in 1831, from seed sent from Buenos Ayres by John Tweedie. The other parent, *P. nyctaginiflora*, came from S. America eight years earlier, and after many hybrids of the two species had been raised, *P. integrifolia* was lost to cultivation until 1916, when seeds were sent to Kew through the instrumentality of Mr. C. E. Rowland when Vice-Consul of Monte Video. The examples of the early garden hybrids which are on view show really elegant plants bearing abundant, widely expanded, rosy or rosy-magenta flowers about 1½ inches across. The collections also include present-day forms in great variety. A. C. B.

NOTES FROM AMERICA.

THE note on page 49 in *Gard. Chron.*, July 22, prompts me to mention that it is probably easier to find examples of this tree in the Eastern and Southern States of America than it is in England. I cannot recall ever having had my attention drawn to this tree in any garden or nursery in England, yet when I came to New Jersey the first garden I entered contained a specimen, some 18 ft. or more tall, with a trunk about 4 inches through. It was planted some 15 or 20 years ago on light, sandy loam on a slope, and doubtless has derived some protection from the surrounding trees. The tree blooms freely, and is one of the few subjects that is not pestered with one or other of the numerous "bugs" that infest these parts. That it is hardy is proved by the fact that this tree has passed through zero temperatures; in fact, this beautiful species is credited with being hardy as far north as Massachusetts, where the weather is much more severe than northern New Jersey.

One may find *Koeleruteria paniculata* in many

with seeds in the open after May. All kinds of greens are growing frantically; "bugs" have been no trouble at all. The new Bijou Runner Bean is giving us lots of fine pods. Peas are fairly good, not rotting as last year, but Sweet Peas gave out after giving me blooms over nearly two months, a thing thought impossible formerly by my neighbours.

My "Corn" gives them to think that I have learned more about Maize in three seasons than they have absorbed; anyway, it is 7 ft. to 10 ft. tall, at least one-third taller than it should be. T. A. W., *New Jersey*.

METAMORPHOSIS OF RHODODENDRON INFLORESCENCE.

THE accompanying illustration of a curious freak may be of interest to the readers of your journal.

The "flower" illustrated, although closely resembling some double forms of *Camellia*, is really a metamorphosed inflorescence of a *Rhododendron*, and was recently found at Kew

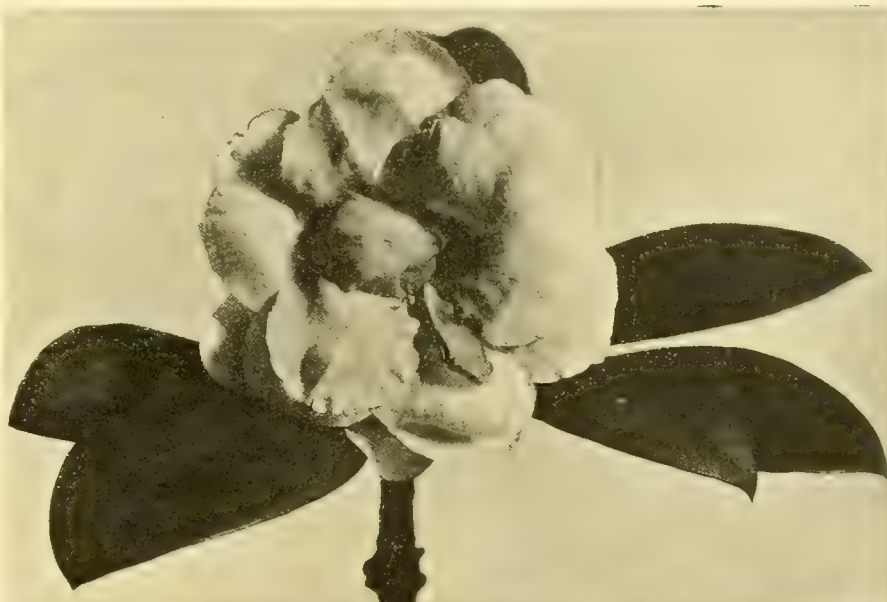


FIG. 50.—ABNORMAL FLOWER OF RHODODENDRON CORONA.

nursery catalogues here, and it is invariably quoted as the Varnish Tree. A 5 ft. specimen may be bought for 75 cents.

I may add that two excellent illustrations of this tree, showing its habit and flower panicle, appear in *The Floral World*, January, 1876, with interesting notes regarding it by the late Shirley Hibberd. He mentions that some beautiful specimens were to be seen in his gardens at Stoke Newington, none of them being hurt by the severe winter of 1860-61.

This, my third summer here, is far wetter than the first; in fact, each summer, I am told has been abnormal, so that in time I may strike a season that is normal. New York City, which more or less covers the section of New Jersey where I reside, registered 7.86 inches of rain in June, and 6.54 inches in July, a total of 14.4 inches for two months. August 1 led off with a steady rain lasting about four hours, but usually our rains are not steady; the rain just comes down in sheets, lasting perhaps an hour or less. On the average, I imagine a fall of one hour means an inch of rain. I think in the two months we had a shower every two days, and five successive week-ends we had a storm.

However, the rains have prevented the temperature topping the nineties; in the main, about 75° has been nearer the average, so that everything has grown amazingly, that is, if it did not get washed out of the soil. Having got on to the ways of the rains, I take no chances

on a plant of *R. Corona*. There seems little doubt that the monstrosity is due to "progressive petalody," as the inflorescence in all probability consisted of a single flower, protected in the bud stage by what are normally the bud-scales, which had become petaloid and were arranged in whorls about a floral axis that had failed to elongate. Unfortunately, the lower parts of the "flower" are not shown in the photograph (Fig. 50), but they unite characters of both petals and bud-scales.

This type of *Rhododendron* has normally ten stamens to each flower, but only eight were present here, and it seems likely that the two somewhat distorted, petal-like bodies seen in the centre are the other two become petaloid. The flower was about 3 inches in diameter, beautifully veined, and of a rich carmine colour, faintly splashed with white.

Another extraordinary instance of progressive petalody in *Rhododendrons* was brought to the notice of the Kew authorities by Sir E. Loder some years ago. The corolla in this case bore curious fleshy, crimson, waved outgrowths at the base, the axis of the flower was somewhat elongated, and all the stamens, save one or two, had changed wholly or partially into large petals, of which the lower ones were free. This flower, like the one illustrated, was produced alone on the plant, and more than two months out of season. W. E. Trewithick, *Royal Gardens, Kew*.

THE HISTORY OF THE MOSS ROSE.

(Continued from page 108)

WHEN Major Hurst, in one of the few instances where he tries to prove a point, attempts to fix the date of the earliest mention of the Moss Rose in France, he is singularly unfortunate in the authority upon which he relies. In his notes in the *Rose Annual*, 1922, he writes referring to Boerhaave's date of 1720, "But this is not the earliest date recorded for the Moss Rose, for in a rare little book entitled *L'Ecole du Jardinier Fleuriste*, Fréard du Castel, of Bayeux (1746), states that the Hundred-leaved Moss Rose was in cultivation in the North-West of France, at Cotentin, Bessin, and a part of the littoral of La Manche, in 1746, and that it was brought there by him from Carcassonne, in the South of France, where it had been known for half a century (1696)." Major Hurst's statement of this fact in his article in the *R.H.S. Journal* is substantially the same, except for the very important admission that he quotes it on the authority of Paquet (1845) and Jamain and Forney (1873). Here we have a case in point where Major Hurst shows too ready a capacity for accepting secondhand information without verification, and consequently, his deductions, based on false premises, have in this particular instance resulted in wrong conclusions. Major Hurst arrives at his conclusion by erroneously assuming that *L'Ecole du Jardinier Fleuriste* was published by Fréard du Castel in 1746, and that, on the authority of Paquet, he states that the Moss Rose had been then known at Carcassonne for half a century. Deducting fifty years from 1746, of course, leaves 1696, an arithmetical problem which seems to be quite simple, and as such is right; but which is nevertheless fundamentally wrong. It is not difficult to explain why. It is apparent that Major Hurst has never consulted the book first hand, and if he were at all familiar with old French floricultural literature, he would know that Fréard du Castel is only the reputed author of *L'Ecole du Jardinier Fleuriste*. The book was published anonymously. It ran into several editions; three at least. The first was published in Paris, in 1764, and not in 1746. Consequently, fifty years from 1764 must be 1714, not 1696. The reader will easily see how that error is arrived at, but it does not end there, for every fact mentioned by Major Hurst in connection with the book will be found, when put to a practical test, to be inaccurate. Thus there is no reference, direct or indirect, to the Moss Rose in *L'Ecole du Jardinier Fleuriste*, and there is consequently no mention of it having been grown in France for half a century. Stranger still, there is absolutely no mention at all, let alone an account, circumstantial or otherwise, that the Hundred-leaved Moss Rose was in cultivation in the three places named in the north-west of France. Nor is the supposed place of origin, Carcassonne, ever mentioned in the book. The story, in all its detail as related by Major Hurst, is a myth and he can never have had the book in his hands, or he could not have allowed himself to land in such a pitfall, and be the victim of such misplaced confidence, or exhibit such a want of critical acumen.

Presuming that Major Hurst has rightly interpreted what Paquet and Jamain wrote on this subject and that they did state what he attributes to them, we may fairly inquire who are these 19th century French gardeners whose literary performance is limited to several little cultural manuals, that credence should be unhesitatingly accorded to their version of historical matter which happened more than a century before they wrote; and be accepted on so important a detail in Moss Rose history without it being submitted to some process of verification, the need for which it has been abundantly demonstrated is unquestionable? When it is accessible, contemporary corroborative evidence must be of far higher value, and in every and any case whenever subsequent secondhand evidence is all that is forthcoming, it must be sifted and appraised at its proper value

before it is safe to build any kind of a theory upon it.

It is abundantly manifest that neither Major Hurst nor his French 19th century authorities, if correctly quoted, can ever have consulted first hand the work upon which they appear to rely not to prove their case, but to justify a mere passing remark which must have been picked up haphazard from some French source or other which we have no accessible means of discovering.

And yet it is quite within the bounds of possibility that the Moss Rose may have been known and grown in the neighbourhood of Carcassonne or elsewhere in the South of France towards the close of the 17th century, for we do not ignore the fact that it was the Moss Province Rose. There are frequent allusions, more or less vague and unreliable, on the subject to be met with in French Rose literature, as an example of which may be quoted the short reference to the Moss Rose in a modern work, *Roses et Rosiers*, where is the astonishing tit-bit, "In 1746 the Countess de Genlis introduced into her gardens in Paris the Moss Rose (commonly called Rose Mousseuse) probably of Carcassonne origin." There is something wonderfully elusive about that year 1746, but the difficulty of digesting that little bit of information is that it cannot be accepted because Madame de Genlis could not have done as stated, for the simple reason that 1746 happened to be the date of that lady's birth. *C. Harman Payne*.

(To be concluded.)



FIG. 51.—CONOPHYTUM ELISHAE N.E.BR.
NAT. SIZE.

MESEMBRYANTHEMUM AND SOME NEW GENERA SEPARATED FROM IT.

(Continued from page 84.)

55. *C. Elishae*, N. E. Br. (Fig. 51). Plant not developing stems with age. Growths 7-14 lines long, 6-10 lines broad and 5-8 lines thick, ovoid or oblong-ovoid, with lobes 2-4 lines long (type S), of a slightly bluish-green colour with a darker area under the notch, somewhat obscurely marked with scattered darker-green dots, and the keel often purplish. Calyx 3-5-lobed. Corolla $\frac{1}{2}$ -1 inch in diameter, expanding in the morning irrespective of sunshine, if the temperature is warm enough; petals 35-48, in 3 series, bright yellow. Stamens numerous, in 3-4 series, the upper exserted, yellow. Style 2-3 lines long; stigmas 5-6, usually exceeding the stamens, 2-3 lines long, filiform, pale yellow or greenish. *M. Elishae*, N. E. Br., in *The Gardeners' Chronicle*, 1916, v. 60, p. 252; *Bot. Mag.*, t. 8776 B, a very poor figure.

South Africa. Locality and collector unknown.

This species increases more rapidly and flowers more freely than any other species of this group in cultivation, and a well grown plant in full flower is very charming. No idea of its beauty can be obtained from the bad representation of it in the *Botanical Magazine*.

56. *C. gracilistylum*, N. E. Br. Plant not forming stems with age. Growths 10-15 lines long, 6-8 lines broad and 4-5½ lines thick, oblong, compressed, with lobes 2-3½ lines long

(type S), glaucous-green or bluish-green, more or less distinctly dotted all over with darker green, and with a red keel to the lobes. Calyx 3-4-lobed. Corolla 7½-10 lines in diameter, expanding in the daytime and remaining open irrespective of sunshine or cloudy weather, scentless; tube as long as the calyx; petals 25-30, in 2 series, bright pink or bright magenta on both sides, white at the base. Stamens about 40, in 4 series, with the upper anthers just showing at the mouth of the corolla-tube, yellow. Style 4-5 lines long, slender; stigmas 4, about 1½ line long, exserted and recurving among the anthers. *M. gracilistylum*, L. Bolus in *Ann. S. Afr. Mus.*, v. 9, p. 141, pl. 3, f. 1 (1913).

Namaqualand. Hill south of Stinkfontein, Pearson 5572.

57. *C. turrigerum*, N. E. Br. Plant not forming stems with age. Growths 5-6½ lines long, 4½-6 lines broad across the top of the lobes and 3 lines thick; lobes 2-3 lines long, subcylindric and about 2½-3 lines in diameter (type T), angularly convex from the presence of raised lines connected in a map-like manner and enclosing slightly depressed areas, light greyish-green or glaucous-green, with the raised lines of very dark green, and all the lower part more or less tinted with purplish and dotted with dark green. Flowers not seen. *M. turrigerum*, N. E. Br., in *Journ. Linn. Soc. Bot.*, v. 45, p. 102.

Malmesbury Div. Vicinity of Klibheuveld, Pillans.

EXCLUDED SPECIES.

Mesembryanthemum nanum Schlechter, in *Engl. Jahrb.* Vol. 27, p. 128, has been placed among this group of Sphaeroids, but the material and description are too imperfect to permit of a definite place under *Conophytum*, to which it may not belong. *N. E. Brown*.

(To be continued.)

HORTICULTURE IN MID-WALE.

DURING the past few years horticultural shows in mid-Wales have become increasingly popular each season, and they are generally well attended. In some districts they are held in conjunction with other shows, and in nearly every case this season are proving greater attractions than ever, which the Builth Wells show last week clearly proved. There are several reasons for the rapid growth of the Builth Wells horticultural show, and much is due to the splendid work done by Mr. Watson, horticultural expert for the counties of Brecon and Radnor. Mrs. A. Wilson, of Garth House, and Mrs. Venables Llewelyn, of Llydsinam, have also done a great deal in encouraging cottagers and allotment holders in providing challenge-cup garden competitions.

The exhibits at the mid-Wales horticultural shows reflect great credit on amateur gardeners who have exhibited at several of them for the first time. A rural blacksmith won seven first prizes at Garth show about four weeks ago, as well as three second prizes, and last week at the mid-Wales great show, he carried off ten first prizes and seven second prizes, an achievement which even a professional gardener would have felt proud of. In the rural parish where this amateur gardener lives, the old practice of farmers giving free space to cottagers to plant a few rows of Potatoes in the open field still prevails, and Mr. Jones, of Nantyrarian forge, every year takes advantage of the farmer's generosity, but he provides his own manure, consisting of horse droppings and hoof parings from the blacksmith's shop, and his yield per row is much greater than that of any other cultivator on the same field.

Although this was only the second year of the Builth Show, the schedule included four divisions, comprising 90 classes, which, in spite of the unfavourable season, were well filled with splendid exhibits of remarkably good quality—a vast improvement on last year. Over two thousand people visited the show, and this second annual horticultural exhibition in the Wye Valley augurs well for the future of horticulture in mid-Wales. *Roger Williams, Builth Wells*.

YELLOW DENDROBIUMS,

In the yellow *Dendrobiums* the labellums are usually darker and brighter than the other segments, and where other colour is found in the labellum it is generally of maroon, claret, or chocolate tints, and without violet or mauve being present—interesting facts which are not readily observed when the species are viewed in company with others of their class, but which have differently coloured flowers.

Yellow-flowered *Dendrobiums* support the statement that true yellow-flowered Orchids do not give occasional albinos in nature as do those kinds with white or whitish ground colour and purple or other cyanic surface tints, as suggested in the article, "Albinism among Orchids in Nature," in *Gard. Chron.*, February 18, 1922, p. 75. In the hands of the hybridist, however, they may be used either to continue and improve yellow strains or to create new kinds with more or less white flowers.

Another interesting point is that, although the genus *Dendrobium* is more widely distributed than any other, but few true yellow *Dendrobiums* are found outside the Indian Himalayan region—Nepaul, Khasia Hills, Burmah, Moulmein, etc. But two of the most important factors in the production of yellow hybrid *Dendrobiums* are *D. aureum* (heterocarpum), which has a wide range, including highland India, Ceylon, and the Philippine Islands, and which, except in its darker form, has no qualification for its golden title. Its Primrose-scented flowers in some localities are yellowish cream colour, one form being distinguished as *album*, although it is not white. All the forms have reddish markings on the more yellow lip. The other is *D. signatum*, a bright yellow species, native of Siam, and a very fortunate introduction for which the late Sir Trevor Lawrence received a first-class certificate on March 11, 1890.

D. aureum is a prime ancestor to a host of beautiful and fragrant hybrids, commencing with *D. Ainsworthii* (*aureum* × *nobile*), and comes directly and indirectly into a very large proportion of our garden *Dendrobiums*, but with little effect in producing yellow flowers until the introduction of *D. signatum*, which, when used as the pollen parent, with *D. nobile* as seed parent, gave *D. Wiganiae*, none of which could be called yellow, although some had a yellow tint. *D. aureum* crossed with *D. Wiganiae* brought out the yellow in *D. signatum*, and gave the rich dark yellow *D. chesingtonense* of Mr. R. G. Thwaites in 1903, and a similar combination (*Ainsworthii* splendissimum × *Wiganiae*) gave the rich orange-yellow *D. Thwaitesiae*, raised, also, by Messrs. J. Veitch and Sons and Sir Jeremiah Colman.

The direct cross between *D. aureum* and *D. signatum* resulted in the equally satisfactory yellow *D. Ophir*, although, as with the other crosses, not all were equally good yellows. This flowered with Messrs. J. Veitch and Sons in 1902, and in February, 1903, Sir Geo. L. Holford obtained an award of merit for his fine variety of the same cross. Other instances of good yellows obtained through *D. signatum* are *D. Golden Ray* of Sir J. Colman, *D. Buttercup* and *D. Yellow Bird* of Messrs. Armstrong and Brown.

But that all the crosses of *D. signatum*, as with many other species, are not satisfactory either in good yellows or whites has been proved at Gatton, although some of the light colours, such as *D. Gatton Pearl*, give very good varieties.

D. chrysotoxum and its ally or variety *D. suavisimum*, *D. densiflorum*, and *D. Griffithianum*, all Indian upland, evergreen species, have clavate, grooved or angular pseudo-bulbs, with several bright green leaves at the top, and carry heavy racemes of bright yellow flowers, the flowers of *D. suavisimum* having a deep maroon blotch on the lip.

D. chrysotoxum was made good use of by crossing *D. Dalhousieanum* with it and obtaining the bright yellow *D. illustre*, which again crossed with *D. Dalhousieanum* luteum yielded

D. Gatton Sunray; whilst, also, in Sir Jeremiah Colman's gardens, the pretty yellow varieties of *D. Bartelsianum* proved the potency of the yellow *D. signatum* in *D. Wiganiae*.

D. Brymerianum has a heavily fringed lip, and *D. Harveyanum* has fringed petals, but, although the former has been crossed with three other species, no satisfactory yellow progeny resulted. Both, as clear yellow-flowered species of great interest, would be difficult to improve upon without destroying their chief characteristics, but, if crossed with other decided yellows, the results would, no doubt, be better than those already obtained.

D. fimbriatum and its variety *oculatum*, *D. Gibsoni*, and several others of the class are among the oldest introductions to our gardens, and in the earlier days of Orchid exhibitions formed leading features. Of this group only *D. fimbriatum* has been used for hybridising, and, so far, no specially good result has appeared.

D. Hookerianum, *D. chrysanthum*, *D. chrysseum*, *D. capillipes*, *D. chrysocephalus*, *D. dioxanthum*, *D. ochreatum* (*Cambridgeanum*), *D. senile* with its curious hairy stems, and others of the Himalayan species all have the

valuable for use in miscellaneous groups of ornamental foliage and flowering plants at exhibitions and other functions. It is not necessary to have special houses for their cultivation; they may be grown in any glass house having sufficient heat and moisture, provided they are not exposed to draughts and shaded from the bright sunshine. All Ferns need shade and plenty of moisture; during their growing season a liberal supply of water at their roots is necessary, for if the latter are allowed to get dry the fronds would shrivel, destroying their beauty and most likely killing the plant.

Ferns from tropical regions require a night temperature during the winter of 55° to 60°, whilst the temperate or cool-house varieties will do well in a temperature of 45° to 50° at night. During the summer very little or no artificial warmth will be required, but care must be taken to give the plants sufficient moisture. Ferns planted out in rockeries require less attention than those grown in pots, and if a suitable soil is used the majority will last in good condition for several years. In constructing a rockery indoors, tufa is by far the most lasting material to use. The pockets should be of various sizes, and of sufficient depth to receive the Ferns; vacant



FIG. 52.—DENDROBIUM AINSWORTHII.

pure golden yellow tints which might with advantage be used to secure a more extended series of bright yellow *Dendrobiums* of different shape from the *D. Ainsworthii* class, which form the bulk of our garden *Dendrobiums*, and to which the introduction of yellow colouring would be a great advantage.

Sir Jeremiah Colman, at Gatton Park, has had more experience in this direction than any other amateur; and the late Mr. J. Charlesworth is known to have operated in the same direction; probably the great firm at Haywards Heath has good hybrids of the kind maturing.

For ordinary Orchid growers the *Dendrobiums* are among the best and easiest classes to grow, and good novelties would be eagerly sought after. J. O'B.

INDOOR PLANTS.

FERNS.

THERE is no class of plants so popular or more useful in so many ways as Ferns, or that can be used to so great advantage for all kinds of decorative purposes. They stand unrivalled in the beauty of their graceful, delicate fronds, and are appreciated by all lovers of plants. No plants are more easily cultivated than Ferns, provided they are watered and shaded carefully. They may be utilised for the decoration of the conservatory, Fern house, rockery, dwelling house and ballroom; they are

spaces may be left for planting, from time to time, flowering subjects in bloom to brighten the house and make it more attractive. If a house cannot wholly be devoted to the purpose, rock work may be built at the end of the conservatory or plant-house and the Ferns planted in crevices to add to its beauty. If the conservatory or house is suitable, Ferns of a pendent habit may be suspended from the roof rafters.

The baskets should be lined with Sphagnum or other moss to keep the soil in place.

Ferns are much in demand for the decoration of the dwelling-house, and will keep fresh a long time provided they are given sufficient water and not exposed to cold draughts. They are very useful for table decoration, and may be grown in tiny pots suitable for placing in small vases. In certain conditions filmy Ferns may be successfully grown in a room, a Wardian case being most suitable for the purpose. The filmy Ferns are unique in their beauty and variety of form of foliage; their delicacy of outline, and in most cases their marvellous transparency places them in the foremost rank among Ferns. When laden with moisture, especially with moisture condensed on the fronds, nothing could be more beautiful, the drops of water which hang on the tips of the leaves enhancing the effect. They require a moist, close atmosphere, and need to be well shaded from the sun. The plant will succeed planted or potted in rough, fibrous peat and Sphagnum moss, with large lumps of sand-

stone partially covered by the soil. Those living in cities or towns may derive a great amount of pleasure by having a rockwork built in the recess of a window facing north and encased with glass to give protection to the Ferns in very cold weather. Filmy Ferns may be grown successfully under these conditions. *J. Heal, V.M.H.*

(To be concluded.)

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(Continued from p. 112.)

(See Tables and Summaries, Ante, pp. 95-100.)
ENGLAND, N.E.

DURHAM.—The fruit crops all round this year would have been abundant, I think, had it not been for caterpillars, which were especially destructive to Apples and Black Currants, stripping many of the trees quite bare of leaves. We are surrounded by woods. *Edward Tindale, Ravensworth Gardens, Gateshead*

—Apple trees were covered with blossom and promised good crops, but caterpillars stripped some trees bare of their leaves, wall trees being most affected. Plum trees have had to be supported, as they are all laden with fruits. Blossom was very late in expanding this season, and thus escaped damage by severe frosts early in the spring. Black Currants have cropped well, with large, sound berries. Strawberries have been exceptionally large, but heavy rains spoilt many of the berries. The soil in these gardens is of a light, open nature, with a sand subsoil. *William McCombie, Redworth Hall Gardens, Heighington*

—The Pear crop is again a failure. Apples promised to be plentiful, but, owing to caterpillars, the crop is a very light one, although the trees were twice sprayed. Possibly this may be owing to the orchard being on the border of a wood. Plums of every variety are an enormous crop—the best for very many years. No doubt the Strawberry crop would have been better but for the long period of drought. All bush fruits are exceptionally good. Our soil is of a very light nature, the subsoil sand, and in places of a gravelly nature. *J. A. Woods, Beamish Park Gardens, Beamish, S.O.*

NORTHUMBERLAND.—Apple, Pear, and Plum trees developed a wealth of bloom, and the fruits set remarkably well, necessitating much thinning. Insects and caterpillars were troublesome during the dry weather in May and June. Small fruits are plentiful and good. Strawberries were good, but late by about ten days. The soil here is a medium, sandy loam on the limestone, and about 200 feet above sea level. *James Winder, Howden Dene Gardens, Corbridge-on-Tyne.*

—The fruit crops are, on the whole, good in this district, which may be attributed to a large extent to the lateness of the trees coming into flower. Apricot, Peach, and Pear trees were quite five weeks later coming into bloom this season than in 1921, and all kinds of fruit set well and required a good deal of thinning. Apples are an average crop, as is only to be expected after the heavy crops of last season. Bush fruits are all plentiful and of fine quality. Pear trees are carrying grand crops on bush specimens. *Bourré d'Amanis, Bourré Hardy, Charles Ernest, Clapp's Favourite, Doyenné Boussoch, Durondeau, Fondante de Thirriott, and Marguerite Marillat* are varieties that do well in the open here. Insect pests have not been very troublesome this season. All trees are clean and the foliage is healthy. *W. E. Anderson, Close House Gardens, Wylam-on-Tyne.*

YORKSHIRE.—Apples are a fair crop, and would have been very plentiful but for the hot, dry weather at the end of May. Pears were similarly affected, but not to the same extent. Plums are a glut. Small fruits are

very good, but Gooseberries are fewer than usual. Strawberries were very good, but the crop suffered from the early drought. The soil here is a good loam resting on a layer of clay and red sand below. *Jas. E. Hathaway, Baldersby Park Gardens, Thirsk.*

—The fruit crops vary greatly. Cherries protected by Apple trees and a Beech hedge suffered from frost and cold winds. Apples shed a lot of immature fruit, owing to the dry spring. Strawberry plants suffered from excessive moisture in the winter. In a cottage garden on a hill top near here may be seen a good crop of Plums of fine quality. *J. G. Wilson, Newmillerdam, Wakefield.*

—Strawberries are always late in ripening in this district, and the long spell of cold, wet weather ruined the crop. Raspberry Lloyd George is not suited to our winters on the Yorkshire wolds. Small fruits generally are quite up to the average. Apples and Plums are both clean and good. Pear trees did not bloom profusely, and the crop of Pears is a very light one. Nuts promise to be very fine. *Sidney Legg, Warter Priory Gardens, York.*

ENGLAND, E.

CAMBRIDGESHIRE.—Cold east winds and early morning frosts were not so disastrous to the Apple and Pear blossom as was at first anticipated, and, although the drought of May and June caused some of the fruits to drop, there are still average crops of clean, good-sized fruits. Strawberries were greatly affected by the drought, the rains coming too late to save the crop. Raspberries also suffered, but not quite to the same extent as Strawberries, having benefited by the rains. Cherries are not grown to any extent in this district, but the few trees I have noticed seemed to be bearing average crops of small fruit. *Arthur Sewell, 32, Barton Road, Ely.*

ESSEX.—The fruit crops generally are satisfactory. Apples are a bit disappointing, for every tree, almost without exception, developed a wealth of bloom, but in several instances the fruits failed to set, and this I am inclined to attribute in a great measure to the intense heat at the flowering period. Such varieties as Newton Wonder, Annie Elizabeth, Sandringham, Dumelow's Seedling, and Alfriston are carrying heavy crops, while Lane's Prince Albert and Bismarck, usually so reliable, have this season almost entirely failed to set. Plums and Pears are good average crops, and the trees clean in growth. Gooseberries have been a heavy crop. Black, Red, and White Currants are good average crops, as also are Raspberries. Strawberries have been almost a complete failure, the rains having come too late to save the crop. The soil is a strong loam on clay. *Arthur Bullock, Copped Hall Gardens, Epping.*

—Peaches, Nectarines, and Apricots suffered to some extent by adverse weather when in bloom, though not as badly as was at first feared. Plum trees flowered profusely, and chiefly the commonest varieties are carrying enormous crops of good fruit. Gages and other choice varieties are not so plentiful. Apple trees are carrying much better crops of good fruit than at first seemed probable. Pears are the same. Small fruits and Strawberries suffered greatly by the early drought, and especially Strawberries, the recent rains having greatly helped Currants and Raspberries. The soil is a strong, retentive loam, overlying boulder clay, and it cracks very badly in times of drought. *E. F. Hazelton, Park Road, Elsenham, Stansted.*

—Late Apples flowered rather sparingly. Pears and Plums flowered very well, but many fruits dropped during the heat of late May and early June. Peaches and Nectarines also suffered in the same way. Gooseberries were a good crop in a few places. Strawberries suffered greatly from the drought of 1921. *C. Wakely, County Gardens, Chelmsford.*

—The Apple crop is not very satisfactory. Very hot sun in the daytime and cold at night when the trees were in flower had harmful effects, and the blossom was all over in a few days. The fruit that did set pro-

mises to be good. Pears are an abundant crop, as also are Plums. Cherries are under the average yield, but of good quality. Peaches and Nectarines are both very good crops, and Apricots also promise to be good. Gooseberries were abundant in places, but Red and Black Currants were not quite so numerous as usual. The early crop of Strawberries was almost a failure, but later ones, such as Laxton's Latest, were fairly good. Nuts promise to be a good yield. The soil around here is a medium loam. *William Johnson, Stansted Hall Gardens, Stansted.*

(To be continued.)

BRANCH CUTTINGS OF APPLES.

THE method of propagating by means of planting branches ("large settlings") or shoots was widely practised years ago, as is seen in the writings of the XVIIth century. Sometimes the pieces were simply planted in the ground, sometimes a previous ringing and dressing was done; the instructions given by Austen (*A Treatise of Fruit Trees*, 1657), as to "How to get Boughes with roots from Trees," are quoted in full in the *Journal of Pomology*, Vol. 2, 1921, p. 125. He notes that the process cannot be successfully practised on stone fruits nor well on many sorts of Apples and Pears, but it may be effected on all kinds of "Quoddings" (= codlings) Nurs-gardens, Quinces, Gennet Moyles, and some other kinds—which more easily put forth Roots or some Knobs or roughnesses which turn to roots afterwards (= Burr-knots)." The method was practised as a means of getting stocks whereupon to graft as well as for direct raising of trees; it was thought that better quantities of fruit resulted from being grafted upon Gennet Moyles, etc.; but such trees had the reputation of not being long-lived, perhaps from transference of canker or other disease.

Dr. Beale (J. B., Herefordshire Orchards, 1657) apparently used simple cuttings without any previous treatment by ringing (p. 15), "for these four last Years, whereof two were very dry Summer, I laid the fruitful Sprays of natural Apple Plants" (N.B., by natural he seems to mean seedlings which had never been grafted) "in the ground, some very small, not two Foot above ground, all thereabout; and from the first Summer to this present Spring, they never failed to bear as thick as Traces of Onions. But it is better for the Plant, if you pull off the young Apples soon after they are knitted, the first year at least. Some I laid also four Yards length under the ground, the Sprays lying slope above ground: These grew and bear incredibly. . . . All natural Apples are not of this precocity: The more durable are much more sullen. Some require a Knot for the Root, others not: All three are better for it. To some a slice of the Bark is as good." And again, in dealing with planting (p. 13) "in a natural Plant, the Bowes should not at all be lopped, but some taken off close to the trunk. . . . The Branches that are cut off, may be set, and will grow, but slowly. . . . In so much that a Graft of the same Fruit doth meliorate the Fruit, as is lately much observed by our Welsh Neighbours, who do graffe the Gennet Moyle upon the same Stock, and thereby obtain a larger Apple, more juicy, and better for all uses. And some triplicate their Graffings (for a curiosity) upon the same account."

It is a common experience that shoots cut for grafts will give apparently much promise of growing for the first season, when they are left partly buried in the soil; but I have never yet seen any go further than one season. Judging by the useful effect of a previous ringing for striking Rose-shoots, many years ago I ringed a number of shoots of Jargonelle Pear; several looked quite full of promise at the end of the second season, but, unfortunately, they were dug up. A similar fate betook a number of cuttings which a neighbour had put in; they were planted obliquely fairly deeply, then

arched, leaving about a foot exposed, and the terminal end was buried; the idea was to give a double chance of absorbing moisture and possibly rooting at both ends.

The striking of shoots and rooting of larger cuttings might well form the subject of an inquiry into the nature and factors involved at one of the Pomological Stations that now exist. *H. E. Durham.*

—There is no doubt that all fruit-growing readers will, with myself, find considerable interest in Mr. H. F. M. Hewat's paragraph on this subject on page 101. It appears to me fairly certain that the variety is Burr Knot which I have frequently seen and grown on the east coast, especially in the northern parts of Lincolnshire and in Yorkshire. I have repeatedly proved that any piece of growth will root easily provided that it is severed beneath a burr, and that the insertion is done very firmly. Dr. Hogg's description in the *Fruit Manual* is as follows:—"Fruit, large, three inches wide, and two and a half inches high; in shape not unlike Cox's Orange Pippin, but sometimes with prominent angles on the sides, which extend to the crown; round, and even in its outline. Skin, smooth and shining, of a clear lemon yellow colour, and with a blush of red on the side next the sun, and thickly strewn with a few russet dots. Eye, open, with reflexed segments set in a narrow and plaited basin. Stamens, marginal; tube, deep conical. Stalk, half an inch long, inserted in a deep cavity. Flesh, yellowish white, tender, juicy, and of an agreeable acid flavour. Cells, roundish obovate; axile, open. A good kitchen Apple; in use during October and November."

Perhaps Mr. Hewat can compare fruits with this description and tell readers how they agree? Dr. Hogg gives Bide's Walking Stick as the one synonym and supports it by saying: "The tree is a close and compact grower, and a profusion of burrs are produced on the branches which emit incipient roots. If a branch furnished with these burrs is inserted in the ground it will take root and become a tree. The name of 'Bide's Walking Stick' originated from a person of that name having cut a branch for a walking stick in Cheshire and brought it to his place near Hertford, when having inserted it in the ground, it took root and became a tree." This sounds as though it might be apocryphal. Can any readers support or discount it? *H. J. W.*

ANNUALS AT READING.

THE part which annuals may be made to play in the embellishment of the garden is well-known to the majority of our readers, and, since the war great use has been made of these beautiful flowers for reasons of economy, as they are very easily raised and may be obtained at a minimum of expense. But because they are cheap, it does not necessarily imply that they are inferior to the ordinary bedding plants; indeed, annuals are amongst the most beautiful of all flowers and are adapted for a variety of purposes.

The Antirrhinum, which for garden purposes may be regarded as an annual, is increasing in favour each season, and there are few gardens in which this beautiful and simply-grown plant may not be found.

Reading might almost be said to be the home of the present-day Antirrhinum, for Messrs. Sutton and Sons have long paid especial attention to this valuable flower. Even when seen from the windows of the Riviera express trains which thunder past the nursery, the colour feast provided by the generous breadths of the plants in the Antirrhinum trial is exceedingly fascinating. Inside the nursery the visitor cannot fail to be entranced by the vivid colours of such varieties as Bright Pink, Deep Crimson, and Fire King, to instance only a few sorts; while those with artistic leanings would be satisfied with Delicate Pink, Pale Apricot, Buff Beauty, and the like. To the not inconsiderable few who prefer uncommon tones in flowers, Mauve Beauty is bound to appeal: either when grown

alone or in association with the pale yellows or milky whites it is singularly effective. For general garden display it is these "Intermediate" varieties that have the greatest value, but there are many places in the herbaceous borders where Sutton's Tall Antirrhinums are especially appropriate, while on account of their tall stems and large blooms they are excellent as cut flowers.

The Tom Thumb Antirrhinums have an especial place in the scheme of garden decoration, but it must be confessed that this strain is not altogether satisfactory. When successful, no dwarf plant can be more valuable or effective in the summer beds or borders, but their very dwarfness seems to be their undoing, and disappointing floral blanks occur. Messrs. Sutton and Sons are as keenly alive to their partial failures as to their many notable successes, and this difficulty in the very dwarf Antirrhinum has long received anxious thought and attention. The general gardening public can have but little idea of the unremitting care and attention that is exercised on such matters. The raising of a new strain possessing all the merits of the Tom Thumb type without its failings has long been the goal of florists, and at last it is near attainment, for there is evidence that before long a Dwarf Intermediate strain will be available. It is now an open secret that the strain has been fixed—indeed, this is abundantly evident to the visitor, who can see long rows of dwarf plants each exactly like the other, so far as size and form are concerned, and they embrace practically all the delightful colours and tones of the older established types.

As with Antirrhinums so, in a great measure, with Phlox Drummondii. No longer is it the custom to grow this valuable annual as a few patches of mixed colours. It is at the Langley Trial Grounds of the firm that these are mostly to be seen, and there one can feast on extensive masses of varied colours and of delicious perfume. Every conceivable colour has been separated and, what is equally important, the three definite types—Large, Intermediate and Dwarf—are fixed. The graceful beauty of the first-named when skilfully arranged in vases was well demonstrated in the Gold Medal exhibit of annuals staged by Messrs. Sutton and Sons at a recent meeting of the Royal Horticultural Society.

The homely and indispensable Stocks and Asters are to be seen in large quantities of the different sorts, and while one cannot but admire the large, double-flowered varieties of Aster, it is borne upon one that such singles as Venus, Firefly, and the many distinct *A. sinensis* sorts are exceedingly graceful and decorative. In front of the glasshouses at Reading a large bed of *Nemophila insignis* is really "remarkable" in its bright blue colour, giving the appearance of Forget-Me-Nots in summer. A deeper shade of blue is provided by *Phacelia campanularia* and the perennial *Linum sibiricum*.

Amongst the taller annuals of spreading habit *Lavatera Sutton's Loveliness* was, at the time of our visit, pre-eminent. As is well-known, many of the Mallows are impatient of root disturbance, so that, as was the case with the plants under notice, the greatest success is attained when the seedlings are not transplanted but allowed to flower where the seed was sown. This, naturally, leads to a rather later-flowering period, but still sufficiently early to ensure an abundance of bloom long before summer is over. The value of this Mallow and several other tall varieties for use as cut flowers was well shown in the group referred to at Vincent Square, as also were the various Larkspurs, Lupins, annual Chrysanthemums, and many more, which, at the trials, are to be seen as growing plants that are even more beautiful than the cut blooms.

Besides the almost countless numbers of annuals—although Antirrhinums are perennials they are usually grown as annuals—certain biennials and perennials are associated with the trials. Hollyhocks are still in great beauty, and Sutton's Prize Doubles are especially noteworthy in the good form of the flowers and the large proportion that come double from seed. Near by, a breadth of *Gladoli* in many varieties is also very interesting. Few, if any, of the

plants under trial have flowered so freely this summer as the Improved Marguerite Carnations. It is claimed that 90 per cent of the seedlings come fully double, and while this contention was not checked, it seemed a difficult matter to find any really single flowers, and some of the plants bore exceptionally large flowers as well formed and as fully double as the best Perpetuals. The Prize Carnations were all that could be desired.

HOME CORRESPONDENCE.

Escallonia Hedges.—Mr. A. D. Webster (p. 55) refers to the *Escallonia* hedges of Cornwall. I would add that *Escallonia macrantha* makes a splendid hedge for shelter purposes, and its roots are not so objectionable as those of some other hedge shrubs; if necessity requires, it may be cut back severely, and I have one that is cut back annually to a width of six inches. No wind can get through such a hedge, and its glossy, rich green leaves and pink flowers are very pleasing. *Cupressus macrocarpa* is another good hedge plant, but where animals have to be fenced out or in, the Whitethorn is the best of all subjects. Privet is the most objectionable hedge shrub I know; it looks most painfully formal and stiff and its roots are vile robbers of the soil. *W. J. Farmer, Redruth.*

Dianthus Allwoodii (see p. 101).—As a matter of fact, I do not admit the inferiority of the individual plant, for without the individual there can be no mass. In the mass, the individual merges in the whole, and, for garden effect, the result produced is more satisfactory. *Dianthus Allwoodii*, the most prominent plant of the present time, has been compared unfavourably with the Pinks as they grew in "grandmother's garden," but there were no individuals there. A noted grower has expressed the opinion in *The Gardeners' Chronicle* that the variety Susan is worth growing for its fine foliage alone. And eventually, even when the glamour of the novelty has worn away, I feel sure that varieties of *Dianthus Allwoodii*, like the *Chrysanthemum*, will find a place in every garden. *Fred W. Jeffery, Dalserf, N.B.*

Mimulus Bartonianus.—My reason for referring to the note of this *Mimulus* in Sir Herbert Maxwell's article on p. 21 was to draw attention to the error in spelling. You will notice on p. 21 the spelling is *Bertonianus*, possibly a printer's error (yes, Eds.), and it should read *Bartonianus*. *W. P. Moore, Dublin.*

Robert Furber's "Flowers for the Months."—(p. 84).—I do not know by whom or on what grounds "it is believed" that this work is "not at the Natural History Museum," but an inquiry at the Department of Botany or a reference to the Library Catalogue would have shown Mr. Harman Payne that the "belief" is without foundation. The copy in the Department has the book-plate of Horace Walpole. *James Britten.*

Collette and Collarette.—Again you do good service in bringing forward this matter of spelling. Far too long the corrupt, and quite obviously incorrect translation—or shall I say, incorrect spelling?—of the French word "collette" as applied particularly to the Dahlia, has obtained. It is singular that the trade should have adopted and maintained the use of this illiterate and inelegant form, and refused, to my knowledge with only two exceptions, the literate and elegant. Art and beauty enter so profoundly into our trade, or profession if you will, that any term inartistic, inelegant, vulgar, illiterate, incorrect, if it creep in, should be quickly and relentlessly ejected. *W.*

Grape Cannon Hall Muscat.—The interesting note on this Grape on p. 112 reminds me how rarely its name is given correctly. It was named after Cannon Hall, in the garden of which it was first grown in England. The whole story is told in the journal of the R.H.S., vol. 45, p. 368. *Fred. J. Chittenden.*

[Dr. Hogg, in the *Fruit Manual*, states that it was raised at Canon Hall, Barnsley.—Eds.]

SOCIETIES.

ROYAL HORTICULTURAL.

AUGUST 22.—The usual fortnightly meeting was held on Tuesday last in the Vincent Square Hall, Westminster. The exhibition was a representative one of subjects in season, and included a magnificent display of Laelio-Cattleyas from the collection of Baron Bruno Schröder. There were also extensive groups of Dahlias, Gladioli, Roses, Scabious, Phloxes and other border flowers. The chief exhibit of fruit was a number of bunches of Black Hamburgh Grapes from Mr. J. A. Nix's gardens.

Orchid Committee.

Present: C. J. Lucas, Esq. (in the chair), Messrs. Jas. O'Brien (Hon. Secretary), Gurney Wilson, Fred K. Sander, Frederick J. Hanbury, Richard G. Thwaites, E. R. Ashton, Pantia Ralli, A. McBean, H. G. Alexander, J. E. Shill, H. T. Pitt, Arthur Dye, Stuart H. Low, J. T. Barker and S. W. Flory.

AWARDS OF MERIT.

Laelio-Cattleya Golden Light (Golden Fleecé × Luminosa). From Lt.-Col. Sir GEO. L. HOLFORD, Westonbirt (gr. Mr. H. G. Alexander). A superb hybrid, flowering for the first time and well worthy of the Westonbirt traditions. The plant bore a fine spike of three large flowers, the sepals and petals being reddish orange and the well-displayed lip clear claret colour tinged with ruby-red.

Laelio-Cattleya Sargon Westonbirt variety (C. Hardyana × L.-C. Lustre). From Sir GEO. HOLFORD. The cross has been shown on several occasions, Mr. Ralli's variety gaining an Award of Merit. The present form bore a spike of two flowers with broad, rosy-mauve sepals and petals, and showy ruby-crimson lip.

Laelio-Cattleya Idina (L.-C. Soulange × C. Nena). From Messrs. FLORY AND BLACK, Slough. A perfectly-formed flower with mauve sepals and petals and violet-purple lip with yellow disc.

GROUPS.

A Gold Medal was awarded to Baron BRUNO SCHRÖDER, The Dell, Englefield Green, and a Silver-Gilt Lindley Medal (for culture) to his Orchid grower, Mr. J. E. SHILL, for one of the finest groups of Laelio-Cattleyas ever staged, the noble specimens being either raised or developed at the Dell. The group extended some forty feet by six feet deep and contained over one hundred grand specimens; the greater part were of The Dell strain of Cattleya Hardyana alba, the specimens bearing five or six flowers on a spike and some of the plants having three or more spikes, the sepals and petals being pure white and the labellums various shades of ruby and violet. With them was a selection of The Dell form of richly coloured C. Hardyana, C. Hesperus in several grand forms; L.-C. Golden Glow and L.-C. Golden Queen, with rich yellow flowers and ruby-red lip, and many other fine and rare hybrids. The plants were staged in perfect condition and excellently well arranged.

A Silver Flora Medal was awarded to Messrs. STUART LOW AND CO., Jarvisbrook, for an excellent group with white Phalaenopsis and blue Vandas at the back, arranged with showy Cattleyas and Laelio-Cattleyas. Among novelties were Laelio-Cattleya Victor (Purple Emperor × Rubens), a handsome mauve flower with intense ruby lip, and Cattleya illustris, of rich colour. Interesting species were Laelia xanthina, Aerides odoratum album and Dendrobium Dearei.

Messrs. FLORY AND BLACK, Slough, secured a Silver Flora Medal for an excellent group of hybrids, including Laelio-Cattleya Glorita, a showy new cross between Cattleya Rex and L.-C. Thyone, and other showy crosses.

J. J. BOLTON, Esq., Claygate Lodge, Claygate (gr. Mr. S. Lyne), was awarded a Silver Flora Medal for a neat group of superbly-grown plants, including fine forms of Cattleya Hardyana alba; the large white-petalled L.-C. Salonica alba; the showy yellow L.-C. Appam, and C.

Naidia exquisita, with several fine golden C. Venus with ruby-crimson lip, and allied hybrids.

Messrs. HASSALL AND CO., Southgate, secured a Silver Flora Medal for a good selection of white-petalled Cattleyas, the delicately-tinted Brasso-Laelio-Cattleya Muriel; L.-C. Soulange, and forms of C. Hardyana and C. Eleanor.

OTHER EXHIBITS.

His Grace The DUKE OF MARLBOROUGH, Blenheim Palace (gr. Mr. J. T. Barker), sent Laelia Charm (autumnalis × grandiflora), with rose-pink flower resembling the L. majalis (grandiflora) parent in a large degree; the golden-yellow petalled Cattleya triumphans Blenheim variety (Rex × Dowiana); C. weodonaurea, and Brasso-Cattleya Blenheim Gladys (B.-C. speciosa × Schroderae), one of the largest and most perfect of the blush white forms.

H. T. PITT, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), showed an interesting selection of rare species, including Paphinia cristata, with large, pendulous, claret-striped flowers; Angræcum Scottianum, with curious white blooms; Cirrhopetalum minutum, various Oncidiums and Chondrorhyncha Chestertonii, which blooms nearly all the year round with Mr. Pitt.

Lt.-Col. Sir GEO. L. HOLFORD showed Laelio-Cattleya Spalatro (C. Luddemanniana × L.-C. Aphrodite), a perfect flower of large size and attractive colour.

Messrs. McBEAN, Cooksbridge, showed Odontoglossum Arabic, a fine flower of good colour.

Floral Committee.

Present: Messrs. H. B. May (in the chair), J. T. Bennett-Poe, W. J. Bean, S. Morris, Reginald Cory, W. B. Cranfield, G. Reuthe, W. P. Thomson, John Heal, C. R. Fielder, J. F. McLeod, Wm. Howe, W. B. Gingell, D. Allan, W. H. Page, J. Jennings, A. Turner, L. B. Crane, Chas. E. Pearson, and G. W. Leak.

AWARDS OF MERIT.

Rosa Sweginzowii.—This spreading Rose was collected by the late Mr. R. Farrar. When the brilliant, shiny, inverted, urn-shaped fruits are freely produced, it is a handsome bush. The small Fern-like foliage is reminiscent of R. sericea. According to Wilson in *Plantae Wilsonianae* this Rose is closely related to R. setipoda, and is perhaps nothing but a geographical form of that species. Shown by the DIRECTOR, WISLEY GARDENS.

Dipteronia sinensis.—The chief interest in this hardy, deciduous tree was centred in the abundant clusters, composed of winged-pairs of flattish seeds, which resemble those of the Wych Elm, and are tinted with purple. It bears opposite pinnate leaves about 10 inches long, and becomes a small tree about 25 feet in height. It was discovered by Wilson in Western Hupeh, Central China, when travelling for Messrs. J. Veitch and Sons in 1900. It flowered at Kew in 1912, but the flowers are inconspicuous, and its chief beauty lies in the graceful foliage. Shown by the Hon. VICARY GIBBS.

Aster hybridus luteus.—Under this name was shown a dwarf yellow-flowered herbaceous plant with heads of numerous small, clear yellow blooms on slender, rigid stems furnished with alternate, linear lanceolate foliage. The basal leaves were 3 ins. long and about $\frac{3}{4}$ in. wide. Shown by Mr. AMOS PERRY.

Helianthus multiflorus Loddon Gold. This is a much larger and more brightly coloured form of the well-known herbaceous double Sunflower. It would be of value for the back row of the hardy flower border. Shown by Mr. THOS. CARLILE.

New Dahlias.

JOINT DAHLIA COMMITTEE.

Present: Messrs. H. B. May (in the chair), J. F. McLeod, Wm. Howe, A. Turner, Jas. B. Riding, John Green and D. B. Crane.

This committee, which is composed of representatives from the National Dahlia Society and the Floral Committee of the R.H.S., met for

the first time this season. According to the arrangement entered into between the two societies awards are not made to new Dahlias when first shown, but the most promising are selected for trial at Wisley.

SELECTED VARIETIES.

Gallon Star.—A highly decorative Star Dahlia of medium size and sturdy, compact habit. The orange-buff ground colour is shaded with purplish-mauve.

Bronze Star.—This is a looser-made flower than the above, and the colour is a bronzy apricot. Both shown by Messrs. J. CHEAL AND SONS.

Hardy.—A broad-petalled, Cactus variety which nearly approximates the Decorative type. The unopened central florets are milky white, which becomes a pretty mauve in the fully developed florets. It is a very decorative variety.

Megantic.—A perfectly formed exhibition Cactus variety, having long rolled florets which incurve at the tips. The colour is pale apricot with a primrose-coloured centre.

Yellow Queen.—A magnificent, rich golden yellow Decorative variety. The broad florets have plenty of substance, so that the flowers should remain fresh for a considerable time when cut.

Noble.—In size and form this is a fitting counterpart of the foregoing. The warm scarlet colour pales considerably at the tips of the florets. Both sorts have long, stout stems which carry the heavy flowers well above the foliage.

Siren.—A rather more than medium-sized Decorative bloom of good shape. The broad petals are regularly stippled with rosy-mauve, making a pretty flower.

Skyrocket.—An exhibition Cactus variety which has long, slightly curved, rolled florets. The centre is golden bronze, while the fully developed florets are shaded with rosy purple.

Signal.—A Star-shaped Cactus variety which has long, straight rolled florets of pale brick-red colour. It is a highly decorative flower. All shown by Messrs. J. STREDWICK AND SON.

THE CORY CUP.

The only entry for this valuable trophy was from Messrs. J. CHEAL AND SONS, but, apparently through not being fully directed, the Floral Sub-Committee judged it in connection with the ordinary floral groups, and it appears on the official list as "hardy plants." So far as we could learn the Cory Cup was not awarded.

GROUPS.

Gladioli were the dominant feature of the show. Immediately on entering the hall the visitors were confronted with a very large collection of excellent spikes arranged by Messrs. SUTTON AND SONS in their best exhibition manner. A great many varieties were represented, and all were of high quality. The brightly coloured sorts "took the eye," and of these Capt. Fryat, Elector and Red Emperor were almost dazzling in their brilliancy. Empress of India, of very deep maroon, Brimstone, yellow, Lucie, yellow, White Giant and Prince of Wales, rich salmon pink, are the names of only a few of the varieties so well displayed (Silver-Gilt Flora Medal).

A large stretch of tabling was amply filled by Messrs. KELWAY AND SONS with many splendid Gladioli. Amongst those of pink shades we especially noted Brooklands, Beauty of Langport and Aviator, though the most prominent were the varieties which have a vivid crimson blotch on white or creamy ground. Amongst these were Sunspot, Lady Montague, Mrs. Cecil Barry, Lady Faire and Golden Dawn (Silver-Gilt Flora Medal).

The graceful Primulinus hybrids predominated in a collection of Gladioli arranged by Messrs. R. H. BATH, LTD., and of these Papilio, Black Prince, Alaska and Alberta were especially decorative (Silver Flora Medal). Near the space allotted for new plants Major G. CHURCHER had an interesting collection of Gladioli, which included Blue Isle, Due de Massa, Anna Libert,

cus, Woodcote and Alice Tiplady (Silver Banksian Medal). A beautiful display of *Primulinus* hybrids was made by Messrs. LOWE AND GIBSON, whose outstanding varieties were Niobe, Butter Boy, Woodcote, Sonia, Altair and Maiden's Blush (Silver Banksian Medal).

A great variety of herbaceous plants was well displayed by Messrs. W. ARTINDALE AND SONS. Nearly every seasonable plant was represented, while the more prominent were perennial and biennial Poppies, Heleniums, Gladiolus and Dahlias (Silver-Gilt Banksian Medal). Mr. H. J. JONES contributed another collection of the herbaceous Phloxes that he grows so well (Silver-Gilt Banksian Medal). In a group of seasonable border flowers arranged by Messrs. B. LADHAMS, LTD., there were many Heleniums and an interesting collection of tall herbaceous Lobelias (Silver Flora Medal). Mr. J. C. ALL-GROVE showed tall spikes of *Thalictrum* with many plants of *Astilbe simplicifolia rosea* (Silver Banksian Medal).

A very attractive group was arranged by Messrs. W. M. CUTBUSH AND SONS solely with Pentstemons of great merit (Silver Banksian Medal). Amongst the collection of new and rare plants by Mr. G. REUTHE were several varieties of half-hardy *Crinums* and spikes of *Yucca* blooms (Silver Banksian Medal). Many good stems of Hollyhocks, Gladiolus and Phloxes were staged by Mr. AMOS PERRY, who also showed a tall inflorescence of *Eryngium agave-folium* (Silver Banksian Medal).

Hardy flowers were also shown by Mr. W. WELLS, JUNR., who had a goodly vase of *Senecio clivorum* (Silver Banksian Medal). Mr. F. G. WOOD (Silver Banksian Medal). Messrs. ISAAC HOUSE AND SON, who had their new perennial Scabious (Bronze Flora Medal). Messrs. SKELTON AND KIRBY (Bronze Flora Medal). Messrs. MAXWELL AND BEALE (Bronze Banksian Medal), and the Misses HOPKINS, while Messrs. YANDALL AND SON showed some excellent *Violas* (Silver Banksian Medal).

Roses of considerable beauty were shown by Messrs. D. PRIOR AND SON, who included Ideal, a new velvety crimson *Polyantha* variety, and Alice Amos (Silver Banksian Medal). The Rev. J. H. PEMBERTON massed to good effect such Roses as Vanity, Aurora and Mermaid (Silver Flora Medal).

Carnations of high quality were splendidly arranged by Messrs. ALLWOOD BROS., who included various seedlings in their Allwoodii type (Silver Banksian Medal). Messrs. STUART LOW AND CO. (Silver Flora Medal), and Mr. C. ENGELMANN (Silver Banksian Medal). Messrs. L. R. RUSSELL, LTD., contributed a small collection of sturdy *Celosias* and a vase of *Clematis integrifolia Durandi* (Bronze Banksian Medal).

The collection of Dahlias by Messrs. J. CHEAL AND SONS was fully representative of the various types, and, in addition to decorative vases of Cactus, Colletterettes, Paeony-flowered and Star Dahlias, they had vases of the more uncommon Anemone-flowered Mons C. Dupont and the Clematis-flowered variety Ada Finch (Silver Banksian Medal).

Messrs. JARMAN AND SONS also showed an interesting collection of Dahlias. The Cactus varieties were the most prominent, and these included Geraldine, Mary Purrier and Crepuscle, while there were various Colletterette and Pompon sorts. Besides the Dahlias Messrs. Jarman and Sons contributed an excellent collection of Sweet Sultans (Silver Flora Medal).

An extensive and admirable collection of dry bulbs was shown by Messrs. F. H. COOKE AND SONS. This included a great variety of Narcissus and Tulips of all types. The Rev. MEYER, Walton-at-Store, Herts., showed a very good collection of bulbs of May-flowering Tulips and of Iris reticulata. Mr. W. R. DYKES, Merton, exhibited bulbs of 36 Tulip species, and also interesting paintings of nearly all the species.

Fruit and Vegetable Committee.

Present: Messrs. A. H. PEARSON (in the chair). F. JORDON, J. GILES, G. P. BERRY, S. B. DICKS, W. F. GILES, A. C. SMITH, E. NEAL, T. PATEMAN, H. MARKHAM, A. BULLOCK, A. W. METCALFE, J. C. ALLGROVE, W. H. DIVERS, W. WILKS,

J. HARRISON, E. BECKETT, G. REYNOLDS, OWEN THOMAS, GEO. F. TINLEY, and H. S. RIVERS.

The most important exhibit before this Committee comprised sixteen bunches of Black Hamburgh Grapes of a total weight of 41 lbs. from the gardens of Mr. J. A. NIX, Tilgate, Crawley (gr. Mr. Neal). The berries were well finished, and the bunches of excellent shape (Silver-Gilt Knightian Medal).

A Card of Commendation was awarded to the HIGH WYCOMBE HORTICULTURAL SOCIETY for a collection of vegetables. Most kinds in season were represented, and the quality generally was excellent. King Edward and Arran Comrade Potatoes, Long Surrey and new Intermediate Carrots and Exhibition Runner Beans were especially fine. A Cultural Commendation was awarded to Mr. A. WOOD, West Ham, for exceptionally long pods of Sutton's Exhibition Runner Bean. Messrs. DANIEL BROS. showed their late, large-fruited Black Currant, September Black, and Mr. J. J. KETTLE, Corfe Mullen, Wimborne, showed fruiting sprays of Raspberry Lloyd George.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

THE monthly meeting of this Society was held in the R.H.S. Hall, on Monday, August 14, Mr. Chas. H. CURTIS presiding. Fourteen new members were elected. One member withdrew interest from his deposit account amounting to £5 3s. 10d., and one member withdrew £39 18s. 1d. from his deposit account.

The sick pay for the month on the ordinary side was £44 11s. 8d., and on State Section £48 5s., and maternity benefits £10.

The Secretary reported that the extra benefits from the State Section which had been paid out up to July were: Dental £88 6s. 6d., Surgical £1, and Optical £2 11s. 3d.

The Society's annual dinner will be held on October 4 at the Imperial Hotel, Russell Square.

NORTHAMPTON MUNICIPAL HORTICULTURAL.

The annual show of this Society was held at Abington Park, on the 8th and 9th inst., and it easily surpassed any show previously held in Northampton. A magnificent group of Roses, 40 ft. by 5 ft., staged by Messrs. DOBBIE AND CO., not for competition, was awarded the Society's large Gold Medal. Messrs. THOMAS PERKINS AND SONS, Northampton, were awarded a Gold Medal for a charming collection of flowers and plants. A Silver Medal was also awarded to this firm for a very pretty rock garden. A Gold Medal was awarded the NORTHAMPTON CO-OPERATIVE SOCIETY for a grand display of vegetables, fruit and plants. Mr. H. N. ELLISON, of West Bromwich, was awarded a Silver Medal for a display of Cacti and Ferns.

In the group classes Messrs. CYPHER AND SONS, of Cheltenham, easily gained first prize with a fine display of stove and greenhouse plants, in the form of a rustic bridge with a mass of rare and beautiful blooms. The second prize was awarded to Messrs. THOMAS PERKINS AND SONS. The Trade Challenge Cups, offered by Mr. T. D. WREN, "The Poplars," Northampton, together with miniature cups for perpetual holding, attracted five exhibitors. The cup for Carnations was won by Mr. C. WALL, of Bath, whose exhibit also won the special prize offered for the best exhibition of Carnations in the show. Competition was very keen for the Sweet Pea Cup. Messrs. E. W. KING AND CO., Coggeshall, Essex, were awarded the trophy, beating last year's holder, Mr. S. DUNTON, Wolverhampton, who was placed second; Mr. W. J. UNWIN, Histon, Cambridge, came third. Only one group of Roses was forthcoming; it was shown by Mr. A. S. DUNTON, and it received the highest award. In the classes for table decoration, first prizes were won by Miss ELSIE CURTIS, Abington Park, and Mr. T. D. WREN,

of The Poplars, Northampton (gr. Mr. A. D. Wright). For 12 vases of Sweet Peas, the first prize was won by the Misses RUSSELL, Canterbury (gr. Mr. G. Rundle); 2nd, Captain R. B. BRASSEY, Cottesbrooke Hall (gr. Mr. J. G. Quinn). The first prize winner in this class was also awarded the special prize for the best exhibit by amateurs.

For 9 vases of Sweet Peas, Mr. R. STEVENSON HENSHAW, Wellingborough, was placed first with capital blooms. Messrs. THOMAS PERKINS AND SONS were easy first prizewinners in the class for 36 Roses, and they also excelled in that for 18 Roses, in which they were followed closely by Mr. C. S. DUFFIELD, Abington Avenue, Northampton. Mr. G. R. FREER, Kettering, won the special prize offered for the best Rose bloom in the show exhibited by amateurs.

The principal prizewinners in the vegetable classes were Capt. R. B. BRASSEY, Sir A. K. MUIR, C. KITCHENER, Olney, and C. GIBSON, Doddington. The last-named won the Challenge Medal offered for the best dish of Potatoes in the show.

EAST OXFORD HORTICULTURAL.

THE twenty-seventh annual show of this Society was held in South Park, Headington Hall, the residence of Mrs. G. Herbert Morrell, on Thursday, August 10. The entries numbered 620, and the general quality of the exhibits was exceptionally good. The Oxford Times Challenge Cup, offered for the best dish of twelve Potatoes shown by an amateur, was won by Mr. W. ING, who also received a gold medal for the exhibit from the Society. The show was favoured by fine weather, and many of the visitors availed themselves of the opportunity of inspecting the gardens and glasshouses at South Park.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

July 13. — Committee present: — Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, B. J. Berkton, A. Burns, D. A. Cowan, J. C. Cowan, A. Coningsby, A. G. Ellwood, J. Evans, W. Giles, J. Howes, W. M. Jackson, A. Keeling, D. McLeod, Dr. F. T. Paul, E. W. Thompson, J. Whitton and H. Arthur (secretary).

AWARDS.

FIRST-CLASS CERTIFICATES.

Odontioda West Point Beauty (*Bradshawiae* × *eximium*). A flower of fine shape, coloured deep salmon and scarlet.

Odta. Chantecler, var. *Militaris*. A brilliant-coloured flower. *Odta. Genesa* (*Odta. Brewii* × *Odm. President Poincare*). Flower of good form and substance, coloured purple-blue, with lighter shade on the lip; *Cattleya Harold*, var. *Mont Blanc*. Sepals and petals pure white, with white lip and magenta-coloured centre. From S. GRATIX, Esq.

Odm. eximium, var. *Joyce Hammer*. An intensely dark flower. From A. HANMER, Esq.

Bulbophyllum macrobulbum. A fleshy, cream-coloured flower, spotted with reddish chocolate. From H. T. PITT, Esq.

AWARDS OF MERIT

Odm. St. George, var. *Papilio*; *Odm. West Point excellens*; *Odm. Conqueror*, *West Point* var.; *Odta Juno* (*Odta Coronation* × *Odm. eximium*). Mrs. Mrs. GRATIX.

Odm. Dorag, *West Point* var.; *Odm. Eras magnificum*; *Cattleya Tracella*; *Cypripedium nigrum Perfection*. From S. GRATIX, Esq.

Cypripedium bellatulum, var. *Gay*. From Dr. F. T. PAUL.

Oncidium Gardneri, *Haddon House* var. From P. SMITH, Esq.

GROUP.

S. GRATIX, Esq., West Point (gr., Mr. J. Howes), staged a group, for which a Silver Medal was awarded.

Obituary.

John Herbert Goodacre.—The late Mr. John Herbert Goodacre, whose death was recorded in the last issue, was gardener to the Earl of Harrington at Elvaston Castle for nearly fifty years; he went to Elvaston from Brynkinalt in 1872, and retired in 1919. Elvaston at that time was one of the show places of the country, and was noted for its beautiful Dutch garden with specimens of topiary, which were unequalled in the country and said to have surpassed even those at Levens Hall, Westmorland. He was a born gardener, and although he had such a high reputation as a grower and exhibitor of choice fruits, he was equally successful in all branches of his profession, and his gardening experience was a varied and broad one. So long ago as 1876 he won his first cup at the Dundee show, and during the long period intervening, until he finished exhibiting in 1914, he met with almost unparalleled success. His exhibits of choice indoor fruits almost invariably secured the leading honours at the principal shows in the metropolis and provinces, and his Grapes were always the admiration of other cultivators. He had especially fine taste in floral decoration, and his designs with cut flowers were always prominent features of the Derbyshire shows. For many years he personally superintended and



THE LATE MR. J. H. GOODACRE.

directed the Easter decorations at Elvaston Church, for which the latter became quite famous, and many visitors from Derby made the journey by Elvaston across Stocker Flatts to the beautiful old church in the castle shrubbery, attracted mainly by the beauty of Mr. Goodacre's flowers. Amongst the number of cups and trophies which he won and of which he was especially proud we may instance the York Jubilee Clock, the Crystal Palace Cup, the Derbyshire Crown China Vase, the Edinburgh Cup, the Handsworth Cup and the Birmingham Cup. During his long career as a gardener he made many close friends, and the numerous young gardeners who served under him owe him a debt of gratitude for his kindly help, and the thorough training which they received under him. He is succeeded at Elvaston Castle by his son, who was formerly gardener to Sir Ernest Cassell at Moulton Paddocks.

T. S. H. Down.—It is with great regret I write to inform you of the death of Mr. Thomas Samuel Hutin Down, head gardener at Basing Park Gardens, Alton, Hants, which occurred on the 10th inst. The deceased was a most accomplished gardener, and was held in the highest esteem by his employer, Col. W. G. Nicholson, M.P., and other members of the Nicholson family. Mr. Down had served the present owner of Basing Park, and his late father, as head gardener, for a period of over 21 years. He had previously held a similar position to the late Mr. Strickland Constable, of "Wassand," Hull, and also to Lord Cloncurry, of Lyons House, Co. Kildare. His health broke down about 4 years ago, but his end came somewhat unexpectedly on the date above stated at the age of 60. *Wilnot H. Yates.*

MARKETS.

COVENT GARDEN, Tuesday, August 22, 1922.

Vegetables; Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Artichokes, green, dozen	2 6-4 0	Mushrooms	per lb. Forced, 2 0-3 6
Beans		Onions,	
—French per bus.	2 6-3 6	—Valencia	10 0-12 0
Beets, per bus.	3 0-3 6	Peas, half bag,	
Cabbage, per		—Finest	7 0-8 0
Tally	2 0-3 0	—Others	3 6-5 0
Carrots, new,		Potatoes, ton	£3 10-£6 0
cwt.	3 0-4 0	Scarlet Runners	
Cauliflower, tally	3 0-5 0	per bushel	2 0-3 0
Cucumbers		Spring Onions,	
—Slats, 3 doz.	15 0-18 0	doz. bun.	2 0-3 0
—" 3½ "	12 0-18 0	Tomatoes,	
—" 4 "	10 0-14 0	—English, Pink	4 0-5 0
Endive, "	4 0-5 0	—Pink and white	4 6-5 0
Garlic, per lb.	0 8-0 9	—Guernsey	4 0-5 0
Lettuce Cos	1 0-2 6	—Dutch	2 9-3 6
—Round	1 0-2 0	Turnips, per cwt.	4 0-5 0
Marrow, per tally	2 6-3 0		

REMARKS.—Business has not been good during the past week, and although the weather has been more favourable, selling has been difficult. Abundant supplies of English cooking Apples so depreciated values that arrivals fell off considerably, resulting in a slight reaction towards higher prices. Selected dessert varieties are also easier, but a fairly good demand is still recorded. Plums are moving fairly freely. Victorias are in moderate supply, but larger arrivals are expected each day. Prince of Wales and Belle Gue Louvain are selling well, as are the available supplies of English Gages. Better supplies of English William's Bon Chrétien and Hessel Pears are being marketed, and prices are on the low side. The demand for choice fruits, such as Peaches, Nectarines and Grapes, has been very poor, and these fruits have been very difficult to clear. English Tomatoes are selling moderately well, and with the outdoor Jersey supplies much overdue prices of home-grown are much in front of those ruling at this period last year. Cucumbers remain a steady trade with a good demand. Although a slight improvement is recorded on the very low prices that have been ruling for vegetables, the quantities are such that there can at the moment be very little increase in their value.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d. s. d.		s. d. s. d.
Adiantum		Hydrangea	
cuneatum,		—paniculata,	
per doz.	10 0-18 0	—White, per	
—elegans	10 0-12 0	doz.	24 0-30 0
Aralia Sieboldii	10 0-12 0	Marqueites,	
Araucaria	30 0-48 0	per doz.	12 0-15 0
Asparagus plu-		Nephrolepis, in	
mosus	12 0-15 0	variety	12 0-18 0
—Sprengeri	12 0-18 0	—32's	24 0-36 0
Aspidistra, green	48 0-72 0	Palms, Kentia	24 0-30 0
Asplenium,		—60's	15 0-18 0
per doz.	12 0-18 0	—Cocos	24 0-36 0
—32's	24 0-30 0	Polyantha Roses	
—nidus	12 0-15 0	48's, per doz.	12 0-18 0
Cacti, per tray,		Pteris, in variety	12 0-21 0
12's, 15's	5 0-6 0	—large 60's	5 0-6 0
Crotons, per doz.	30 0-42 0	—small	4 0-4 6
Cyrtomium	10 0-15 0	—72's, per tray	
Heliotrope,		of 15's	3 6-4 0
per doz.	9 0-12 0		

REMARKS.—Trade does not show any improvement on that of last week, and the requirements of buyers are no larger. It is only the very best subjects that realise good prices. The recent heavy rains have checked the supply of *Asters*, *Gypsophila*, *Sweet Peas* and other outside blooms, but there does not appear to be any shortage of these flowers or any advance in their prices. *Gladioli* are still a glut and difficult to dispose of, so heavy are the supplies. *Carnations* and *Roses* appear to be lessening in quantities. *Lilium longiflorum* is again on the down grade. White and pink blooms of *L. lancifolium* are in excellent condition and moderate in price. Larger quantities of *Lily-of-the-Valley* are being offered. *Chrysanthemums* are beginning to make a good display; some fine dis-budded blooms of white, yellow and bronze sorts are now obtainable, and similar colours are obtainable in bunches, these last being in excellent condition. The dis-budded blooms are of the varieties *Débutante*, *Sanctity* (white), *Mercedes* and *Holly Cot* (yellow).

GARDENING APPOINTMENTS.

Mr. H. Pescud. for the past two and a half years Foreman at Ashwick Hall Gardens, March-Bald, Chippenham, Wiltshire, as Gardener to J. H. Marlow, Esq., Sedgebrook, Pitsford, Northampton. (Thanks for 2s. for R.G.O.F. Box.—Eds.)

Mr. A. Matthews. for the past two and a half years at Burrrough Hill, Melton Mowbray, as Gardener to the Lady ELIA RUSSELL, Chorley Wood House, Hertfordshire. (Thanks for 5s. for R.G.O.F. Box.—Eds.)

Mr. T. Budgen. previously of Holmkush, Horsham, and for the past four years' with H. A. LONG-BOTHAM, Esq., at Sandgate Park, Washington, Essex, as Gardener to Captain J. CHRISTIE, Glynedebourn, Lewes, Sussex. (Thanks for 2s. 6d. for R.G.O.F. Box.—Eds.)

ANSWERS TO CORRESPONDENTS.

BINDING MATERIAL FOR GRAVEL PATHS. *E. R.* From the trouble you are experiencing it would appear that the construction of your paths is at fault. Gravel such as you describe if spread loosely on the surface of a path could never produce a satisfactory walk. The only way to overcome your difficulty is to remove the top surface of the paths and pass the material so removed through a half-inch screen. Re-form the bed of the walks, giving a suitable camber—say not less than 1½ in 60; roll and then spread the rough screenings evenly over the surface. After giving another good rolling, cover the rough material with fine screenings and then thoroughly consolidate by means of a heavy roller. If you are short of fine screenings, use marly soil as a substitute. The surface should be well watered during the rolling and the more "slushy" it becomes the better will the gravel bind together. In dry weather a path constructed on these lines may be maintained in excellent condition by occasional light dressings of powdered calcium chloride.

CORRECTIONS.—We understand that Mr. Morbey, whose exhibit of Sweet Peas was referred to in our report of the National Sweet Pea Society's show at Eastbourne, is manager of the Preston Hall Nurseries (Industrial Settlements, Inc.), Aylesford, Kent. Mr. W. E. Anderson, of Close House Gardens, Wylam-on-Tyne, draws attention to an error in our report of his employer's exhibit at the meeting of the Royal Horticultural Society on August 9, in which his name was given as Mr. Arden.

NAMES OF PLANTS: *W. G. D.* Evidently a very poor form of *Lilium auratum*.—*F. M.* *Lilium elegans*.—*W. A. L.* *Benthamia fragifera*.—*R. J.* *Clerodendron trichotomum*.—*Roses.* *W. L. W.* *A. B. C.* *W. W.* We cannot undertake to name florists' flowers. —*T. A. C.* *Arum Dracunculoides*.—*M. M.* We do not recognise the variety of *Paony*. Send to some grower who makes a speciality of these flowers. —*A. B. H.* *Lonicera quinquelocularis*, Hardw.—*J. L.* *Calycanthus floridus*.—*Correspondent, Ankerly.* 1, *Olearia Haastii*; 2, *Euonymus fimbriatus*.—*J. B. 1.* *Pitospurum Mayi*; 2, *Fothergilla alnifolia*; 3, *Potentilla fruticosa*.

ONION SMUT: *T. J. B.* The white varieties of Onions are more susceptible to this disease than coloured ones, therefore the latter should be grown in a garden where the disease has appeared. Collect and burn all diseased plants, and next season be careful to transplant only those seedlings which are absolutely free from any evidence of attack.

PEAS FAILING: *W. M.* The Peas are suffering from a very bad attack of *Thielavia basicola*, and as nothing can be done to save them at this period they should be dug up and burnt.

POISON IVY: *G. R.* Some people are much more liable to be affected by the Poison Ivy (*Rhus Toxicodendron*) than others. The specimens received, were undoubtedly of this plant.

VIOLA SEEDLING: *T. J. B.* When we received the flowers they were too shrivelled to enable us to form an opinion as to their merits. You should grow plants in some quantity and exhibit them, or show them to some hardy plant specialist for an opinion as to the commercial value of the variety.

TOMATO FRUITS CRACKING: *P. T. C.* The cracking of the fruits of your Tomatoes is due to heavy watering following upon the dry condition of the soil about the roots. It may also have been aggravated by the use of a nitrogenous fertiliser in solution at the time of watering.

Communications Received.—*C. W. C. G.*—*J. C. & Co.*—*J. H. P.*—*H. B. O.*—*A. B. C. H. A. T.*—*H. K.*—*W. J. S.*—*J. O. N.*—*J. S.*

THE

Gardeners' Chronicle

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COLOURED SUPPLEMENT: Nerine Fothergillii.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 60.1°.

LOCAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, August 30, 10 a.m. Bar. 29.6; temp. 61°. Weather—Raining.

Horticultural Research.*

Horticulturists have ground for friendly complaint with respect to the title, "Agricultural Research," which, doubtless for the sake of brevity, is applied to the summary of researches recently published by the Ministry of Agriculture, and reviewed already in these columns. Unless they are familiar with the fact that the Ministry is a liberal promoter of horticultural research they may be tempted to refrain from procuring a copy of this work and from studying it with the attention it deserves. It should, therefore, be stated that the volume *Agricultural Research* contains in convenient form a large mass of information of great interest and importance to the horticulturist. This information would, however, be more accessible had the author—to whom we have already expressed our obligation for the excellent manner in which he has discharged a difficult task—been able to suffix to his work a full subject index in addition to the index of "Main Subjects of Research." Inasmuch as the object of this work is to disseminate knowledge of progress of research, it is desirable that every step should be taken to make the reader's task easy. It is, of course, right that the subjects of research should be grouped under the several Institutions responsible for their conduct; but after all the reader is generally more interested in the facts discovered than in knowing the

authors of the discoveries. We draw attention to this omission of a full general index because we think that the information contained in Mr. Wilkins' book is so valuable that it should be allowed to run no risk of failing to attract the attention of every gardener. Among the many subjects of horticultural importance may be mentioned those relating to plant pests and diseases. Growers will be specially interested in the remarks on wire-worm (pp. 91 and 93), for the eradication of which experiments at Leeds indicate that autumn dressings of crude naphthaline at the rate of 10 cwt. per acre provide a means of control. Other experiments at Newcastle are less convincing in that they suggest, what from experience we strongly doubt, that extra seeding and dressing with sulphate of ammonia may suffice even in land infested with wire-worm to produce a crop. That this is not always the case is certain from observations which we have made this year. Land dressed with sulphate of ammonia and sown with Maize failed to give a single plant, every seedling falling a victim to wire-worm. A further reference to naphthaline as a soil "disinfectant" is made on p. 97, and supplies some reason why this substance may not always be effectual as a remedy for wire-worm. The experiments in the suppression of White Fly made at Cheshunt are valuable to growers of plants under glass. This pest can be eradicated by fumigation with hydrocyanic acid gas. Details of mode of application and precautions to be taken are given on p. 96. Cyanide of sodium has also proved (*loc. cit.*) a sure means of ridding glass-house soil of Eelworm—a dressing at the rate of 10 cwt. per acre per one foot depth of soil destroys Eelworm without affecting such plants as Tomatos. The widespread disease of Potatos known as Scab has been the subject of investigation at Leeds. Green manuring serves as a protective measure, since the organisms which cause Scab find their natural pabulum in vegetable residues, and when these residues are present they leave the tubers alone. Liming, on the contrary, induces Scab, and hence it is particularly important, where for other reasons land destined for Potatos has to be limed, to grow a green crop for digging in or to add green manure in any convenient form. The subject of canker of fruit trees has been investigated with effect at Long Ashton, where it has been discovered that this pest, long regarded as only a wound parasite, generally gains access to the plant through the leaf scars left by the fallen leaves and by scars formed by a Scab fungus, *Venturia inaequalis*, or through the galls caused by Woolly Aphis. With respect to Woolly Aphis itself recent investigations in America and in this country throw light on the reason why winter spraying with caustic soap is not completely efficacious in eradicating Woolly Aphis from Apple trees. It appears that this pest is not confined to the Apple; but that in this country—according to observations made by the advisory entomologist to the South-Eastern Agricultural College, Wye—the aphid is to be found on the Elm during the winter. In early summer winged forms produced on the Elm migrate to Apple trees in the neighbourhood.

The researches at East Malling and Long Ashton relating to questions of fruit cultivation deserve special consideration by the horticulturist, and to them we shall hope to return on another occasion. Enough has been said here to justify our recommendation that every gardener should make himself familiar with the results of the investigations summarised so ably by Mr. Wilkins.

Gift of Land to the Nation.—Two hundred and twenty-one acres of down land in the Isle of Wight overlooking Ventnor and Bonchurch has been conveyed to the nation through the National Trust for Places of Historic Interest or National Beauty. The gift includes Littleton Down, St. Boniface Down and Bonchurch Down. St. Boniface is eight hundred feet above sea level and commands magnificent views over the Channel and the interior of the Island. A local committee has been established to manage the area.

Sale of Historic Estates.—Claremont, Esher, for long the home of the Duchess of Albany, has been purchased by Sir William Corry, Bart., who was the last owner of Norbury Park. This beautiful demesne, which comprises some 900 acres in the Box Hill district, has been purchased by Sir Edward Mountain, chairman of the Eagle, Star and British Dominions Insurance Co. The historic mansion of Cassiobury Park, Watford, with the park, extensive ornamental grounds, House Farm and Little Cassiobury, embracing an area of 435 acres, has been sold by the direction of Adèle, Countess Dowager of Essex. As far back as Saxon times Cassiobury was the home of royalty. History records that the domain was given by Offa to the Monastery of St. Albans, at the confiscation of which Henry VIII. bestowed the property on Sir Richard Morrison. On the marriage of Elizabeth Morrison, the only surviving child of Sir Richard's grandson, the family property passed to her husband, Arthur, Lord Capel, from whom the present Earl of Essex is lineally descended. On his return from Ireland in 1677 the first Earl of Essex built the present house, leaving only the north-west wing of the earlier building. This wing was demolished in 1799. The pleasure grounds lying to the east of the mansion are of great beauty. They occupy an area of about fourteen acres and were originally laid out and designed by Moses Cook.

New Officer for Wisley Gardens.—As will be seen from our advertisement columns, the Royal Horticultural Society is advertising for a practical horticulturist, in succession to the late Mr. S. T. Wright, to act under the Director in the administration and cultivation of the society's gardens at Wisley. The commencing salary is £400 per annum, with residence and other privileges.

Rural Industries Intelligence Bureau.—The Treasury, on the recommendation of the Development Commissioners, has made a grant towards the establishment of a Rural Industries Intelligence Bureau, with the object of giving skilled advice to all who are concerned in the promotion and extension of these industries. The Right Hon. Lord Ernle has been appointed chairman of the committee, which is composed of trustees, in association with representatives from the Board of Trade, Ministry of Health, Ministry of Agriculture and Fisheries, Ministry of Labour, Board of Education, Board of Agriculture for Scotland, Ministry of Pensions, Forestry Commission, Labour Party Federation of Women's Institutes, British Legion, and other interested associations. The Director of the Bureau is Mr. E. Cecil Kny, who has a practical first-hand knowledge of the rural industries in most European countries. The Bureau will be especially concerned with (a), the revival and extension of rural industries and crafts which, with proper organisation and improved methods, can be rendered sound and profitable; (b), the establishment of new industries, and of industries which up to now have not been carried on in this country, always provided that such activities are suitable to rural districts, that handicraft forms the chief element in them, and that they can be set up on an economic and reasonably permanent basis, yielding a fair reward to the worker; (c), standard of workmanship, price, economical production, the use of waste material, training in various crafts and in such subjects as dyeing, leather tooling, and polishing, and in the use of the latest mechanical aids, and (d), commercial subjects, such as marketing, foreign competition, and the importance of protective

* *Agricultural Research and the Farmer.* By V. E. Wilkins, B.Sc., Ministry of Agriculture, London. H.M. Stationery Office. Price 2/6 net.

measures such as trade marks and registered designs. Advice will also be given as to the best means of developing a simple and efficient organisation on co-operative lines. In conjunction with the Intelligence Bureau, a co-operative trading society, known as the Country Industries Co-operative Society, Limited, has been registered under the Industrial and Provident Societies Act, and is situated at 258-262, Westminster Bridge Road, S.E.1. The functions of this trading society are (a), to supply raw material of every description or half-finished goods or parts at wholesale prices to isolated workers or groups engaged in rural industry and handicraft; and also to undertake, where needed, the hiring out of plant and equipment, such as looms, sewing machines, tools, etc; and (b), to sell the articles and materials made by rural workers and handicraftsmen to the best advantage in markets not always accessible to scattered workers. Anyone wishing to purchase raw material from the trading society will be at liberty to dispose of the finished goods elsewhere if they choose; similarly they can, if they wish, obtain their material from some other source, and still employ the trading Society to market their goods.

National Dahlia Society.—The annual exhibition of the National Dahlia Society will be held on Wednesday, September 6, in the Royal Horticultural Hall, Vincent Square, Westminster. This is the first time for many years that this Society has held a show on its own, its exhibitions in recent years having been held in conjunction with one of the Royal Horticultural Society's fortnightly meetings. The schedule includes fifty-three classes in various sections, and it is expected that these, together with the trade exhibits, will entirely fill the large building.

Low Prices for Potatoes.—The market report of the Ministry of Agriculture for the week ending August 26 records very low prices for Potatoes; with very heavy supplies and only a moderate demand, a further sharp fall in price is recorded at all markets. Sharpe's Express averaged 86s. per ton, a reduction of 41s. over the previous two weeks, while best quality King Edward averaged 111s. and British Queen were 81s. per ton compared with 130s. and 105s. respectively in the previous week. First early Potatoes at Wisbech were quoted at 40s. to 50s. per ton f.o.r. Little business is reported in Dutch Potatoes, which average 75s. per ton for 1st quality.

Show in Aid of a London Hospital.—The Southgate Allotments Federation is organising a fête in aid of the Royal Northern and Passmore Edwards Hospitals, which will be held in Broomfield Park, Palmers Green, on Saturday, the 16th inst. The horticultural section promises to be most successful, no fewer than five challenge cups being available for competition. The exhibition fee is one shilling, which includes admission to the fête and entrance fee to any number of classes up to two. Particulars and entry forms are obtainable from the Hon. Secretary to the Horticultural Committee, Mr. J. T. Chivers, 81, Selborne Road, N.14.

Royal English Arboricultural Society.—This Society will make Monmouth its headquarters on the occasion of its summer meeting, and visits will be made to the Forest of Dean, High Meadow Woods, Tintern Woods and Abbey, and Eastnor Castle and Huntley Manor Estates. Members will reach Monmouth on the evening of Monday, September 4, and an instructive and enjoyable four days are anticipated, the meeting terminating on the Friday evening. The programme is likely to prove exceptionally attractive to all interested in sylviculture. The Crown officers are placing their services at the disposal of the members, and there will be ample opportunities for discussion on all points of interest that arise. The annual dinner will be held on September 7, at the Beaufort Arms Hotel, Monmouth, when it is hoped the Earl of Selborne (President of the Society) will be in the chair, and that the Earl of Plymouth (Vice-President) will also be present. Representatives of the Forestry Commission are expected to be present.

Mr. Harry Curtis, Superintendent of the Public Parks and Gardens of Northampton, commenced his professional career at the early age of twelve years in the gardens of Malvern House, Shirley, Hampshire, where he remained for three years. He gained further experience in Hollybrook gardens, where he remained for five years, rising to the position of first journeyman. He subsequently became foreman in the gardens at Terrace House Gardens, Southampton. From this place, at the age of twenty-three, he was appointed gardener to the late W. F. G. Spranger, Esq., of Spring Hill Court, Southampton. This was a new residence, and Mr. Curtis was responsible for the laying out of the gardens and pleasure grounds. He remained at Spring Hill Court for more than eight years, and during that time he won many prizes at exhibitions and gained twenty-six First-Class Certificates. During his time at Southampton he interested himself in the gardening activities of the neighbourhood and held the office of secretary to the Shirley and District Gardeners' Mutual Improvement Association; his services were also in request as a judge at local flower shows, and he gave lectures at various gardeners' societies in South Hants. In May, 1900, he was appointed Superintendent of the Parks and Gar-



MR. H. CURTIS, SUPERINTENDENT OF THE NORTHAMPTON PUBLIC PARKS AND GARDENS.

dens at Widnes, Lancashire. Here he accomplished much good work, and although the district had long borne an unenviable reputation owing to the almost entire absence of vegetation, the principal industry of the borough being the manufacture of chemicals, acids and similar products, he made the Victoria Park a place of great beauty and won prizes for some of the flowers grown there. In 1913 he was appointed general superintendent of the Parks, Gardens and Allotments to the Corporation of Northampton, his duties being very varied and including, beside the upkeep of the parks and recreation grounds, the supervision of the open-air bathing places, the municipal cemetery and the public allotments. In recent years he has had the supervision of a very large number of unemployed men who have been engaged in relaying the various recreation grounds after their occupation by the military. He is a lecturer of no mean ability, and for four years during the war he gave lectures and demonstrations in gardening to over sixty school teachers, as well as to allotment holders. He is one of the hon. secretaries of the Northampton Municipal Horticultural Society, and in various other directions he lends his interest and extensive knowledge to the furtherance of gardening in the Northampton district.

Railwaymen's Flower Show.—Flowers and vegetables grown in railwayside gardens on the London and North-Western Railway Company's system were exhibited at Crewe on Saturday, the 19th ult. There were over sixteen hundred entries from Lancashire, Cheshire, Staffordshire and Shropshire. The amalgamation of the Lancashire and Yorkshire Railway with the London and North-Western Railway brought that section of the line into competition for the first time this year, and growers from the smaller company carried off practically all the challenge cups and the challenge shield. The latter, together with a silver medal, was awarded to Mr. G. Bossons, of Ormskirk, as the most successful exhibitor of flowers and fruit. The challenge bowl in the classes for Carnations, Picotees and Sweet Peas was won by Mr. J. Mawdsley, of Formby. Mr. W. Allison, of Newton-le-Willows, secured the cup for Roses. Mr. R. Baldwin, of Aughton, won the Manchester challenge cup for vegetables, and Mr. H. Fletcher, Warrington, was awarded the cup for line-side allotments. In the district competition for a collection of vegetables the challenge cup went to Mr. Hope, of Crewe.

Gifts of Vegetables from London Allotments.—The allotment holders of greater London, of which there are estimated to be fifty thousand, are shortly to be invited to make an organised contribution in response to an appeal on behalf of the voluntary hospitals. It is proposed that each allotment holder in the area should give not less than one root of Potatoes, and as doubtless many will be anxious to make a large contribution of other vegetables, as well as Potatoes, it is expected that much useful produce will be forthcoming. All the produce exhibited at the Metropolitan Vegetable and Flower Show, which will be held to-day (Saturday) at the Guildhall, will be given to the poor of London.

Legacies to Gardeners.—The late Mrs. A. Price-Read, of Stamford Hill, who died on March 9, left a legacy of £150 to her gardener, Alderman William Bolton, of Mill Bank, Warrington, whose death was recorded in *Gard. Chron.*, November 26, 1921, left the sum of £200 to his gardener and Orchid manager, Mr. W. Cairn.

Bermondsey Council Flower Show.—A three days' exhibition under the auspices of the Bermondsey Council will be held on the 14th, 15th, and 16th inst., in the local Town Hall, Spa Road. It is a purely industrial district, and the Superintendent of the Bermondsey Gardens and Open Spaces, Mr. W. H. Aggett, appeals to owners of gardens to contribute material for the show. His address is Metropolitan Borough of Bermondsey, Thurland Road, St. James's Churchyard, Bermondsey, S.E.16. The primary object of the exhibition is to encourage and stimulate the love of flowers and of the beautiful in nature amongst Bermondsey people.

Horticultural Exhibition in Berlin.—The Horticultural Exhibition which is intended to mark the centenary of the founding of the German Horticultural Society (Deutscher Gartenbau Gesellschaft) is being opened this week (August 30) and will last until September 13. The circumstances of the country at the present time are not very auspicious and, naturally, with the serious decline in the standard of life in Germany, the horticultural trade has suffered severely. A great effort is being made, however, to ensure the success of the exhibition, for which the chief firms have been preparing for months—in some cases for years—beforehand. The exhibition is being held in the Schlosspark, Bellevue, Berlin—a suitable place, as the grounds are very extensive, and the Castle itself can be utilised for some of the exhibits. This place, which is about two hundred years old, has had an interesting and varied history. It is first heard of in the early eighteenth century, when the ground was granted to some French religious refugees to make a Mulberry plantation. The enterprise was not a success, and the place came in 1746 into the hands of Knobelsdorff, a well-known landscape architect, who designed the park of Sanssouci and several royal domains.

Here he built a residence for himself, and laid out the grounds. After his death, the place again changed hands several times, and became in 1784 the residence of Prince Ferdinand of Prussia, the younger brother of Frederick the Great. His youngest son, to whom in due time it passed, made many improvements, and at a much later date it was a favourite spot of the Kaiserin Augusta. During the reign of the last Kaiser, Wilhelm II., it was chiefly used as a winter holiday residence for the younger princes. Since the war it has unhappily been a good deal neglected, but it is hoped that one result of the great exhibition may be the restoration of this park, now nearly two hundred years old, to something of its former glory.

Appointments for the Ensuing Week.—Tuesday, September 5.—Royal Caledonian Horticultural Society's meeting; Royal Horticultural Society's Committees meet; lecture by Mr. E. A. Bunyard on "Fruit Trees for a Small Garden"; Bournemouth Gardeners' Association's meeting. Wednesday, September 6.—National Dahlia Society's show at R.H.S. Hall; Royal Lancashire Agricultural Society's show (4 days) at Preston; Royal Agricultural Society's Council meeting; National Viola and Pansy Society's meeting and exhibition; Avonbridge Flower Show; Belfast Horticultural Society's show (2 days). Thursday, September 7.—Greenock flower show; Manchester and N. of England Orchid Soc. meet; Kilkenny Flower Show. Friday, September 8.—Faisley Florists' Society's meeting; Newarthill flower show. Saturday, September 9.—Ringwood Society's meeting; Glasgow and West of Scotland Horticultural Society's outing to the nurseries of Messrs. Dobbie and Co., Edinburgh; Barrhead and District flower show; Kilbarchan flower show; Lochgelly flower show; Selkirk flower show.

"The Gardeners' Chronicle" Seventy-five Years Ago.—*The Radish.*—The late Mr. Knight very justly remarked that in spring, about May, the old Turnips were gone, and the new ones not come, and he proposed forcing Turnips to supply this deficiency. Here the Radish steps in to supply, and from year's end to year's end the veriest clown of a gardener may have an excellent succession of Radishes. I have had some cooked in the plainest manner possible, with only a little salt in the water, and they are delicious to eat, and very beautiful to look at upon the dish. To say anything to gardeners on the culture of Radishes would be superfluous; but for the sake of cottagers let me add, that those I ate were as thick as my finger, and were only about thirty days old from the day of sowing. The Potato ground will yield millions of Radishes, both before the Potato tops cover the ground in spring and after the Potatoes are harvested in autumn. I have long tried to get cottagers into the way of growing salad, being convinced of the comfort and importance of it in every family, not to speak of its economy; and when I see poor people with large spaces of ground in their gardens lying idle in summer for two or three months, I cannot help thinking that their poverty is a good deal to be attributed to their own fault; if, "ignorance of the law excuses no man," surely the ignorance of culture is equally inexcusable in those who pay rent for the use of land for a certain number of growing days, and then give a number of the best of these days to the growth of weeds. If, therefore, thirty days of growing weather can be got, good cultivation will secure a crop of Radishes in that time; but as I do not like to leave things vaguely, I will just weigh the crop and measure the land, and thus count the cost of this crop and its capabilities. "It is but a small root," the lazy man will say. True, friend; but its top is small too, and it will stand the closer on the ground, and its time is but short in coming to perfection, as compared with other crops. Three crops of Radishes may be raised in the time necessary to grow one crop of Potatoes; perhaps six in the time of one crop of Corn. "Six crops for one year's rent!" Aye, friend, and here lies the rub; and every bit, both top and tail, of the Radish is good pig food when boiled, for both have been eaten raw by Christians. *Alc. Forsyth, Alton Towers, August 31. Gard. Chron., September 4, 1847.*

A ROCK-GARDEN COMPETITION BY POINTS.

By the courtesy of Mr. W. G. Brazier, Secretary of the Shropshire Horticultural Society, we publish in Fig. 53 an illustration of the beautiful cup presented by the President of the Society, the Right Hon. Lord Howard de Walden, for the best rock and water garden at the Society's exhibition on August 16 and 17 last. The cup was, as stated in our report of the show, won by Messrs. T. R. Hayes and Son, Keswick, Cumberland, Messrs. Gardner and Sons, Ilkley, Yorks, being placed second, and Messrs. Broadhead and Sons, Huddersfield, third. The competition was a novel one, in so much that the judging was done by points. The



FIG. 53.—CUP PRESENTED BY LORD HOWARD DE WALDEN FOR A ROCK-GARDEN AT THE RECENT SHREWSBURY SHOW.

judge was Mr. J. H. Wood, and he awarded the three firms mentioned 89, 65 and 62 points respectively out of a total possible number of 100. Points were awarded for the following qualities, the highest number of points obtainable being given in each case:—

The design, proportion and shape, 8; simplicity, direction, continuity of the main lines produced by the ridges of stone (the placing of rocks and plants to convey an illusion of distance is included in this, also the design connected with any display of water), 20 points; the setting of the stones (picturesque laying consistent with nature and general quiet effect), 14 points. The proportion of each colour used in planting the rockeries, 10 points; the colours chosen in planting and their relative placing in harmony with one another, 18 points; skill in regard to grass laying, careful planting, and hiding cement, back-ground, etc., 6 points; quality and rarity of plants, 24 points.

HARDY FLOWER BORDER

ERYNGIUM AGAVIFOLIUM.

It is always interesting to read Mr. S. Arnott's notes on hardy flowers in the columns of the *Gardeners' Chronicle*, and I lament over his failure with *Eryngium pandanifolium*. It is a veritable "king" in the garden as a foliage plant, or where sub-tropical-like plants are used to make noble effects. At Mr. Amos Perry's nursery, Enfield, this plant simply revels. It is fully exposed to wind and rain, yet it survives, and frequently attains to the height of 5 feet to 6 feet. Another *Eryngium* akin to the above is *E. agavifolium*, with broader leaves of a bright green, and spines more deeply toothed than those of *E. pandanifolium*. The inflorescence is a glaucous green suffused with rose, and frequently grows from 8 feet to 12 feet high. It is a noble plant for isolated positions and sub-tropical gardening, blooming from July to September. *W. Logan.*

ASTILBE DAVIDIANA.

THOUGH there are numbers of good border Astilbes, none better has come through my hands than the above, which came to me originally from France. At present plants in clumps are producing panicles of the distinctly coloured flowers up to 3 feet in length and the height of the plants to 6 feet, the general effect in the border being light and elegant. Like most members of the family, this species prefers a damp position, but by means of frequent division and a well-manured soil, nicely firmed in March or April, it gives a good account of itself, even in moderately light grounds. *R. P. B.*

EUCOMIS PUNCTATA.

This bulbous plant is worthy of a place in the hardy flower border and should be planted in a situation where it will receive plenty of sunshine. It grows about two feet high and flowers from July to September; the dense, cylindrical trusses of creamy-yellow, star-shaped flowers are sweetly scented. Both the flower stalk and the leaves are spotted with purple, the latter on the undersides. A tuft of red-edged bracts on the top of the inflorescence is also an additional attraction. September is a suitable month for transplanting this bulbous plant, which produces a number of offsets. The offsets should be removed and the larger bulbs planted six inches apart and four inches deep. The most suitable rooting medium is a light, sandy soil which is dry and warm in winter. In cold districts it is advisable to place a covering of cinders over the plants to protect them from severe frost. Well-grown specimens of *Eucomis punctata* will develop leaves three feet long. There is a pretty variety named *striata*, in which the purple blotches on the leaves and flower stems are more in the nature of stripes. Liquid manure applied to the roots when the cylindrical flower spikes are developing will greatly assist the plant. *T.*

THE ALPINE GARDEN.

THE DOUBLE CARDAMINE.

Most people who know the double form of *Cardamine pratensis*, with its delicate lilac flowers, will heartily endorse all that Mr. Arnott has to say of it (p. 91). It grows here profusely about the cooler parts of the rock-garden, appearing in all manner of unexpected places. For a long time we were at a loss to know how this plant that does not set seed reproduced itself so freely. It does not appear to be generally known that it manages to do this by layering its lower leaves. The latter, on coming in contact with moist soil, sends out a tiny root from its mid-rib. From this leaf a new plant springs up, and the process being repeated, *C. pratensis* fl. pl. will, under congenial conditions, soon overrun a considerable space. Leaves which get detached from the main plant and lodge in moist crevices (often drawn by worms) will also root, hence the appearance of new plants at some distance from the parent. *A. T. Johnson, Ro Wen, Talycain, N. Wales.*

The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Sobralias.—These are, as a rule, easily grown plants, but resent being disturbed at the roots; therefore special care should be exercised in repotting them. When the plants cease flowering, any that are declining in vigour, or that from any other cause are in need of fresh material at the roots, may have attention. A mixture of good fibrous loam and peat, with a sprinkling of broken crocks to keep the whole porous, forms a suitable compost. These Orchids should be potted moderately firmly and water should be applied sparingly to the soil until the new roots are active, as the succulent roots of this species soon decay in a saturated compost. Spraying or syringing once or twice daily in fine weather will assist the plants in recovering, and also be the means of preventing attacks of thrip and red spider, which will attack the leaves if the atmosphere is at all dry. When disturbing any plants by repotting, it is always advisable to take steps to counteract any check they may receive, by making the conditions around them conducive to growth, so that they may re-establish themselves as quickly as possible. Sobralias thrive best in the Cattleya house, and when their growth is completed enjoy a fairly dry resting season; but having no pseudo-bulbs, this must not be carried to extremes. Plants that have lost their centres are best divided, placing the portions in the smallest pots that will accommodate them.

Epiphrontis Veitchii.—This pretty bi-generic hybrid between *Sophrontis grandiflora* and *Epidendrum radicans*, is best described as a dwarf form of the latter, and owing to its bright colour is most attractive when in bloom. At the present time these plants are producing a number of aerial shoots from the flowering growths. Such growths should be taken from the parent plant and potted several together, when they will form neat little specimens. This Orchid, like *Sophrontis*, is one that many fail to grow satisfactorily, owing, in many cases, to being grown in too much heat. It is best to thoroughly overhaul the plants each year; as they have now passed the flowering stage, and the stems are about to develop fresh roots, repotting may be done. This Orchid is best grown in a shallow pan and delights in a fairly moist position near the roof-glass, with an even temperature the whole year round. The compost should consist of fibrous peat, Sphagnum moss and A.I. fibre in equal parts, to which some partly decayed leaves may be added. This plant should never be allowed to suffer for want of water at the roots, as having no pseudo-bulbs it soon feels the effect of drought, hence the necessity of watering it carefully, especially when at rest during the winter.

HARDY FRUIT GARDEN.

By H. MABHAM, Gardener to the EARL OF STRAFFORD, Wrotham Park, Barnet.

Fruit Trees.—Where the planting of fruit trees is to be extensively carried out during the coming autumn the sites should be selected and preparations for planting commenced as early as possible, so that all may be in readiness for the reception of the trees as soon as they arrive from the nursery. In forming new plantations, the nature of the soil is one of the most important considerations, and the land chosen should be sheltered somewhat from the north and east winds. The soil should be of good quality and well drained—artificially, if the natural drainage is not good. The soil should also be well broken up to a depth of two or more feet, and especially is this desirable in mixed plantations. If standards are to be planted at 30 feet apart, the stations should

be prepared thoroughly, so that the roots may have ample room in which to ramify. Good varieties should only be planted for the different purposes, and when purchasing the trees secure healthy specimens that are likely to grow away quickly and form good fruitful heads. Although the best time for planting is not until the end of October, the trees should be selected and the orders dispatched as early as possible.

Fruit Room.—As the time is approaching for storing Pears and Apples, the fruit room should be thoroughly cleansed and put in order for their reception. Nothing spoils the flavour of fruits more than storing them in an ill-ventilated room with a musty atmosphere. The ceilings should be whitewashed, the walls, shelves and floors scrubbed, and the ventilators kept wide open for the present.

Wasps.—Up to the present there have been only a very few wasps this year; only one nest has been destroyed in these gardens; in fact, I have never seen fewer wasps at the present time. Where these pests are numerous a good plan to check their number is to smash up a little fruit, place small quantities of the pulp in flower saucers, and put a little Scot's wasp destroyer on the fruit. Place the saucers on the wall tops over-night. As a rule the wasps will eat the poisoned fruit early in the morning and many will be killed.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir C. NALL-CAIN, Bart., The Node, Oodicote, Welwyn, Hertfordshire.

Schizanthus.—This delightful annual is one of the finest that can be grown in pots, and will be found to give the best results from seeds sown during the present month to produce strong flowering specimens next spring. The seed may be sown in pots or pans filled with light, open soil, and care should be taken to sow thinly in order to obtain strong seedlings. After sowing, arrange the seed pans in a cold frame, and shade the soil from bright sunshine. The seeds will germinate in a few days, and, as soon as the seedlings appear through the soil, the receptacle should be placed near to the roof glass to prevent the plants becoming drawn. Prick off the seedlings into boxes as soon as they can be handled safely, and later pot them singly in small pots. When they have attained several inches in height, the centres should be taken out of each plant. Cool treatment should be given at all stages of growth.

Grassula coccinea.—These succulent plants having passed out of flower, the present is a suitable time for propagating them. In selecting the cutting, choose young, unflowered growths, and insert three or four around the edge of a 4½ inch pot, in which they may be allowed to flower. The receptacles should be filled with light, sandy soil. Arrange the pots on a shelf in a cool greenhouse and shade them from bright sunshine. Care must be taken not to keep the young plants excessively wet in the early stages of growth. The old plants will make a fine display if grown on for another season, but to induce them to break freely they should be cut fairly hard back and watered carefully during the winter.

Bulbs for Forcing.—All bulbs intended for forcing should be potted at the earliest possible date. For pot culture, the miniature Dutch Hyacinth is to be specially recommended for early spring flowering. Four bulbs of this Hyacinth may be placed in a 5 inch pot. While most Narcissi may be grown in 7 inch receptacles, much depends on the variety and size of bulb. Tulips may be grown somewhat similarly, but, where flowers are required in quantity, boxes will be found the most convenient receptacles, for the plants may be lifted from the boxes when in flower and placed in bowls. Darwin Tulips are becoming very popular for growing in bowls for decorating in spring, and, given good cool treatment, they will form a good succession to the early Tulips. The potted bulbs should be stood out-of-doors and covered with leaf-mould or coal ashes

THE KITCHEN GARDEN.

By JAMES E. HATHAWAY, Gardener to JOHN BRENNAND, Esq., Baldersby Park, Thirsk, Yorkshire.

Cauliflowers.—A sowing of Cauliflower should be made now, as plants raised in the autumn make better heads than those raised in the spring. Choose a border facing south, and prepare the soil finely. Sow in drills made 8 inches apart, and as soon as the seedlings are large enough prick them off in a cold frame, not less than 4 inches apart. Keep the seedlings shaded for a day or two after they are transplanted, until they are established, when plenty of air should be admitted. Walcheren, Magnum Bonum, and Veitch's Autumn Giant are suitable sorts for present sowing. A number of plants of the last variety will go blind, but those that do succeed will be valuable at a time when Cauliflowers are scarce. Another sowing should be made a fortnight later.

Celery.—The main crop of Celery should be earthed up. Remove all side growths and decaying leaves, and see that the soil at the roots is thoroughly moist. Choose a fine day for the operation, as the foliage should be perfectly dry. The soil should be broken between the rows finely before starting the work. Care should be taken to keep the leaves together to prevent soil getting into the hearts of the plants. Make the soil firm around each plant, and do not place it higher than the hearts; repeat the operation every fortnight.

Tomatos.—Plants out-of-doors should be stopped at the main shoot to allow the clusters of fruit to ripen. Keep all side growths pinched out, and, if the foliage is very thick, it should be thinned to allow the light to reach the fruits.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

Pot Vines.—If these Vines are intended for starting in November, they should, by now, be nearly ripe and resting. They do not require much water after the foliage is ripe, but the soil should not be allowed to shrink from the sides of the pot, as sometimes happens if the weather is hot or windy. As the canes cannot be too well hardened and ripened, the grower should see that they are well matured before the leaves fall. Once the vines are defoliated they should be kept absolutely at rest by keeping them dry and cool. The present affords a good opportunity to place the vines for a short period in the open air; stand them under a wall facing west, always provided the pots are well packed, and the canes secured to the wall. All the laterals having been removed, close to the fruiting buds, the shortening of the rods to a suitable length may be delayed for the present. Years ago cultivators of pot vines invariably gave preference to plants they raised themselves, but many traders now make a speciality of raising pot vines, and superb specimens may be bought cheaper than they can be grown at home.

Young Vines.—Young canes raised from eyes of the current year will soon be ripe and fit for removal, either to a light, airy house or in the open against brick walls, where they will do equally well. The roots should not be allowed to suffer from want of water, hence the importance of plunging or covering the relatively small pots, in which they are growing, with some light material. The young canes should be securely fastened to the wall, not only to prevent injury by wind, but also to give the buds the fullest benefit of absorbed and reflected sun heat.

Melons.—Late Melon plants should be hastened forward with all speed by closing the house or pit about 2 p.m. or 3 p.m. with sun heat and more or less atmospheric moisture, according to the weather and the state of the fruit. If the latter are still swelling, the surface of the bed and floors of the house may be well syringed with tepid water, but on no account

should the foliage or stems be wetted. This early closing of the house will greatly economise fire-heat, but the time has now arrived for utilising the hot water system, first to maintain the requisite degrees of heat with night air, and, second, to prevent an accumulation of stagnant moisture in the lower part of the house. Watering will require careful attention, and here the advantage of having late plants in pots will be apparent, as all the feeding roots are close to the sides of the receptacles. A little tepid liquid manure may be given the plants until the fruits have attained their full size and are netting freely, but it is better to underfeed than to try and force the fruits beyond the normal size, especially at this late period. Plants on which the fruits are fully developed should not be allowed to flag, but the supply of water must be limited. The provision of bottom heat is another important matter that must not be overlooked, as there is no period when a brisk bottom heat is of more advantage than at the time when the fruits are finishing.

THE FLOWER GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

Seed Saving and Sowing.—The careful gardener will watch for the ripening of seed on such plants as he desires to increase his stocks. Where not required, seed pods should be cut off so as to prevent the plants throwing their efforts into perfecting seed at the expense of flowering. Such plants as Poppies and Fritillarias are very quick in bursting their seed-pods and scattering the seeds. Seed of the smaller seedling subjects is best sown when it is ripe, as in storing it much of its vitality is lost. Antirrhinums may be sown freely at the present time in places where a good show is required during the summer. Sow lightly, press the seed gently into the soil, not covering it, and germinate it in gentle warmth, covering the seed pans with sheets of brown paper until such time as the seedlings appear. Thereafter remove the paper, and prick out the seedlings as soon as they are large enough to handle.

Grouping of Plants.—Generally, where there is a large collection of hard-wooded subjects, the different members of a group are scattered through the various shrubberies, and, when comparison is desirable, it necessitates the taking of specimens over a considerable area. At Aldenham we have adopted a different principle with some of the larger and more important plant families. The Taxads, for instance, have been grouped together at one prominent position on the lawns, and here, within view of each other, are gathered together over fifty species, varieties, and forms of the Yew. They present a most interesting group, and the variation they exhibit renders the spot a very attractive part of the garden. Oaks, of which there are something like 180 different sorts, are grouped in another part of the grounds, forming, with a collection of American Thorns planted alternately with the Oaks, an avenue along the principal walks of one part of the woodland. Species of Rosa have been planted as specimens in the wilderness, and present a pretty contrast to one another. Bamboos, of which there are over fifty sorts, have been grouped in the Bamboo garden, and in another part of the garden numbers of rare forms of Elms have been planted in a row. Another group has been formed of Crab Apples, and species of Pyrus allied to them, and the contrast in this case is one of the most interesting of all. Alders may be grouped along the ornamental banks of ponds, streams, and lakes. Planting the members of a particular family together in this manner makes a beautiful, interesting, and decidedly instructive feature of garden ornamentation, any tendency to crudeness being corrected by the judicious employment of a few other good trees and shrubs to form a setting to the whole. This "herbarium" plan of planting families of plants will greatly repay those who are interested in trees and shrubs

THE HISTORY OF THE MOSS ROSE.

(Concluded from page 124.)

THE Dutch may have procured their first specimen of the Moss Rose, whether it were the one grown at Leyden in 1720 or elsewhere, from some remote region in France, but the probability after perusing all the available old French floricultural literature is against it, and I am therefore justified in asking Major Hurst for some more convincing evidence than he has already brought forward to prove his case.

It is curious at this point to observe that Jules Gravereaux, the great French rosarian, in his *Guide* to his exhibits at the Retrospective Rose Show in Paris in 1910 repeats, without quoting an authority, that the Moss Rose was grown at Carcassonne towards the close of the 17th century, on the authority of Fréard du Castel, a gentleman of that city, who settled down in Normandy in 1746, and introduced it there. Where, we may well inquire, did Fréard du Castel make this statement, for it was unquestionably not in *L'Ecole du Jardinier Fleuriste*?

dimier, for 1784, as containing a reference, but the first I can trace is in Vol. 3 of the *Traité des Jardins*, Caen, 1785, by Le Berryais. De Grace, the author of *Le Jardinier Universel*, 1788, includes it, as also does Filassier in *Dictionnaire du Jardinier François* (2 Vols.), 1791.

As further evidence of contradictory statements, Graveriaux, in opposition to what he says in his *Guide*, 1910, already quoted, mentions in *La Malmaison* (1912) that the flower was introduced, so it is said, from England, in 1777 by Mme. de Genlis, and this sort of unauthentic and unreliable matter can be quoted *ad lib.* and none of it is worthy a moment's consideration until passed through the sieve of critical examination and proved to be of historic exactitude and value. Much of the literary material that has passed through my hands in the course of this investigation may truly be said to have been "weighed in the balance and found wanting."

In conclusion I correct a few typographical errors that have been made in previous instalments of this article, which evidently escaped my attention when the proofs were read.



FIG. 54.—FRUITING SHOOT OF ROSA SWEGINZOWII: R.H.S. AWARD OF MERIT, AUGUST 22.

There is little more comment to make beyond this, that the Rose was but little regarded in France until the dawn of the 19th century; French floricultural literature prior to that date is, as is almost the case with English floricultural literature, very little occupied with the particular kind of Rose under consideration.

I have rapidly reviewed all the old French florists' books at hand. The earliest are mainly on bulbous flowers and other old-time florists' flowers, such as the Auricula, Carnation, etc. Even where Roses are mentioned, I can find nothing about the Moss Rose in the *Nouveau Traité pour la culture des fleurs*, 1674, and subsequent editions; *La Culture des Fleurs*, 1692; *Le Nouveau Fleuriste*, 1699; *Liger*, 1706, nor in the three English translations of Liger, nor in so late an edition of Liger as 1776. As already stated, it is not in *L'Ecole du Jardinier Fleuriste*, 1764; nor Buchoz's *Dictionnaire Universel de Plantes*, 1770; which is a most remarkable omission if the Moss Rose were then known in France. *Le Jardinier Portatif*, 1769, and again in 1774, has no reference to it. Supposing its culture were known in Normandy at the period claimed for it, the Moss Rose could hardly have been widely known there, for in a book published in Caen, 1793, entitled *Abrégé du Traité des Jardins ou petit de la Quintinye* (2 vols.), quite a number of Roses are mentioned to the exclusion of the Moss Rose. Major Hurst gives *Le bon Jar-*

Thus on p. 69, the Moss "Provence" Rose should be spelt "Province" in the case of Furber's Catalogue (1724), that being the way in which it is given by him. Miller also, in the *Gardeners' Dictionary* (1731) adopts the same spelling. This is perhaps a matter of no great importance, because for many years writers of that period used the two forms indiscriminately. Probably "Province" was regarded as the better translation of the Latin "provincialis." On p. 84, in the 2nd col., the name "Cassteel" should be "Cassteels." In the 3rd col., last paragraph but one "Rosa muscosa" should, of course, be "Rosa muscosa." C. Harman Payne.

ROSA SWEGINZOWII.

AMONGST the exhibits at the Royal Horticultural Society's meeting on the 22nd ult. were two interesting Roses in fruit from the Society's gardens at Wisley. One, named R. Sweginzowii (see Fig. 54), received an Award of Merit. This is one of the several new species introduced during the past few years from China, and it will be valued as much for its decorative fruits as for its pretty flowers and foliage. Most of these new Chinese Roses have very ornamental fruits, which are especially attractive in the shrubbery and wild garden in late summer and autumn.

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GARDENERS' CALENDARS.

No. 2. ABERCROMBIE.

CONSIDERABLE personal interest attaches itself to John Abercrombie, with the mention of whose books, *Every Man his own Gardener* and *The Gardeners' Pocket Journal*, I ended my first article.* He was a diffident man and distrusting his own powers arranged with the gardener of the Duke of Leeds, Thomas Mawe, to have his name, as if he were its author, put on the title page of the first edition of *Every Man his own Gardener*. All the same, the voice was the voice of Abercrombie. He really wrote every line, but wishing to give the work as good a start in life as possible, he paid £20 to have the name of the then much better known man appended to it. According to many modern students of the Old Testament, in doing this he would only be following an old custom of the ancient Jews, for whoever wrote or compiled the book of Proverbs appended to it the name of the famous and popular King Solomon, to ensure it having a favourable reception.

When we are told that Abercrombie had a family of two sons and sixteen daughters, his anxiety is explained. The first edition of *Every Man his own Gardener* appeared in 1767 in 12mo size, with the one name of Thomas Mawe on the title page as if he were sole author. When the name of Abercrombie was added to that of Mawe I am unable to say. It may have been in the second or third, or in a still later edition, but the work before very long became known as Mawe and Abercrombie's *Every Man his own Gardener*.

The twentieth edition was prepared for the press by Abercrombie himself. He says in the preface: "One great advantage which this book has over other books of the same kind is this: that whereas other gardeners' calendars, in a cursory manner, only set down what business is necessary to be done every month in the year, without giving sufficient instructions concerning the practical manner of performing it, here the method of proceeding is minutely explained." The author was continually improving its contents with every succeeding edition from his own personal experience and bringing the plants mentioned in it up to date. To these two factors its long period of ascendancy over all other books for use in English gardens must be ascribed. It was once Evelyn, then possibly for a short period Richard

Bradley, then Miller and, after Miller, Abercrombie for nearly as long a period of years as the other three of them together.

I possess an edition—the twenty-sixth of the date 1857, on the title page of which we get an abridged history of its life. After Abercrombie's death in 1806, as the result of a fall as he was going home from some place of public entertainment near his residence in Somers-town, it was first of all taken in hand by James Main, A.L.S., who improved it and brought it down to 1839. In a preface to this edition, the twenty-fourth, he eulogises this work of Abercrombie saying "of the thousand and one books which have been published on the same subject no one has kept so strong a hold of public estimation as this has done." Since the first edition in 1767 the method of heating hot-houses had been much improved; the number of fruits and vegetables found suitable for forcing had been greatly increased; the culture of fruit trees in pots is especially noted as having become fashionable, and Lane, of Berkhamstead, and Rivers, of Sawbridgeworth, are mentioned as two nurserymen who always kept a number ready; many new flowers and plants had been brought from foreign parts; and so on. Main had no difficulty in making out an overwhelming case for his twenty-fourth edition.

After Main it was again brought up to date, but this time by a much more famous man—George Glenny. The extraordinary influence which he exercised on the development of all the more popular garden flowers almost passes belief. It did not much matter what it was, he was quite ready to lay down a standard of perfection for it. Rose or Lily, Tulip or Mimulus, Fuchsia or Petunia, Phlox or Potentilla were all alike fish in his net. His little booklet, *The Properties of Flowers and Plants*, I regard as, in a way, a great literary curiosity, a copy of which should be in every gardener's library. That Glenny should take up the work of Main I regard as an additional testimony to the worth of this calendar. The twenty-sixth edition is, on the title page, said to be brought down to 1857 "with notes and additions, and the catalogue of plants and fruits corrected by George Glenny, F.H.S." In the preface "he hopes he has preserved all the useful lessons of his great predecessor."

Abercrombie, under his own name, issued similar works at later dates; viz., *The Universal Gardeners' Calendar*, 1789, and *The Gardeners' Pocket Journal*, 1791. This last little book had an enormous sale. It is said two thousand copies were sold annually and a new revised edition appeared every year for a long time. I happen to have the twelfth edition. It is dated 1811. The fourteenth is dated 1815. Johnson, in his *History of English Gardening* (1827), says: "I know not how many have appeared since (i.e. 1815) but there is usually a fresh one every year." From all this and from other facts which may be gleaned from other sources, we may safely place John Abercrombie among the greatest gardeners of a past age. Before, however, we pass on may I point out a probable error in Mrs. Evelyn Cecil's bibliography in her *History of Gardening in England*. Under the date 1817 one James Mean is said to be the man who enlarged and brought Abercrombie's *Practical Gardener* and *Gardeners' Companion* up to date. I may be wrong, for I have no large library to go to to verify facts from the books themselves, but one James Main, A.L.S., did enlarge and bring up to date Abercrombie's *Every Man his own Gardener*, as the title page of my edition proves. Was this, I wonder, the James Main mentioned by Mrs. Cecil under the date 1833? She is wrong in spelling the name Maine; also may I say from the evidence of books in my possession 1835 is the date of the second edition of his *Villa and Cottage Florists' Directory*, the date of the first being 1830; and that in both editions he is described as James Main, A.L.S. Did both a Mean and a Main enlarge Abercrombie?

The nineteenth century does not seem to have been quite such a good time for the production of Kalendars as was the eighteenth, nevertheless no less a man than Sir Joseph

Paxton—the first of our garden knights—put pen to paper and wrote one. This first appeared in the columns of the *Gardeners' Chronicle* for February 5, 1842, under the title of "The Cottagers' Calendar of Garden Operations," and filled 16½ columns. When the first edition in book form appeared I am unable to say. The earliest in the R.H.S. Library is dated 1904, but I have one sent me by the *Gardeners' Chronicle* dated 1895 and called a "new edition." The question is: How many older ones were there? This 1895 edition has several points of interest in the subjects which are added to the calendar proper. First, in the pages devoted to Vegetable and Fruit Cookery one is carried back to a much earlier work, *Adam's Luxury and Eve's Cookery*, which was published anonymously in 1744, but which breathes exactly the same spirit as Paxton's, inasmuch as it was "designed for the use of all who would live cheap. . . particularly for Farmers and Tradesmen in the Country, who have but small Pieces of Garden Ground and are willing to make the most of it." There is a concise list and description of the usual vegetables; then a Kitchen Gardeners' Calendar; and lastly a "Collection of Receipts for dressing all Sort of Kitchen-Stuff." These naturally arouse considerable curiosity as showing the differences between our present ways and customs and those of the past.

Secondly, in the lists of best varieties of fruit and flowers we are taken back to Evelyn, for this has been an adjunct of many of the best calendars and a most useful one, both for the present practitioner and the future historian. Thirdly, the page of prices of garden tools reminds one of *The Floral Calendar* of James Mangles, R.N., who sent Swan River flowers to Lindley. The calendar part of this extremely interesting little book occupies only 27 pages of the 156 of which it is composed. It is the contents of the 130 that give it distinction. They are nothing more or less than a miscellaneous collection of all manner of odd items of information, and very often prices are given, as on page 51, of Geraniums, and, on page 137, of seeds. On page 111 the contents of a pre-Biton Rectory garden are given in the list of rare trees, shrubs and plants then to be found in the Rectory garden at Hendon.

Space does not permit much to be said of the contents of the 1920 edition except that it has been brought as far as possible up to date, and contains a vast amount of information on all manner of subjects on which the beginner and even the more experienced gardener from time to time require help. *Joseph Jacob.*

NERINE FOTHERGILLII MAJOR.

(SEE COLOURED PLATE.)

NERINE Fothergillii major is, without doubt, the finest of the old Nerines, before Max Leichtlin took them in hand, this hybridist's work being successfully carried on by Mr. H. J. Elwes, F.R.S., who made such a stir in 1897 with the fine and very varied forms he brought to the Floral Committee of the R.H.S., when no fewer than eight obtained Awards of Merit.

The culture of Nerines is by no means a difficult matter, if a few simple rules are carried out. The plants require a long, dry rest after their growth is completed, and the leaves have turned yellow and fallen off; indeed, the main success with these plants lies in resting the bulbs thoroughly and warmly after growth is completed. I place them in a frame, keeping the lights on, and, by the advice of one who has tested it, laying the pots on their sides with the small end towards the sun. Thus the heat reaches the bulbs and roots more directly. The result is a larger crop of bloom; twice as much as where the pots are stood upright. When in full growth after flowering, the plants may be given soot water or Clay's fertiliser occasionally, for, as Nerines are better left undisturbed for some three years, unless there are offsets to remove, growing so long in the same soil, they need some stimulant. A mixture of good loam,

* *Gard. Chron.*, July 8, 1922, p. 20.

a little sand and leaf-mould, or some well-rotted manure provide a good compost for potting. Good cultivation is the key to good blooming, but it must be remembered that some of the hybrids flower more freely than others. N. Fothergillii major with me is the earliest to flower, and I count on its blooming in the last week of August. Last year, possibly on account of the long drought, I did not have the first blooms until September 15. Firm potting is essential, and the use of a blunt stick will be found very convenient for the purpose. The blooming season continues to the end of the year, many late-blooming varieties having been derived from N. Mansellii.

I have grown Nerines for quite forty years and always recommend people to take up their cultivation, for there is no other bulbous plant which can brighten up the conservatory or greenhouse as the Nerine does in autumn and early winter. I would advise anyone who intends growing these fascinating plants to attend, if possible, the autumn shows of the Royal Horticultural Society, where large groups in flower are shown by Messrs. Barr and Sons, Mr. Chapman, and Mr. Reuthe, and thus they can select those which appeal to their fancy. The most free-blooming variety I know is N. cornusca pallida, a Continental variety which never fails to give plenty of flowers; another, Lady Howard de Walden, is very free blooming; it is a rich purple-crimson colour, one of Mr. Elwes's raising. I could enumerate a large number of beautiful sorts, but as many are not in commerce, it would serve no useful purpose to give their names. J. T. Bennett-Poe, V.M.H.

GARDEN NOTES FROM S.W. SCOTLAND.

It does not seem to be generally known, even by those who grow New Zealand Flax (*Phormium tenax*), that it supplies the best and strongest material both for tying up growing plants and for binding parcels for dispatch. The leaves are best used green, but even when quite dry strips of the required thickness may easily be pulled off in lengths of four or five feet. It is preferable to bast, not only because of its far superior strength, but because its colour renders it practically invisible when it is used for tying up living plants.

The most graceful flower in our August borders is the South African Dierama (*Sparaxis*) pulcherrima. From a clump of long, reedy leaves rise slender, arching wands bearing a succession of bells of every tint from blood red to white, the choicest being soft rose-colour, waving and dancing in the lightest breeze. This plant is perfectly hardy near the sea; we have had plenty of it here for more than forty years; but it will not bear transplanting except at a very early stage of growth. It ripens plenty of seed, which I found accidentally retains vitality for a long time.

Sir Frederick Moore having sent me, from Glasnevin, seed of a very highly-coloured variety, the packet got mislaid and lay forgotten for three years. It was then sown, without much expected as the result; but every seed germinated and some of the plants are now in flower. A rather moist soil, without lime, suits this plant best. I shall be happy to send seed to any reader who cares to send me a stamped, directed envelope.

Among the New Zealand Groundsels *Senecio Huntii* stands conspicuous with large panicles of clear, yellow flowers which contrast amiably with the silvery foliage. It comes into blossom in July, just as *S. Greyi* is passing away. As yet, our plants are not more than between four and five feet high; but whereas they have never flinched under nine degrees of frost and stand exposure to wind without injury, we are encouraged to expect them to attain the stature of 20 feet, as this species does in New Zealand.

Farrer's *Cyananthus* No. 1220 (I do not know whether it has yet received specific designation) is a notable improvement on the Himalayan *C. lobatus*. It creeps about with so much freedom, and carries its good blue bells so jauntily on three-inch stems, as to encourage hope that it may be less impatient of winter wet than the other species, which we have given up as hopeless. Farrer's plant is a fitting companion

in habit and colour to *Erythraea Massonii*, and seems to relish similar conditions of cool soil and moisture.

I am indebted to a correspondent from East Molesey for a reply to my inquiry about *Campanula amabilis* (page 110), which he tells me is now to be known as *C. phytidocalyx*. Unfortunately his letter has got mislaid and I have forgotten his address. I hope he will accept this acknowledgment of the information supplied, and also for the seeds of *Phyteuma comosum*. Herbert Maxwell, Monreith.

EUSTOMA RUSSELLIANUM.

This charming member of the Gentian family, which was formerly known as *Lisianthus Russellianus*, provides an excellent subject for pot

season, before they have made fine specimens; neither should the sowing be delayed for too long, otherwise the rosettes will not grow sufficiently strong to throw up good flowering shoots. The best time to sow is May or not later than June, and the plant should be treated as a biennial. As the seeds are minute they should be sown on the surface of the soil (which should be of a light texture) and covered with a little silver sand, placing a sheet of glass over the pot. Germinate them in a temperature of 50°, and when the seedlings are large enough pot them singly in small pots in a compost consisting of loam, peat and leaf-mould with a sprinkling of sharp sand. They will require very little shade when the roots are established. Grow them near the roof-glass in a house having a temperature of 50°, giving them air on all possible occasions. Great



FIG. 55.—POT SPECIMEN OF EUSTOMA RUSSELLIANUM.

culture and for the decoration of the conservatory. The large, handsome flowers are three and a half inches across, coloured mauve with a deep purple eye and borne in terminal panicles on plants about two feet high. The leaves, which, like the stems, are glabrous and glaucous, are connate, ovate, or ovate oblong, three to five nerved, very acute, gradually becoming smaller upwards and more acuminate, till they pass into subulate bracteals at the base of the panicles. The species is a native of Texas and Mexico; seed was first introduced into this country by Drummond from San Félix d'Austin in 1835, and the plant flowered for the first time in 1837, but for some reason it never appears to have become very common in gardens, probably due to the reputation it seems to have gained of being a difficult subject to cultivate, but with ordinary care and attention it is not difficult to obtain good results.

The seeds should not be sown too early or the young plants will attempt to flower the same

care in watering is needed in winter. In early spring the plants should be potted either singly, or two or three may be put in a six-inch or eight-inch pot, using similar compost as previously recommended. Cuttings which spring from the base of the old plants may be rooted in a little bottom heat, and when established may be given the same treatment as the seedlings.

At the Botanic Garden, Cambridge, it is a most attractive plant from June to the end of September, and for some weeks a batch of plants ranging from 18 inches to 28 inches in height has been a feature in the conservatory. The blooms remain fresh for a long time when cut, and a spray that has been in water three weeks is looking equally as fresh as when it was first cut. The colour of the type, as already stated, is mauve, but there are white as well as rose-coloured forms, but beautiful as these are, they are not so attractive as the type.

F. G. Preston, Cambridge Botanic Gardens.

CHINESE TREES AT ALDENHAM.

(Continued from p. 119.)

CEDRELA SINENSIS.—(See Fig. 56.) Twenty-five feet. This, which used to be called *Ailanthus flavescens*, closely resembles the "Tree of Heaven," and is a handsome species when clothed with its long, pinnate foliage. I do not know that it has flowered in this country, but the white blossoms are said to be fragrant, and produced in terminal panicles, one foot long. The tree grows rapidly, and at Aldenham may be seen some fine specimens twenty-five feet

it might have been taken for a tree form of *Forsythia* in full flower.

CYDONIA JAPONICA WILSONII.—Twelve feet. This plant is remarkable for the great size of the yellow, Lemon-like fruits, which are borne freely, and always attract attention. This variety is known in the United States as *Chaenomeles lagenaria Wilsonii*.

DAVIDIA INVOLUCRATA.—Mr. Wilson considers this the most beautiful tree he saw in China, and he has written some delightful articles about it. At Aldenham a fine specimen is now twelve feet tall, and, as it grows freely and the wood always becomes well ripened,

found in Japan (of which a specimen is also to be seen in the grounds of Aldenham) and the more common form, *P. trilobata*, which freely abounds in Syria. The height of the Aldenham plant is six feet, and it is quite hardy.

ELAAGNUS UMBELLATA.—Seventeen feet. This well-known shrub, or small tree, varies widely in time of flowering, and also in habit, and it is very interesting to see the tree-like appearance of an Aldenham specimen, which has now reached the height noted above. It is attractive in all shapes, but particularly, I think, in standard form.

EUCOMMIA ULMOIDES.—Fifteen feet. Considered by the Chinese of great value, from a medicinal point of view, this free-growing tree is of interest in English gardens on account of its being the only hardy tree known to contain rubber, or more properly gutta. It is perfectly hardy, and the foliage is ornamental, but the hope that it might prove of commercial value has already, as Mr. Gibbs informs me, had to be abandoned. This is a dioecious species, and Mr. Wilson, when recently at Aldenham, said that, though he had seen several specimens of the male plant in this country, he had not seen one female, and watch is being kept at Aldenham for such.

EUPTELEA POLYANDRA.—Ten feet. This is a very uncommon tree, of value for its ornamental foliage, which colours well in autumn. Its near ally, *E. Franchetti*, is also to be seen at Aldenham, but, owing to frequent injury by spring frosts, this latter species has never developed satisfactorily there.

EVODIA HUPEHENSIS. Twenty feet. This is a rapid grower, having been introduced by Wilson in 1908, and gives promise of developing into a very handsome tree. The foliage, divided into leaflets, is strongly scented, as are other members of the Order Rutaceae. The members of this genus will not bear removal unless transplanted when quite small.

A. E. Thatcher.

(To be continued.)

NOTICES OF BOOKS.

The Progress of Afforestation.

THE second Annual Report* of the Forestry Commissioners covers the period ending September 30, 1921, and is a record of continuous progress in the acquisition of afforestable land and in actual planting operations. The Commissioners at the date just mentioned were in possession of 103,572 acres, but of this only 68,489 acres were classed as "plantable land," the remainder being either too poor to plant or required for other purposes. The land is acquired in two ways. Of the plantable land, 46,837 acres were obtained on lease at a rent of about 2s. per acre, and 21,652 acres were purchased at an average price of £1 8s. per acre. If the whole cost be charged against the plantable land, and the poor land be reckoned as valueless, the rent would be 3s. per acre, and the price £2 17s. per acre. Either set of figures shows that suitable land can be readily obtained at a very moderate cost, and in large quantity. The afforestation of cheap land is an accession to the real wealth of the nation, as the timber produced is much more valuable than the poor grass, Rushes, Ferns, Heather, and Furze which now cover the ground.

In the actual work of afforestation a good start was made, 6,377 acres having been planted in 1920-1921, and 1,417 acres in the preceding season. The species used have been mainly Conifers, only 393 acres being planted in the two years with broad-leaved trees. Progress in planting depends largely on having ready an adequate supply of young trees. The Commissioners have imported enormous quantities of tree-seeds, and have created extensive nurseries, which at the end of September, 1921, covered an area of 607 acres and carried a stock of 111 million seedlings and 33 million transplants.

The establishment of State forests and nur-

* Second Annual Report of the Forestry Commissioners. Year ending Sept. 30, 1921. H.M. Stationery Office, 1922. Price 1s. net.



FIG. 56.—CEDRELA SINENSIS IN ALDENHAM HOUSE GARDENS.

high. Wilson was not the first discoverer of this tree, but re-introduced it to England, whither it was first brought some sixty years ago.

CORYLUS CHINENSIS.—The Chinese representative of the Turkish *C. colurna*, which, in a wild state, makes a fine tree. It grows quickly, the Aldenham specimen being fifteen feet tall, and has handsome foliage, six inches or more in height.

CRATAEGUS MAXIMOWICZII.—This Hawthorn is now eight feet high, whilst *C. Wilsonii* is six feet high, and both are ornamental and interesting Thorns. The former has the special merit of coming earlier into leaf than any other of the countless members of this genus which are to be seen at Aldenham, while, at the same time, this early growth will withstand 15° to 20° of frost without injury. Looking at a specimen towards the end of March in this year, the young leaves showed so bright a yellow that, at a little distance,

it may be expected to succeed. It has not yet produced its inflorescences with the striking white bracts.

DIPTERONIA SINENSIS.—(See Fig. 57.) Twelve feet. A most interesting, rare tree of medium height, belonging to the Maple family, with very ornamental foliage. The leaves, about one foot in length, are composed of seven or more leaflets, and the inconspicuous flowers are succeeded by large clusters of fruits like those of the Wych Elm, which have already proved fertile here. It was discovered by Wilson about the year 1900. The species received the R.H.S. Award of Merit on the 22nd ult.

DOCYNIA DELAVAYI.—I have given the American name of this plant, of which little is yet known. It is likely to prove of considerable interest, inasmuch as, belonging to the small section of the *Pyrus* family known as the *Eriolobus*, in accordance with the generally accepted British determination, it would appear to be a connecting link between the somewhat rare species *Pyrus Tschonoskii*

series is only one side of the work of the Commissioners. They were authorised by the Forestry Act of 1919, to assist landowners and corporations during the ensuing ten years in re-forestation 50,000 acres of old woodland, and in planting 60,000 acres of new land. The assistance was to be rendered by grants, loans, and proceeds-sharing schemes; but these are so hampered by onerous statutory conditions as to be quite unworkable. Encouragement to private forestry has been in abeyance, except during last winter, when, as an emergency measure of relief, small grants were issued to landowners for afforestation, the only condition imposed being that planting should be done by unemployed labour. These grants proved most attractive, and as a result, in six months, no fewer than 11,000 acres of private land were planted, and 11,500 acres were prepared for planting. This notable addition to the woodland area of Great Britain shows the efficacy of small grants in stimulating planting on ordinary estates. The Forestry Commissioners should be empowered to assist landowners in planting by direct grants without any restrictions. In this way, the forest area of the country might be most economically increased.

The Report gives much information in the form of tables about the area, cost, and species of the various plantations and nurseries that have been established. The positions of the different State Forests and Crown Woods are indicated in a sketch map.

Forestry Education cost during the year under notice £13,748, including grants to Universities and Colleges of £1,242. There are four Schools for apprentice woodmen, where sixty men received training during 1920-1921. These are situated at Parkend (Forest of Dean), Burley (New Forest), Chopwell (Co. Durham) and Beaulieu (Inverness-shire). The expenditure during the year on these four Schools amounted to £10,740.

Research cost during the year £7,737, and was carried on exclusively by six of the Commissioners' staff. Seventy-nine sample plots in England, Wales and Scotland were under observation in September, 1921. These plots will be thinned and measured periodically, and are expected to provide in due course much needed data as to the rate of growth and best methods of thinning plantations of different species. Numerous experiments were made on the germination and soaking of seeds, and on the protection of seed-beds from drought, frost and weeds. During a dry season, the benefit of overhead shelter is very striking. Beds covered with lath-grating (1 inch lath and $\frac{1}{2}$ inch spacing) gave full germination, while in the unprotected beds the crop was almost a total failure. Overhead shelter is also efficacious against frost-lift in the nursery; and thin crops of Douglas Fir and Sitka Spruce in their first year require in addition the application of moss or humus to the beds. Investigation shows that seed extracted from Scots Pine cones at a temperature not exceeding 104 deg. Fahr. gives better germination and more vigorous seedlings than ordinary commercial seed from cones exposed to a greater heat.

Investigations on various insect pests have given useful results. Chermes Cooley has attacked Douglas Fir; but its destructive gall-form on Sitka Spruce does not exist as yet in Great Britain. To prevent this insect's further dispersal, measures for dealing with infected nursery stock have been devised. Experiments on the Pine-weevil have demonstrated the efficacy of bark-traps as compared with hand-picking, and showed that decoy billets and pit-traps tend to prevent the migration of the weevil from its breeding ground.

Planting procedure is discussed; and the remarks on the organisation and efficiency of labour, and on the size and spacing of plants, will be found of considerable interest. Experience proves that almost all forest work can more economically be done by piece-work or by contract. This applies especially to fencing, preparing the ground for planting, and lining-out seedlings; and even to notch-planting, which, if efficiently supervised, does not suffer in quality.

A special account is given of the drought of 1921, which did considerable damage in England and Wales. Spring planting suffered severely. The death-rate among newly planted trees was very high indeed, as much as 35 per cent. Nearly 4,000,000 plants perished. The mortality varied in the different species, being 49 per cent. in European and Japanese Larches, 32 per cent. in Douglas Fir, 26 per cent. in Corsican and Scots Pines, and 9 per cent. in Sitka Spruce and Norway Spruce. Small transplants resisted much better than any other class of plant. As might be expected, areas with a southern aspect were much more seriously affected than those facing north or east. It is satisfactory to note that the plantations made by the Commissioners in the previous year did not suffer from the drought to any appreciable extent. *A. Henry.*

influenced by that decided species *C. bicolor*, although the two crossings with *C. Dowiana* might be supposed to counteract it. Mr. S. Lyne, the Orchid grower at Claygate Lodge, states that both the form with *C. bicolor* influence prominent and also that with the *C. Dowiana* shape have flowered, but he notices, as he did when with the late Mr. Gurney Fowler, where many forms were bloomed, that the struggle between the shapes of the species concerned is always evident and highly interesting.

LAELIO CATTLEYA ORIFLAMME.

THIS very handsome hybrid, which was raised by Messrs. Armstrong and Brown, Orchidhurst, Tunbridge Wells, between *Cattleya Rex* and *Laelio-Cattleya* Thyone, and which first flowered with them in 1915, passed



FIG. 57.—FRUITS AND FOLIAGE OF DIPTERONIA SINENSIS (see p. 138).

ORCHID NOTES AND GLEANINGS.

LAELIO-CATTLEYA VICTOR.

FLOWERS of this showy novelty of Messrs. Stuart Low and Co., Jarvisbrook, Sussex, present very interesting features. In its composition *C. Warscewiczii* enters three times, *C. Dowiana* once, and *Laelia purpurata* and *L. pumila* once each. The large size, fine form, and rich colour is dominated by *C. Warscewiczii*, but in the more tubular form of the base of the lip and in the clear separation of the white and yellow throat from the well-rounded claret crimson front the lesser species *L. pumila* clearly presents its characters, as so many of the well-defined smaller species usually do. It is that peculiarity which makes hybrid Orchids such an interesting study to the observant, for seemingly similar flowers to the casual observer are found to be very unlike if carefully examined, especially if the parentage is considered.

CATTLEYA VENUS VARIETIES.

SEVERAL fine forms of this showy hybrid between *C. Iris* (*bicolor* × *Dowiana*) and *C. Dowiana* have flowered in the important collection of J. J. Bolton, Esq., at Claygate Lodge, Claygate. A very distinct variety, with rich golden yellow sepals and petals and dark ruby purple lip, was included in the group shown by this gentleman at the last R.H.S. meeting. The lip in this case had a distinct isthmus in the middle, with the front lobe expanded, the form being

into the collection of the late Mr. J. Gurney Fowler, and was one of his most cherished plants. There were but few specimens, and some variation was shown, but all had the good form of *C. Rex* on a larger scale, the sepals and petals being clear citron yellow and the well-rounded lip magenta crimson, with cream white veining in front and an orange disc, with gold lines from the base.

At the meeting of the Royal Horticultural Society, on August 22, Messrs. Flory and Black, Slough, showed the same cross as *L.-C. Glorita*, the flowers of their form being nearer to *L.-C. Thyone* in shape than the original. In any form it is a very showy hybrid and evidently very floriferous.

ODONTOGLOSSUM DORAQ.

IN looking through the list of new hybrid Orchids contained in *The Gardeners' Chronicle* of August 27, 1921, I notice it reads *Odontoglossum Doraq* (*Dora* × *Aquitania*), which is an error, as the parentage is *Doris* × *Aquitania*. I am sorry I did not notice the mistake at the time it occurred. *E. W. Thompson, Haddon House Gardens, Ashton-on-Mersey.*

TRICHOPILIA.

THIS genus comprises several beautiful and easily grown Orchids. *T. nobilis* and *T. fragrans* are autumn-flowering species which produce their fragrant flowers in profusion at a season when flowers are very acceptable. They succeed and grow freely in a cool intermediate house, and may be grown suspended in pans, or on the stage in pots. *B.*

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(Continued from p. 126.)

(See Tables and Summaries, Ante, pp. 95-100.)
ENGLAND, E.

HUNTINGDONSHIRE.—There was a profusion of fruit blossom of all kinds, and the weather generally at blossoming time was favourable to the fruits setting well, but the trees and bushes were, and are still, suffering from a shortage of moisture at the roots. Only 11½ inches of rainfall was recorded in these gardens last year, and, though the fall so far this year has been normal, the soil, except near the surface, is still much too dry for many feet deep. Apples are thinning themselves into a moderate crop. Pears are a little more promising. Plum trees carried a very light crop last year, but are so loaded now as to require propping. All bush fruits are lightly cropped, having made very little growth last year. Early Strawberries ripened during a dry spell and were a partial failure. Later varieties benefited by a good rain. The Fen soil is peaty, over clay, and the high land is a stiff loam generally, over a clay subsoil. *A. O. Coombe, Ramsey Abbey Gardens.*

LINCOLNSHIRE.—All fruit trees blossomed profusely. Apples in the grass orchards failed to set, but trees in cultivated ground are carrying full crops. Plum trees are yielding a very heavy crop. Raspberries and Red Currants are good. Strawberries proved better than they promised to be early in the season. The fruit was of good quality, especially the variety Givon's Late. *F. J. Foster, Grimsthorpe Castle Gardens, Bourne.*

NORFOLK.—In spite of the very dry time that prevailed during the early stages of fruit development, the fruit crops in general, with one or two exceptions, are quite satisfactory. Pears are disappointing, considering the trees flourished so luxuriantly during the spring. No doubt the sudden low temperature and cold winds experienced at that time account for the present deficiency. *Louise Bonne of Jersey, Beurre Diel, Pitmaston Duchess, and Glou Moreau* are four of our best cropping varieties. Gooseberries were a poor crop. Black Currants were very fine. Caterpillars on Gooseberries, aphids on Plums, and red spider on outdoor Peach trees were inclined to be troublesome during the hot dry weather. The nature of the soil is light and sandy. *D. McIntosh, Euston Gardens, Thetford.*

—All fruit crops are good and the trees wonderfully clean and healthy. Apples of all kinds, and especially dessert varieties, are carrying first-rate crops. Pears are carrying well-balanced crops on such varieties as *Williams' Bon Chrétien, Souvenir du Congrès, Doyenné du Comice, Doyenné Boussock, Pitmaston Duchess, Durandau, and Conference*. All bush fruits cropped abundantly. Raspberries were exceptionally good in size and flavour. Strawberries were below the average yield; the fruit was small and poor in flavour, owing to the prolonged drought. All varieties of plums are carrying heavy crops, such sorts as *Pond's Seedling, Kirks, Victoria, Jefferson, Belle de Louvain, Prince of Wales, and Monarch* being especially good. Sweet Cherries have been a fair crop, but Morellos are exceptionally plentiful this season. The soil is a sandy loam. *John Edward Fitt, Earltam Hall Gardens, Norwich.*

—All fruit trees flowered well. The very late spring was beneficial to Plums, as these set abundantly, both on walls and bush trees. No standard Plums are grown here, owing to our soil being very light, with a non-binding gravelly subsoil. Constant pinching of sub-laterals and root pruning are our only means of getting good fruitful trees. The crops of Apples, Pears, and Cherries are good and promise well. Bush fruits and Strawberries suffered somewhat from the drought and extreme heat during May and June, but they have benefited by the recent rains. *Isaiah Johnson, Catton House Gardens, Norwich.*

MIDLAND COUNTIES.

BEDFORDSHIRE.—The fruit crops are good, with the exception of Apricots, which were in bloom during very cold weather from March 15 until April was well in, and we had bitterly cold north-east winds, with snow, on March 20 and April 3, which destroyed the blossom, in spite of protection. The cold weather, however, kept all other fruit blossom backward. The majority of fruit trees bloomed profusely, and all kinds of Plums and Pears set fruits freely. A few varieties of Apples failed, but there is a good average crop of these fruits. Peaches and Nectarines set freely, and very little "blister" was seen and no "die back," no doubt due to the trees being so well ripened last season. Black Currants were again a disappointing crop, the fruits "running off" again during the dry weather. Gooseberries and Red Currants were both excellent crops, and the rain came in time to save the Raspberry crop. Strawberries were excellent on one-year-old plants, but last year's drought affected the two-year-old Strawberries, which gave very small berries. The variety *Laxton's Latest* has again given us a wonderful crop of splendid berries. *W. G. Warner, Chicksands Priory Gardens, Shefford.*

—The fruit crops in general—with the exception of Apples—are highly satisfactory, yet there are many instances where some one or other crop beside Apples has failed entirely. In this particular garden, as an instance, Plums are a total failure, but in the district around they are plentiful. Strawberries have been freer from damp and decayed berries than for many years past; so, too, have Raspberries from the small maggots that usually appear in the fruits. The Jargonelle Pear promises exceedingly well this year with us. *C. Turner, Amphill Park Gardens, Amphill.*

BUCKINGHAMSHIRE.—All fruit trees bloomed fairly well, but the late spring frosts seriously affected the fruit crops in exposed positions. The Strawberry crop, owing to frost and drought, appeared to be affected more than any other. Red and White Currants were much over the average quantity, but Black were much under a normal yield. Certain varieties of Plums are carrying good crops of fruit, but the majority are much under. Contrary to what might have been anticipated during a season of such extremes in temperature, most of the trees are both clean and healthy. The Gooseberry caterpillar is absent from these gardens this season. Our soil is a heavy, retentive loam resting on clay, and the natural drainage is bad. *W. Hedley Warren, Aston Clinton Gardens, Aylesbury.*

—The fruit crops are very irregular and disappointing in some centres of Bucks. Pear, Plum, Apple, and Cherry trees gave a wonderful show of blooms, except in the case of those varieties that bore heavily last year. Many of the fruits dropped owing to drought at the roots and insufficient plant food. The frosts in the early part of May and the excessive heat in May and June did damage to the fruits. However, the outlook is not bad on the whole, and we shall have a fair quantity of fruit. *Philip Mann, Education Sub-Offices, Aylesbury.*

—The fruit crops are, on the whole, fairly good. Apples are under the normal yield, but the fruits are of good size and clean. Pears are a good crop, the trees being clean and healthy. Plums and Damsons are heavy crops. Bush fruits, with the exception of Black Currants, were very good. Cherries were very patchy, some orchards having a good crop, but others very few and the late rains caused the fruits to crack badly. Morellos are good on walls. Strawberries were very poor; the plants were weak from the drought of last summer, and the fruit was small and soon over. *Chas. Page, Dropmore Gardens, Maidenhead.*

—The fruit crop prospects are excellent; the trees are exceptionally clean and healthy, and should remain so. I cannot recall a season when insect pests were less prevalent, and to what this is exactly due is not easy to determine, unless it was the innumerable number

of ladybirds of last summer. It has usually been necessary to spray at least three times to keep our trees clean, but one application has been sufficient this year. The soil is strong loam on heavy clay. *G. F. Johnson, Waddesdon Gardens, Aylesbury.*

CHESHIRE.—Gooseberries, Black Currants, and Raspberries were all excellent crops, but Strawberries were much inferior to last year's, both in quantity and quality. Apples and Plums are never bounteous crops in these gardens. We are, however, grubbing up unprofitable trees and planting varieties that we find to be more dependable bearers. A great improvement is to be noted, and we expect better results in years to come. A better show of bloom I never witnessed during my ten years' service here, but some trees have scarcely a fruit. *Ribston Pippin, Cox's Orange Pippin, and Northern Greening* are amongst the more notable failures in Apples, and these varieties will be discarded this autumn. *T. A. Summerfield, Alderley Park Gardens, Chelford.*

—Outdoor fruit trees are looking well and carrying heavy crops of clean fruit. Early in May they were threatened with an attack of green fly, but a thorough syringing with Quassia extract killed out the pest. Apples and Pears are swelling freely. Plums, Cherries, Gooseberries, Black and Red Currants, Raspberries, and Strawberries are all clean and healthy, and carrying heavy crops. The spring was very dry—May with a total rainfall of 0.67 inch and June with a total of 1.55 inch. Our warmest day in May was 87° in the shade, and the warmest in June 86°. We had a heavy rainfall on July 4, which measured 1.18 inch, and it has rained almost every day since up to date. *James B. Allan, Tirley Garth Gardens, Tarporley.*

—Fruit trees promised bountiful crops when the bloom first developed, but the sun's rays in the very hot weather at blossoming time, day after day for three weeks, appeared to burn the bloom. The result is we have more fruit on north and east sides of the trees than on the south and west sides. The soil in this part of Cheshire is a good loam on sand and gravel. Where trees are planted in heavy clay, the crops are not quite so good. Late-blooming Apples and Pears have the best crops. Small fruits were all that could be desired. *James Atkinson, Torkington Lodge Gardens.*

—It is a pleasure to be able to report something like full crops of hardy fruits once more, due in great measure, I presume, to the exceptional dry and hot season of 1921, when the wood became thoroughly ripened. This was followed by a long, cold and sunless spring, which kept all blossom backward until it was safe from late frosts. I do not remember a greater wealth of bloom on fruit trees or flowering shrubs than this spring, and the genial weather from the middle of April onwards was favourable to the fruits setting, with very few exceptions among Apples, Pears, and Plums. The one exception in Apples with us is *Lane's Prince Albert*. This has a lighter crop than usual, yet this variety, as a rule, never fails us. The trees are remarkably clean and free from pests, and the growths strong and clean. At one time it looked as if continued dry weather would cause a lot of fruits to drop, but we still have abundant crops. The Strawberry crop was a poor one, owing to the dry season last year and this, but the quality of the berries was good. *N. F. Barnes, Eaton Gardens, Chester.*

—The fruit crops are, on the whole, very satisfactory. Apples are a good average crop, and many Apple trees are heavily laden with fruits, but others have scarcely any, owing, probably, to the heavy crops they carried last year. Nearly all Pear trees are bearing good crops. Stone fruits are plentiful, and the rain came just in time to prevent the fruits dropping. Small fruits were good and plentiful. Early Strawberries suffered from drought where they were not watered. *Edward Severn, Combermere Gardens, Whitechurch.*

(To be continued.)

HOME CORRESPONDENCE.

Grape Spot (*Gloeosporium ampelophagum*).—Our vines have been badly troubled with this disease for several seasons. Last year it was very prevalent, and I attributed this to the excessive heat. The disease starts in a very small way, and gradually spreads in circles, and the berries have to be cut out until nearly all the bunches are spoilt. The great difficulty is having to keep the Grapes on the vines after they are ripe. I have had them in good condition up to Christmas. The trouble is not so great when one can cut the crop and market it. The varieties affected are Muscat of Alexandria and Cannon Hall. What are the experiences of other readers in regard to this disease? *J. L. Mottram, Cheshire.*

Branch Cuttings of Apples.—Regarding Mr. Hewat's note on page 101, August 12, all those varieties of Apples that have warty burrs on their branches, and which develop aerial roots therefrom, will grow with the greatest freedom from cuttings. Many of the old Cornish orchards were planted by just making a hole in the ground with a crowbar and sticking in a fairly large Apple branch. I have heard trees so propagated called "pitchers"; why, I do not know, but one of the names of the Manks Codling is Irish Pitcher. It would be interesting to know how this peculiar name originated. Are the trees called "pitchers" because they grow when "pitched down"? I cannot tell from actual experience whether most varieties of Apples can be so propagated, but I should say it would be more difficult to strike the smooth-stemmed varieties in this way. *W. J. Farmer.*

—With reference to Mr. E. F. M. Hewat's letter in your issue of August 12, I write to say that about 20 years ago I witnessed some cuttings of Apple branches inserted in the soil. They grew and bore fruit the first season and I still have them under my charge. They have grown into nice trees, and continue to fruit well. Since that time I have rooted a number of cuttings from several varieties, including Cox's Orange Pippin, with the same results. I have 10 trees now growing from cuttings and, so far as growth and fruiting are concerned, there is little or no difference between them and the grafted ones. *J. Treloar, Helston.*

The Dunkeld Larches.—In my letter published on p. 85 I gave a few extracts from John Grigor's *Arboriculture* on the Larch and its first introduction into Scotland. Mr. A. D. Richardson, on p. 112, passes this authority with contempt, and quotes Loudon. If Mr. Richardson had turned to p. 209 of Grigor's *Arboriculture* he would have noticed that Grigor never believed in the legend about the trees arriving from London, and I fail to find in Grigor's publication any mention of a port-manteau and the rubbish heap. Grigor states, on p. 209, "It is reasonable to believe that the Larches planted in Scotland during the early part of last century were the produce of seeds ripened in England, since many of the trees had, in that country, yielded seeds at least fifty years before the time of their insertion at Dunkeld." Grigor also lays stress on the Dunkeld, Menzie, Dalwick and Blair Larches and their reports, that do not exactly correspond. It would be very interesting to hear how Mr. Richardson demolishes the Rev. James Headrick's report published in 1813 about the Lockhart of Lee Larches; this gives Lanarkshire as the first county in Scotland where the Larch was found. Grigor states, p. 209, "Whatever may have been the size or age attained by the imported plants cultivated by Mr. Lockhart on the banks of the Clyde, it is certain they were of no use to Scotland, in a national point of view." In the *Magazine of Botany and Gardening*, published in 1833 by G. Henderson, 2, Old Bailey, Ludgate Hill, Vol. I., there is a report of John Grigor obtaining a premium offered by the Highland Society in 1830. Yet in Vol. II. criticism of Loudon is not in great affection or of his particular abilities. However, we find Loudon thanking John Grigor for his important communications to the *Arboretum et Fruticetum Britannicum* Mark Mills.

Peaches and Nectarines on the Same Tree.—Mr. Baxter, gardener to Major Dalgetty, Lochmyley, Hall, Romsey, Hampshire, has called my attention to one of his outdoor Peach trees a short time ago which has one branch bearing Nectarines. This branch is one growing from another bearing Peaches and not direct from the graft. Neither Mr. Baxter nor myself have ever known this to occur before. I should be pleased to learn if anyone has had experience of this diversion. *F. Clipstone, Melchet Court Gardens.*

[In *Gard. Chron.*, August 2, 1902, some references from old authors on this subject are published, together with the illustration reproduced in Fig. 58, and another of a composite fruit, part Peach and part Nectarine.—Eds.]

Dianthus Allwoodii.—I have grown eight varieties of *Dianthus Allwoodii* for the

INDOOR PLANTS.

FERNS.

(Concluded from page 126.)

MANY Ferns are adapted for covering blank, moist walls. A few mixed spores of *Adiantum*, *Pteris*, *Davallia*, *Asplenium* and other small growing kinds distributed over the wall will produce a number of little plants that will serve to hide the bare bricks. They may also be grown in a framework of wire netting three or four inches from the wall, the intervening space filled with rough, turfy, light loam, peat and Sphagnum moss, in which the young Ferns may be planted. The essential attention is to keep the soil moist, but not sodden, by syringing or other means, for it is

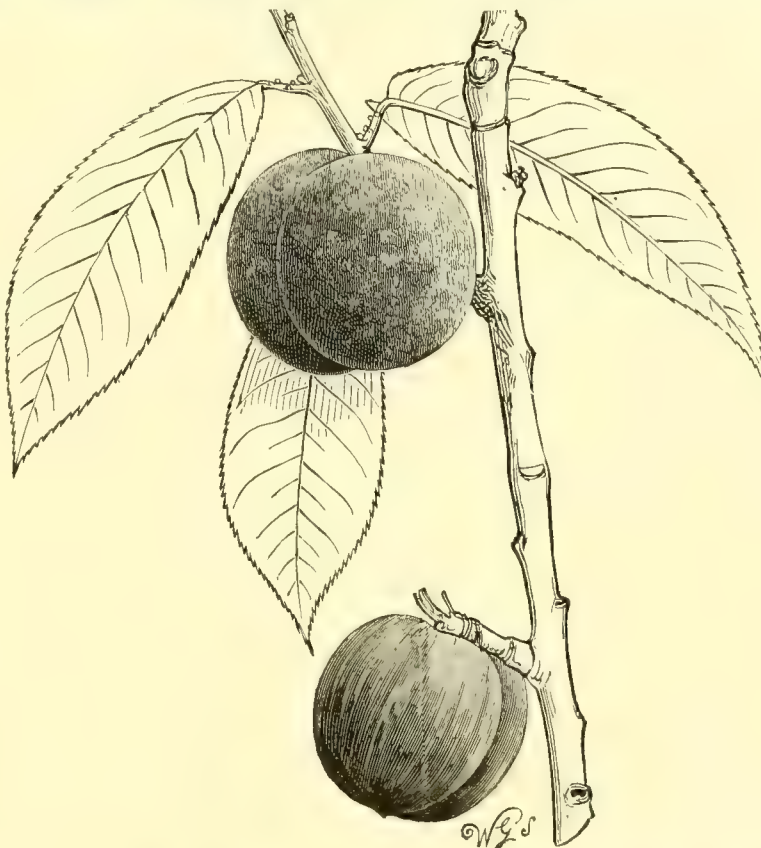


FIG. 58.—A PEACH ON THE UPPER AND A NECTARINE ON THE LOWER PART OF THE SAME BRANCH.

past three seasons and thoroughly recommend them for use as garden plants, suitable for massing in herbaceous borders, and for planting on dry walls and rockeries, where I have found them to be more floriferous and effective than any of the *Dianthus* family hitherto used for this purpose. Planted for an edging, the smaller growing varieties, viz., Joan, Jean, Susan, Dorothy, and Robert, they surpass the old garden Pinks. Harold and Rufus I root in January and February. I grow a batch in pots to flower through the winter, and find, if the plants are planted out about May, they flower the whole summer. The method of propagation is the same as for *Pentstemons*, *Violas*, etc., the cuttings being taken with a heel of old wood, wintered in the cold frame, and planted out about April. If the young plants are put into the reserve garden in April and lifted the following autumn with a good ball of soil they will give a brilliant effect from May to the autumn. The masses of bloom from a two-year-old plant and the usefulness of the blooms for decorative purposes, entitle these plants to rank as some of the most effectual in the flower garden. *H. Penfold, Greenhill Gardens, Warminster.*

courting failure to allow the roots of any kinds of Ferns to become excessively dry.

Tree ferns are beautiful objects for the decoration of cool conservatories. They have stems from 10 feet to 20 feet high, and with their fronds fully developed they give a grand effect when mixed with other plants.

The cool house varieties of Tree Ferns are imported from Australia, Tasmania and New Zealand in large boxes, and on arrival the plants should be potted in tubs or large pots and placed in a moist, temperate house. Keep the stems well syringed, and they will soon throw out a mass of roots and newly developed fronds. The best kinds are *Dicksonia antarctica* and *Cyathea dealbata*.

A good selection of *Gymnogrammas* should be in every collection. They are generally called Gold and Silver Ferns, from their bright gold and silver shaded fronds. A few are not decorated in this way, but all are beautiful. The plants should be grown in a light part of the stove or raised above the others by placing them on inverted pots or stands, where water from the syringe will not reach them, for if the dense powder on the

fronds is allowed to get damp it would cause the leaves to decay.

Ferns are increased by dividing the plants and by spores. Any species that send out creeping stems may be readily increased by division, but they should not be divided until the parts to be separated have a portion of roots to each. The best time for dividing them is February or March. They should be potted in small receptacles, given a gentle watering, and placed in a close frame till they are rooted, when they may be grown in a cooler house.

Some Ferns, such as *Asplenium bulbiferum*, produce bulbils or miniature plants on the fronds. These require to be pegged down in a pot or pan filled with soil and placed near the parent plant. When rooted, they may be detached from the parents and placed in small pots.

A few Ferns, like *Woodwardia radicans*, have buds or knobs on the end of the fronds, which, when in a sufficiently forward state may be cut off and potted forthwith. In a moist atmosphere several species will vegetate and come up spontaneously on pots, blocks, damp stages or walls. Ferns are usually raised from spores. The best plan is to gather the frond just as the spore-cases are about to burst, place it in a piece of tissue paper, and hang it up in a dry place for a few days, by which time the spore-cases will have burst and the spores be ready for sowing. It is necessary that the soil should be baked before the spores are sown, as this process destroys any small worms or other insects, also any seeds that may be present in the soil which, if allowed to develop, would smother the young Ferns as they came up.

A successful plan of sowing the spores is to stop completely the drainage hole of a 5 inch pot, fill the latter about three parts with rough soil well pressed down, then add the prepared soil, pressing it down firmly. Give the soil a good watering through a fine rose can before sowing the spores. After sowing, place the pot in a saucer of water and keep the latter filled always, in order to keep the soil moist. Under no consideration should the spores be watered with a rose can. After sowing, place the pot in a close, moist atmosphere, and cover it with a piece of glass that should be tilted at the back about 1 inch; as soon as the spores begin to germinate, a little more air should be gradually admitted.

The soil for the general collection should consist of two-thirds turfy loam, one-third fibrous peat or leaf mould with silver-sand. Care should be taken not to over-pot the plants. Use plenty of drainage material. The best month for repotting is February; no Ferns should be potted during the winter. Certain kinds of Ferns are liable to attacks of thrip and green fly; if those pests appear, fumigate the house with Tobacco or Tobacco dust, or with a good vaporising compound, on two or three nights in succession. Care must be taken not to use the fumigant at too great a strength, or the young fronds may get damaged. Plants of *Adiantum Farleyense* should be removed from the house, as this Maidenhair will not stand fumigating.

The following is a good selection of Ferns for general purposes. For the warm house, *Adiantum reginae*, A. Farleyense, A. trapeziforme, A. cuneatum, A. gracillimum, *Davallia fejeensis* and varieties, D. effusa, D. Mooreana, D. parvula, D. tenuifolia Veitchii, *Asplenium elegantissimum*, *Asplenium* (Neottopteris) *Nidus* (Birds' Nest Fern), *Gymnogramme* in variety, *Polypodium Knightiae*, *Platycerium* (Stag's Horn Fern) in variety, *Pteris ludens*, and others. For growing in hanging baskets *Goniophlebium subauriculatum*, *Davallia solida superba*, D. polyantha, *Asplenium longissimum*, *Drynaria diversifolia*, *Nephrolepis davallioides*. For greenhouse and indoor decoration, *Adiantum Mariessii*, A. cuneatum grandis, A. decorum, A. pubescens, *Doryopteris palmata*, *Cyrtomium falcatum*, C. anomophyllum, *Asplenium Zeyanicum*, A. viviparum, A. bulbiferum, A. praemorsum,

Lomaria gibba robusta, L. ciliata, *Davallia brasiliensis*, D. canariensis (Hare's Foot Fern), D. Mariessii cristata, D. bullata (Squirrel's Foot Fern), D. elegans, *Lastrea cristata variegata*, *Pteris cretica major*, P. Childsii, P. Wimsettii, P. tremula, P. scaberula (Lace Fern), P. argyreae, *Osmunda palustris*, *Nephrolepis superbissima*, *Todea arborea*, *Selaginella emiliana*, *Polypodium aureum cristatum*. For baskets, *Asplenium flaccidum*, A. diversifolium, *Adiantum dolabriforme*, *Nephrolepis exaltata furcans*, N. exaltata superba, N. Whitmannii, *Polypodium appendiculatum*, P. Mayii, and *Woodwardia radicans*. Filmy Ferns include *Trichomanes* in variety, *Hymenophyllum* in variety, *Leptopteris* (*Todea*) *pellucida* and L. (*Todea*) *superba*. The last is the gem of all Filmy Ferns, and should be grown in every collection. Filmy Ferns require to be kept in a closer and moister atmosphere than other Ferns, or they may be grown in a Wardian case. John Heal, F.M.H.

DRY WALL GARDENING.

ONE of the most interesting and fascinating forms of gardens is a dry wall furnished with suitable plants. Either a terrace wall, or what is often a troublesome, sloping bank may be made one of the most beautiful features in a garden and also a source of pleasure the greater part of the year. One of the best dry walls I have seen was in Argyllshire, in the garden of the late Mr. C. D. Rudel, who was a great lover of rock and Alpine plants, of which he had a unique collection. His plants were grown to perfection in walls, rock gardens and the moraine.

It is essential to plant the wall as it is being built: to build the wall first and leave spaces for the plants to be inserted later is to court trouble, as the plants more often than not in such circumstances prove failures.

A dry wall may be formed at any time of the year, and furnished with plants turned out of small pots and pressed between the stones filled in with good soil, composed of loam and leaf-mould. This will hold the moisture better than anything else. Good sandstone cut to a suitable size and thickness is the best material. The stones should be slightly sloping inwards as this will help to retain the moisture and keep the soil in position. Groups of plants from six to twelve of each kind or variety give a good effect, the plants being put in from twelve to eighteen inches apart. Care should be taken to intermix the early, mid-season and late flowering plants judiciously to give an even display throughout the season the whole length of the wall. The plants should be given a thorough soaking before turning them out of the pots. The following will be found a useful and interesting collection of plants for a dry wall and will flower from April until September: *Aubrietias* in variety, *Alyssum saxatile compacta*, *Arabis*, single, *Arabis fl. pl.*; *Acaena microphylla*, *Acaena adsurgens*, *Achillea Herba-rotæ*, A. tomentosa; *Aethionema grandiflorum*, *Campanula muralis*, *Campanula garganica*, C. g. hirsuta, *Dianthus caesius*, D. arenarius, D. deltoideus, D. dependens, *Erinus alpinus Carmineus*, *Erysimum pulchellum*, *Cheiranthus Allionii*, *Gypsophila prostrata*, *Helianthemum* in variety, *Helichrysum bellidoides*, *Heuchera sanguinea*, *Hippocrepis comosa*, *Hutchinsia alpina*, *Iberis* Little Gem, *Linaria pallida*, *Linum flavum*, *Phlox setacea* in variety, *Ramondia pyrenaica* (for shade), *Saxifragas*, incrustated varieties, *Sedums* in variety, *Sempervivums* of sorts, *Thymus Serpyllum coccineum* and album, *Veronica Bidwillii*, V. rupestris, V. prostrata, *Zauschneria californica* and Z. splendens, *Arenaria balearica*, *Arenaria montana*, *Coronilla iberica*, *Dianthus graniticus*, *Campanula carpatica*, *Iberis gibraltarica*, *Iberis corraefolia*, *Plumbago Larpentæ*, *Aplopappus chrysophyllus* and *Androsace lanuginosa*.

Bulbs may be planted freely on the top of the wall, and these will give a fine effect in spring when in flower. R. H. Holton.

SOCIETIES.

ABERDEEN ROYAL HORTICULTURAL.

AUGUST 24, 25, and 26.—The annual exhibition of the Royal Horticultural Society of Aberdeen was held this year on the above dates in the Union Terrace Gardens, Aberdeen. For many years the Society, which was instituted in 1824, held its show in the Duthie Public Park, but it was felt the remoteness of this park from the centre of the city militated against the public attendance, hence the change of venue to the Union Terrace Gardens, which are situated in the centre of the city, and were kindly granted the Society by the Aberdeen Town Council. The change turned out a happy one, the facilities for the attendance of the public proving excellent. The number of entries exceeded that of last year, and, considering the lateness and inclemency of the season, a remarkably good display was forthcoming in all the divisions. Lady Sempill, Fintray House, Aberdeenshire, opened the show.

A meritorious display was made in the pot-plant classes, the outstanding feature being the superb entries for a table of pot plants arranged for effect (not exceeding 7 feet 6 inches by 6 feet). The leading table was shown by LADY COWDRAY, Dunect House, Aberdeenshire (gr. William Smith), the plants comprising a capital collection of Begonias, Pelargoniums, Coleus, centre piece; 2nd, Mr. WILLIAM HENDERSON, Morkeu, Aberdeenshire. For four specimen plants, two in flower and two in foliage, Colonel W. S. GILL, C.B., Dalhebit, Aberdeenshire (gr. Alex. Brebner), had a fine win with capitalily grown *Disa grandiflora* and *Paucratium*. Begonias and Fuchsias were the outstanding features in this section, the sunless season notwithstanding. Mr. R. MURRAY Enfield, Cults, Aberdeenshire, won worthily for Begonias, both single and double. Honours for Fuchsias went to Mr. HENDERSON, while LADY COWDRAY secured the leading place for the best four plants for table decoration. Ferns were well shown, the honours being divided between Colonel GILL, LADY COWDRAY, and Miss M'LENNAN, Springhill House, Aberdeenshire (gr. Mr. Douglas Scorgie).

Some very fine exhibits were shown in the section for cut flowers. The Silver Cup presented by Baillie Charles Graham, Aberdeen, for the best 18 Rose blooms, H.P. and H.T., or either, named, distinct varieties, and the chief honours for decorative and tea or noisette Roses all went to Dalhebit, for beautifully-grown specimens. Miss M'LENNAN, Springhill House, was placed first for Dahlias, while Linton House, Sauchen (gr. Mr. Andrew Gardiner), and Longley House, Forres (gr. Mr. G. MacLennan), shared the chief honours for Asters, with superb blooms. Hardy herbaceous flowers were finely shown, the leading prizes for these being taken by LADY COWDRAY and Miss M'LENNAN, Springhill House. There was a fine entry for 20 distinct varieties of cut flowers, and fine foliage bedding plants, including annuals, and Miss M'LENNAN won the first and second prizes. Geraniums, also, were a feature of the show, and Colonel GILL and LADY COWDRAY shared the principal honours for these flowers. The latter also excelled with Carnations or Picotees. Begonias were well shown, Colonel GILL again leading for six single and six double, with finely-grown blooms. Mr. A. Masson, 64, Menzies Road, Aberdeen, had the finest exhibit of twelve bunches of annuals. Springhill House again scored for twelve spikes of double Stocks with admirably grown specimens. Pansies were well shown, Mr. MacLENNAN carrying off the chief awards. Miss M'LENNAN took leading places for Violas, while Lord SEMPILL, Fintray House, Aberdeenshire (gr. W. D. Anderson) led for the best six bunches of Chrysanthemums from the open border. The outstanding feature of the cut flower division was the Sweet Peas. The winning blooms, sent by LADY COWDRAY, Dunect House (gr. William Smith), stood out pre-eminently as far and away the best. The blooms were equal in colour and general quality to those which won the Burpee and Eckford Cups at the recent Glasgow show. Mr.

J. A. Grigor, Duff House, Banff, followed closely.

FRUIT.—There was a wonderfully good display of fruits. The entries of Raspberries, Red and Black Currants, and Strawberries were exceptionally good. It was the last-named fruit, however, which proved the outstanding attraction. The very fine specimens of Sir Joseph Paxton, Myatt's Seedling and Aberdeen Favourite, sent from Denmore House, Aberdeenshire (gr. Mr. George Tocher), were exceedingly well grown, and worthily gained the leading honours. The best collection of six dishes of hardy fruits came from Duff House, Banff, while Colonel DAVIDSON, of Dess, Aberdeenshire (gr. Mr. James Calder), and Mrs. MILNE, of Logie, Aberdeenshire (gr. Mr. P. F. McQueen), shared leading honours for cherries. Mrs. MILNE and Colonel GILL divided the honours for Raspberries with finely-grown specimens. There were four classes for Gooseberries, and the fine collections staged by Messrs. DUNCAN AND SONS, Rubislaw, Aberdeen, Duff House, Banff, and Mr. W. WEBSTER, Muireisk, Aberdeenshire, led in the various classes. Muireisk also carried off chief honours for Red Currants. Balmadie House, Aberdeenshire (gr. Mr. Robert Pirie), led for Black Currants. Grapes, numerically, were a poor show, but there was no lack of quality in those sent from Morken (gr. Mr. W. Henderson), nor in the Black Grapes sent by Lord SEMPILL, both of which worthily secured the leading awards. LADY COWDRAY had the finest Melons and Plums, Denmore House the best Peaches, Castle-Fraser (gr. Mr. A. R. McRae), the best Nectarines, Raemoir the best dessert and baking Apples, and Duff House the best Jargonelle Pears. Mrs. MILNE, of Logie, led for Tomatos, and Pears from Balmadie House gardens were placed first in a class for any other variety of Pears.

VEGETABLES.—There was some very keen competition in this division, and one wondered, considering the inclement season, that such fine specimens of the various vegetables could be produced. For a collection of vegetables, arranged on a table space 4 feet by 3 feet, and comprising nine varieties, viz., Peas, Cabbages, Cauliflowers, Potatos, Turnips, Carrots, Onions, Parsley, and Beetroots, Miss M'LENNAN, Springhill House, as is her wont, had matters all her own way. Similar honours also fell to this lady for salads, Potatos, Turnips, and Celery. From Linton House (gr. Mr. Andrew Gardiner) came a superb collection of Potatos, including five of the old-fashioned varieties like Grampian, Snowdrop, Duke of York, and Prize-taker, and this exhibit was easily 1st in a very strong class. For the best dish of seedling Potatos not in commerce, the first and second prizes also went to Linton House. Colonel GILL, Dalbeity, led for Cucumbers, Mrs. MILNE, of Logie, for Onions and Leeks, whilst the best Peas, round, coloured Potatos, and Beetroot, were shown from Duff House gardens.

NURSERYMEN AND FLORISTS.—There was not strong competition in this division, the nurserymen and florists evidently giving of their best in the non-competitive displays. Messrs. ADAM AND CRAIGMILE, Fernielea Nurseries, Aberdeen, had some magnificent Roses, and worthily won the Society's Silver Cup offered for the best collection of 36 Roses.

AMATEURS.—The leading prizes in this section were won by Mr. J. M. SIMPSON, Varvillbank, King Street, Aberdeen, for pot plants; Mr. G. W. ROBERTSON, Ness Bank, Cults, Aberdeenshire, for cut flowers; Mr. JOHN MIDDLETON, Alberta, Aboyne, Aberdeenshire, for fruit; and Mr. WILLIAM D. THOM, Woodside, Aberdeen, for vegetables.

NON-COMPETITIVE DISPLAYS.—Amongst the best non-competitive exhibits mention may be made of those shown by Messrs. KNOWLES AND SONS, Messrs. BEN. REID AND CO., Messrs. W. SMITH AND SON, and Messrs. ADAM AND CRAIGMILE, all of Aberdeen. Professor CRAIL of the Chair of Botany, Aberdeen University, as curator of the Cruikshank Botanical Gardens, Aberdeen, sent a most interesting collection of rare plants, which were admirably arranged by Mr. William Grant, the head gardener. This fine exhibit had great educational value.

THE BRITISH PTERIDOLOGICAL.

THE twenty-seventh annual meeting of the above Society was held on August 14, at Llanberis. Members attended from Co. Dublin, Manchester, Reading, Horsham, Woodford and Brondesbury. The President (W. B. Cranfield, Esq.) presided, and nine certificates were awarded to meritorious varieties.

A long discussion took place on the question of the altered nomenclature of Ferns as part of the general revision of this subject at the Vienna Conference. Some doubt was expressed as to whether the settlement as presented by Dr. G. C. Druce, in the December *Gazette*, would be a stable one, and eventually it was resolved that a Sub-Committee, consisting of the President and Dr. F. W. Stansfield, be appointed to confer with the R.H.S. and the Kew Authorities in order that the Society should come in line with the leading scientific bodies on the question.

Amongst the new members who joined the Society during the past year is the eminent French botanist, Prince Roland Bonaparte. The Society cordially invites all lovers of British Ferns to join; particulars of membership and copies of the *Gazette* may be obtained from the Hon. Secretary, Mr. C. Henwood, 21, Clifton Road, London, W.9.

ROYAL HORTICULTURAL OF IRELAND.

AUGUST 15 and 16.—The autumn show of this Society was held on these dates in the Covered Court, Earlsfort Terrace, Dublin, kindly lent by the Earl of Iveagh. The show was very successful, the number of entries being greatly in excess of those at pre-war exhibitions, and the building, with its natural draping of Ivy, was admirably adapted for the purpose of holding a flower show.

There was only one trade exhibit, that of Messrs. CHAS. RAMSAY AND SON, the Ballsbridge Nurseries, Dublin, owing to the present unsettled state of the country and especially the difficulties of transit. This trouble was circumvented in at least one case, for Mrs. J. G. TONER, of Monaghan, some eighty miles distant, won the prize for tuberous Begonias in the amateurs section; this lady finding all communication cut off, made the sea trip via Holyhead, and reached the show with her plants as fresh as they could possibly be. As there was no competition in the trade class for the President's Cup, it was not awarded. The best collection of hardy herbaceous flowers, shown on a space 24 feet by six feet, was exhibited by Capt. L. RIALI (gr. Mr. T. Webster), and in the smaller, similar class, for a group occupying a space sixteen feet by six feet, the Hon. A. E. GUINNESS, Glenmaroon, Dublin (gr. Mr. W. Stevens), was placed first, and Mrs. RAYMOND STEPHENSON, Cranford, Dublin (gr. Mr. M. Bugge), second. Mrs. ALFRED WEST (gr. Mr. C. Coster), showed the finest exhibit of twelve vases of hardy cut flowers distinct, in which F. V. WESBY, Esq., Roebuck Castle, Dundrum (gr. Mr. F. Simmons), was second. The finest annuals were shown by J. SWEETMAN, Esq., Longtown Sallins, Kildare, while Lord ARDEE, Kilruddery, Bray (gr. Mr. W. Barrett), excelled in the class for six vases of annuals distinct. For thirty-six blooms of Roses, not fewer than twenty-four blooms of each, the first prize was awarded to the DUBLIN NURSERY CO., Blackrock, Dublin, and this firm also won the first prize for twelve blooms of a new Rose. Mrs. WEST exhibited the finest twelve blooms of Roses, not more than three of any one variety. Major HAMILTON STUBBER won the Lord Ardilaun Challenge Cup offered for twenty-four blooms of Cactus Dahlias; second, T. RAY, Esq. This gentleman was first in the class for twelve vases of Decorative Dahlias. Other first-prize winners were: Begonias, Mrs. J. G. TONER; Antirrhinums, Messrs. W. DRUMMOND AND SONS, Dublin; twelve vases of Carnations, B. H. BARTON, Esq.; six vases of Carnations, E. KELLY, Esq., who also won the premier award for six vases of Carnations in another class; Violas, E. KELLY, Esq.; Montbretias, Major SEAGRAVE; 18 bunches of Sweet Peas, Viscount POWERSCOURT; 12 bunches of Sweet Peas, Mrs. WEST; six bunches of Sweet Peas, Hon.

Mrs. WHITE; and Hardy Ferns, Canon H. KINGSMILL MOORE.

In the fruit section F. V. WESBY, Esq., excelled for white Grapes and Black Hamburg Grapes, while Major VINCENT KELLY, Montrose, Donnybrook (gr. Mr. J. McDermott), was first for any other black variety of Grapes. Mrs. HAMILTON showed the best Peaches; Capt. RIALI the best Nectarines; Mr. C. WISDOM HELY the best Melons; and Major KELLY the best six dishes of early Apples, and also the best dessert Pears.

The vegetable exhibits were surprisingly good and there was excellent competition. The Hon. A. E. GUINNESS was placed first for twelve distinct kinds, closely followed by Lord CLONCURR. Mr. JAS. SWEETMAN excelled in the class for six distinct kinds.

ROYAL HORTICULTURAL.

Trial of Violas at Wisley.

The following awards have been made by the Royal Horticultural Society to Violas after trial at Wisley:—

AWARDS OF MERIT TO BEDDING VIOLAS.

No. 1, *Snow Queen*, sent by Messrs. DOBBIE AND CO.; No. 5, *Purity*, sent by Messrs. FORBES; No. 6, *Snowflake*, sent by Messrs. FORBES; No. 9, *Swan*, sent by Messrs. DOBBIE AND CO.; No. 16, *Lady Knox*, sent by Messrs. FORBES; No. 22, *Royal Sovereign*, sent by Messrs. STARK AND SON; Nos. 26, 27, 28, *Moseley Perfection*, sent by Messrs. FORBES, Messrs. DOBBIE AND CO., and Mr. HARRISON; Nos. 33, 34, *Margaret Wood*, sent by Messrs. W. ARTINDALE AND SON and Messrs. DOBBIE AND CO.; No. 40, *Mary Burton*, sent by Messrs. DOBBIE AND CO.; Nos. 47, 48, 49, *Maggie Mott*, sent by Messrs. FORBES, Messrs. B. CRANE, and Messrs. DOBBIE AND CO.; Nos. 55, 56, *W. H. Woodgate*, sent by Messrs. FORBES and Messrs. DOBBIE AND CO.; Nos. 68, 69, *J. B. Riding*, sent by Messrs. FORBES and Messrs. DOBBIE AND CO.; No. 70, *Mrs. Alsop*, sent by Messrs. FORBES; No. 104, *Archie Grant*, sent by Messrs. DOBBIE AND CO.; No. 114, *Red Edina*, sent by Mr. SCARLETT; No. 168, *Dr. McFarlane*, sent by Mr. CRANE; No. 175, *President*, sent by Messrs. FORBES; No. 181, *Dorothea*, sent by Mr. CRANE.

HIGHLY COMMENDED.

No. 11, *Blanche*, sent by Messrs. FORBES; Nos. 12, 13, *Alexandra*, sent by Messrs. DOBBIE AND CO. and Messrs. W. ARTINDALE AND SON; No. 17, *Primrose Dame*, sent by Messrs. FORBES; Nos. 20, 21, *Kingcup*, sent by Messrs. DOBBIE AND CO. and Messrs. FORBES; No. 31, *Walter Welsh*, sent by Messrs. DOBBIE AND CO.; No. 39, *Tangerine Harrison*, sent by Mr. HARRISON; No. 52, *Bertha*, sent by Mr. CRANE; Nos. 50, 53, *John Quarton*, sent by Mr. HARRISON and Messrs. FORBES; No. 58, *Perdita*, sent by Messrs. FORBES; Nos. 60, 61, *Kitty Bell*, sent by Messrs. FORBES and Messrs. DOBBIE AND CO.; Nos. 62, 63, *Mauve Queen*, sent by Mr. CRANE and Messrs. DOBBIE AND CO.; No. 83, *Bridal Morn* (misnomer), sent by Messrs. FORBES; No. 66, *Newton Mauve*, sent by Mr. CRANE; No. 89, *John Forbes*, sent by Messrs. FORBES; No. 96, *Wm. Daniels*, sent by Messrs. FORBES; No. 102, *Admiral of the Blues*, sent by Messrs. DOBBIE AND CO.; No. 105, *Mrs. Moss*, sent by Mr. ELLIOTT; No. 108, *Councillor Waters*, sent by Messrs. W. ARTINDALE AND SON; No. 112, *Admiration*, sent by Messrs. FORBES; No. 113, *Jubilee*, sent by Messrs. DOBBIE AND CO.; No. 124, *Peace*, sent by Mr. CRANE; Nos. 131, 132, *Dunbryan*, sent by Messrs. DOBBIE AND CO. and Mr. CRANE; Nos. 139, 140, *Mrs. Chichester*, sent by Messrs. FORBES and Mr. CRANE; No. 142, *Pride of Damas*, sent by Mr. HARRISON; No. 171, *Annie Johnson*, sent by Mr. HARRISON; No. 179, *Jackanapes*, sent by Messrs. FORBES.

AWARDS FOR VIOLAS FOR EXHIBITION.

AWARDS OF MERIT.

No. 4, *Mrs. J. Lawrence*, sent by Messrs. FORBES; No. 18, *Master Banks*, sent by Mr. HARRISON; No. 123, *Mrs. Jas. Smith*, sent by Messrs. W. ARTINDALE AND SON; No. 126, *Nurse*

Cavell, sent by Mr. HARRISON; No. 134, *Bessie Ferguson*, sent by Mr. HARRISON; Nos. 26, 27, 28, *Moseley Perfection*, sent by Messrs. FORBES, Messrs. DOBBIE AND Co., and Mr. HARRISON.

HIGHLY COMMENDED.

No. 128, *Mrs. D. Stevenson*, sent by Mr. HARRISON; No. 151, *Mrs. J. McEvan*, sent by Mr. HARRISON; No. 129, *Criss Littlejohn*, sent by Mr. HARRISON; No. 162, *Mrs. Andrew Stevenson*, sent by Mr. HARRISON.

AWARDS TO VIOLETTA TYPES OF VIOLA.

AWARD OF MERIT.

Nos. 190, 191, *Violetta*, sent by Messrs. FORBES and Messrs. DOBBIE AND Co.

HIGHLY COMMENDED.

No. 186, *Princess Mary* (*Violetta*), sent by Messrs. FORBES; No. 192, *Gold Crest* (*Violetta*), sent by Messrs. FORBES; No. 203, *Queen of the Year* (*Violetta*), sent by Messrs. FORBES; Nos. 197, 198, *Lyric* (*Violetta*), sent by Messrs. FORBES and Messrs. DOBBIE AND Co.

AWARDS TO VARIETIES OF VIOLA GRACILIS.

HIGHLY COMMENDED.

N. 196, *V. gracilis J. B. Taylor*, sent by Mr. CLARENCE ELLIOTT; No. 200, *V. gracilis Lady Crisp*, sent by Mr. CLARENCE ELLIOTT; No. 208, *V. gracilis Purple Robe*, sent by Messrs. DOBBIE AND Co.

EDINBURGH WORKING MEN'S FLOWER SHOW.

THIS annual show was held in Edinburgh on the 18th and 19th ult., and proved most successful; competition was keen, and a large number of entries of high quality were represented. On the 19th ult., Lord Provost and Mrs. Hutchinson visited the show, when several special prizes were presented by Mrs. Hutchinson, after Lord Provost Hutchinson had delivered a stimulating address. The following were the special prizes and the winners:—Corporation Jubilee Cup and Medal for highest number of points—1st, Mr. ROBERT KERR; 2nd, Mr. A. ARCHIBALD, who had 10 fewer points. Crichton Cup, Mrs. KINNEAR Whytock Medal, Mr. JAS. G. YOUNG. M'Hattie Medal, Mr. JAMES MOIR.

DUTCH BULB GROWERS' ASSOCIATION OF HAARLEM.

THE different Floral Committees made the following awards at their meetings during June and July, 1922:—

AWARDS OF MERIT.

Delphinium Mrs. Hemerick, pure lazulite-blue with a white eye; *D. Kobalt*, dark indigo-blue, shaded violet; *D. Mercurius*, indigo-blue, with dark violet shading; flowers semi-double.

Obituary.

Alexander Gray.—A well-known South of Scotland amateur gardener has passed away by the death, on August 16, of Mr. Alexander Gray, Kirkconnell, Dumfriesshire. Mr. Gray was a keen and successful exhibitor, and did much valuable work in promoting the exhibitions of the local horticultural society. He died in Dumfries Infirmary after a brief illness, and was buried in Kirkconnell churchyard on August 19.

INQUIRY.

SQUIRRELS AND CARROTS.

CAN any of your readers tell me if it is a common thing for squirrels to attack Carrots? This is the second season they have done so here, and just within a week of the date of last season's attack. They cut them over at the ground level and gnaw part of the root, destroying quite a number in a very short period. *R. Findlay, The Gardens, Castle Kennedy.*

NEW HORTICULTURAL INVENTIONS

LATEST PATENT APPLICATIONS.

21,891.—Raahauge, S. A.—Apparatus for grading seeds, etc. August 11.
21,678.—Rolph, H. M.—Plant markers. August 9.
21,704.—Segal, A.—Preservation of perishables. August 9.
21,727.—Segal, A.—Means for preserving Cereals, etc., in storage receptacles. August 9.
21,431.—Hayes, C. F.—Sprays for flowers, plants, etc. August 5.

SPECIFICATIONS PUBLISHED THIS MONTH.

183,625.—Constable, A. H.—Implement for sowing seed and distributing manure.
183,742.—Wolgar, C. A.—Portable garden canopy.
183,779.—Greenwood, H. J.—Plant support.

ABSTRACT PUBLISHED THIS MONTH.

Watering Plants. Patent No. 180,967.—A novel method of automatically watering plants by capillary action has been devised by Mr. P. V. Pinson, of 209, Boulevard Devout, Paris. It consists of one or more tubes containing wicks which are arranged to conduct water by capillary action from a water container to the surface of the soil in which the plant is situated. Messrs. Rayner and Co. will obtain printed copies of the published specifications, and forward on post free, for the official price of 1s. each.

This list is specially compiled for *The Gardeners' Chronicle* by Messrs. Rayner and Co., Registered Patent Agents, of 5, Chancery Lane, London, from whom all information relating to Patents, Trade Marks, and Designs, can be obtained gratuitously.

Rustless Weeding Irons.—Mr. C. A. Jardine has sent us a sample of his new tool for weeding, which is known as the Rustless Weeding Iron. It is made in various lengths and about an inch wide. The one edge of the lower end is sharpened, which enables the deeper roots of weeds to be severed by means of a sharp twist. It is a useful tool for extracting such deep-growing roots as Convolvulus and Twitch, whilst the shorter irons are serviceable for removing Plantains, Daisies, and other weeds from lawns. These rustless weeding irons will be found very adaptable for removing weeds amongst plants that are growing closely together and where the hoe cannot be used, also for extracting weeds from paths, much in the same way as an old kitchen knife is sometimes employed.

ANSWERS TO CORRESPONDENTS.

AMERICAN GOOSEBERRY MILDEW: *D. B. W.* Your best plan is to communicate with the Ministry of Agriculture, Whitehall Place, S.W., as the complaint is a notifiable one. The Ministry will advise you as to the best methods to adopt.

ANTS IN A GARDEN: *C. J. W.* As you state the surrounding fields are full of ant hills, it would be a very difficult matter to keep your garden clear of the ants. If you could gain access to the ant hills, boiling water poured over them would destroy many of the ants. There is a preparation known as Ballikrain Ant Destroyer, which you can obtain from the horticultural sundriesmen.

BEGONIAS DISEASED: *H. C. C.* The Begonias are suffering from a slight attack of rust followed by damping, due to a low temperature and an excess of moisture.

BLUE HYDRANGEAS: *Grange.* It is claimed that a proprietary preparation known as Cyanol has the effect of causing the flowers of Hydrangeas to assume a blue tint. Others state that sulphate of iron and alum in solution, applied to the roots, has the same effect. Ammonia-alum is used by some growers for this purpose; this last is applied copiously twice a week at a strength of $\frac{1}{2}$ oz. in one gallon of water. The blue colour develops

naturally in some cases, and especially in plants grown near the coast, but it is always found that the tone is richer when the flowers are not exposed too much to the direct rays of the sun.

GARDENER'S REMOVAL EXPENSES AND HOUSING ACCOMMODATION: *Perplexed.* (a) Your arrangement as to the removal expenses was apparently a little indefinite. Your employer may have intended to pay the remaining half of the expenses only in the event of your remaining six months at least. On the other hand, this might have been only to ensure that you did not give him notice within that period. On the whole, we consider that your employer should pay the remaining half, as you are leaving through no fault of your own. (b) Strictly speaking, your employer is entitled to the cottage at the end of the month; but, if it is impossible for you to find accommodation elsewhere, he would have great difficulty in getting an order for immediate possession. You had better try to come to some friendly understanding with him.

HORTICULTURAL LECTURER: *N. E.* Your best plan would be to study for the examination of the Royal Horticultural Society with a view to obtaining the National Diploma in Horticulture. This Diploma, together with good practical experience, will stand you in good stead in obtaining an appointment of the kind you desire.

NAMES OF FRUITS: *C. W.* Crab Apple Imperial.

NAMES OF PLANTS: *A. B. C.* (1) *Solanum rostratum*; (2) *Centaurea solstitialis*.—*Mrs. B.* A form of *Anguloa Ruckeri*.—*E. G. J.* (1) *Erica mediterranea*; (2) *Veratrum nigrum*; (3) *Amelanchier canadensis*.—*Soz, Stourbridge.* *Falcaria vulgaris* (Field-falcaria). It occurs in cornfields of this country, but is native to Western and Southern Europe.—*J. H. P.* We cannot undertake to name Roses; send them to some trade grower who can compare them with his plants.

ORCHIDS FROM INDIA: *E. H. H.* If the person you expect to send Orchids from India is resident there he should wait until the resting season, just after growth is finished before collecting the plants. If he is only travelling and has to take what he can get in passing, he should select the medium size, harder specimens, pack them, and send them off as soon as ready. Small packages are best. The kinds he will probably find may be divided into two classes, viz., the terrestrial Orchids growing on the ground, like our British Orchids. These should be dried in two ways, part being dried in a shady place for a few hours and then put in their sorts in small boxes. Fill the package with fine dry earth or moss, and close it down securely. The other part may be folded in paper separately and placed closely together in a leaf. The epiphytal species, that comprise the larger class, growing on trees, should be selected in the same way, choosing sturdy, hard plants of moderate size. These should be placed in boxes in layers, the roots of each layer being arranged the reverse of those of the former. Dry paper, or dry moss should be placed between the plants in packing, and a few small holes bored in the boxes before sending them off. Keep the packages as cool and shady as possible and send by the quickest route. Parcel Post is best where it is available. Either number the plants and send a numbered list with particulars of each, or attach tickets with names or descriptions to the plants.

RUST OF HOLLYHOCKS: *E. W. H.* Messrs. James Vert and Sons, Hollyhock specialists, Saffron Walden, are the makers of a powder for use as a specific against the disease. They claim that if their Hollyhock powder is used and the plants grown under liberal conditions, little fear need be entertained of the appearance of the disease.

Communications Received.—W. H. R.—E. B.—H. B. O.—H. B.—Perplexed.—J. J.—F. H.—A. W. (Thanks for 1s. for R.G.O.F. Box, Eds.)—H. H.—J. J.—W. G.—A. H.—F. A.



NERINE FOTHERGILLII.
(N.O. Amaryllideae.)

THE

Gardeners' Chronicle

No. 1863.—SATURDAY, SEPT. 9, 1922.

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AVERAGE MEAN TEMPERATURE for the ensuing week
deduced from observations during the last fifty
years at Greenwich, 59.1°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street,
Covent Garden, London. Wednesday, September 6,
10 a.m. Bar. 30.4; temp. 61°. Weather—Fine.

The Rate
of Growth
of Trees.

Although a knowledge of the rate of growth of trees and of the influence of meteorological conditions on growth is of great importance to foresters, there is, at present, but little exact and detailed information on the subject. With the object of remedying this defect of knowledge, Messrs. Haley and Cunliffe commenced in 1920 a series of observations and measurements of trees in Bingley Wood, Oxford. Needless to say, some considerable time must elapse before a body of facts can be obtained sufficient to provide a basis for sure conclusions, and the authors, in presenting the results of measurements obtained in the years 1920 and 1921,* are properly cautious in drawing no more than provisional conclusions from their records. The method adopted by Messrs. Haley and Cunliffe consisted in the measurement twice weekly of the rates of growth in height of selected trees of Sitka Spruce, European Larch, Corsican Pine and a few specimens of Douglas Fir and Beech. The method can, of course, be applied conveniently only to trees of relatively low stature, and those on which observations were made were not more than fourteen feet high. In order to obtain experimental evidence of the effect of water supply on growth, two expedients were adopted. One consisted in the removal of the top inch of soil, and the other in a reduction in the water-conducting capacity by cutting the stem half-way through near its base. Neither method seems to us to be free from objection, as the authors recognise.

The removal of the top inch of soil results not only in a reduction of the capacity of the soil as a reservoir of water, but also in a more rapid heating of the soil, which may produce a direct effect on rate of growth. Cutting through the stem of a dicotyledonous plant undoubtedly checks the rate of ascent of water, but in the case of certain Conifers—for example, the Yew—it is easy to show that, at all events for a time, the efficiency of the wood as a water-conducting tissue is not impaired. Therefore, before conclusions can be drawn profitably from the result obtained by this method, somewhat prolonged measurements of the rate of transpiration of young trees—intact and with stems partly cut—are required. Among the many striking observations made by the authors, the most interesting are those which record the period of maximum growth. Sitka Spruce, Corsican Pine, Douglas Fir and Beech all commenced to grow in 1921 on or about April 25 (April 25-29). Data are not given to show the meteorological events, soil, temperature and shade temperature immediately preceding this date, and it is to be hoped that, if information on these heads is available, it will be published when the full results of the research are presented. Larch begins its growth nearly a month later (May 23-26) than the trees just named. As to period of maximum growth, in the cases of the Pines (Corsican and Pinus ponderosa) growth is greatest at the end of May, whereas Sitka Spruce, Douglas Fir and Abies grandis grow fastest in the latter part of June. In both groups growth is completed by the end of July or beginning of August. As was to be expected, the effect of the abnormally hot weather of 1921 was to shorten the growing season and to reduce the daily increments. Clear evidence was obtained in the case of the Corsican Pine of the paramount influence of temperature in accelerating growth, whereas in the case of Larch, increase of temperature had no such effect in quickening growth. This latter result, the authors explain, as we think quite satisfactorily, by assuming that in the dry year of 1921 the growth of Larch was limited by lack of water. Finally reference must be made to the very suggestive considerations put forward to the effect that a relatively high soil temperature is detrimental to stem development—an hypothesis supported by striking evidence in the case of the Corsican Pine. The authors point out that soil temperatures in ground under a dense Douglas Fir plantation were at six inches 10° F. and at two feet 12° F. lower than in unsheltered ground near by. They suggest that the often observed improvement of growth in a young plantation at the time when it completes its canopy and the deleterious effect of opening up woods unduly, may be explained in the former case by the cooling effect on the soil, and in the latter by the warming up of the exposed soil beyond the temperature at which a high rate of growth can be sustained.

Origin of the German Horticultural Society.—

Interesting particulars of the history of the Deutschen Gartenbau Gesellschaft are given in the issue of *Gartenwelt* for September 1. The society was founded in 1822 under a statute of Frederick William III of Prussia, as a "Union for the Furtherance of the Art of Gardening in the Royal Prussian States." A Committee of twelve people was appointed to form the Society, among whom was Dr. Link; Herr Otto, of the Botanical Garden; a nurseryman named Bouché; a head gardener, Fintelmann; and other notables of the time. The early success of the Society was chiefly due to the untiring efforts of Dr. Link, who was a member from the beginning, and from 1854 till his death in 1851 acted as President. Another invaluable member of the

original Committee was Lenné, a landscape gardener, who was instrumental in founding a nursery near Potsdam which was able to supply the whole country with fruit trees. At the same time the Committee founded a horticultural college originally housed in a mansion in Neu-Schöneberg, near the old Botanic Garden, where also the office of the Society was established. It afterwards served as the nucleus of the Royal School for gardeners known as 'Wildpark'. In 1875 Dr. Wittmack became general secretary of the Society, and remained in this position thirty years. He also conducted the organ of the Society, which several times changed its name, beginning as the "Monthly Paper," continuing from 1881-1885 as the "German Gardening Times," for two years more simply as "Gardening Times," and from 1887 as "Gartenflora." Dr. Wittmack is now over eighty years of age, but still takes the keenest interest in the work of the Society. Of the Presidents, which have been many during the hundred years of the Society's existence, it suffices to mention only one or two. To Herrn Walther Swoboda, of the Berlin nursery firm I. C. Schmidt, who was President in 1909 and 1910, is due the credit of having altered the name of the Society—which was hitherto generally known as the "Society with the Long Name!"—to the simple title it now holds. He died in 1916, at the early age of 43. He was followed by Dr. Hugo Thiel, who worked hard for the unification of the many small gardening societies scattered all over Germany, and which he thought would be more useful if closely affiliated to a large parent society such as the English Royal Horticultural Society. The present holder of the Presidential chair, Herr Braun, combines the business management of the Society with his presidential duties, and has worked very hard for the success of the centenary celebrations, now in full swing.

Paris Autumn Show.—The French Chrysanthemum Society will hold its Annual Congress in conjunction with the International Autumn Exhibition of the National Horticultural Society of France. This show will be held in the Palmarium of the Jardin d'Acclimatation, and will open on October 2 and close on November 5. A cordial welcome is extended to all British growers of the Chrysanthemum to take part in the show and Conference. Mr. C. Harman Payne, Foreign Secretary of the National Chrysanthemum Society, 195, Wellmeadow Road, Catford, S.E.6, notifies us that he will be pleased to give information to prospective exhibitors or visitors.

National Rose Society.—We understand that during the past two months the number of new members joining the National Rose Society is 200 per cent. greater than for the corresponding period of last year; compared with the pre-war year, 1913, the increase is even more remarkable, being more than 400 per cent. A record number of fifty-four new members joined on Tuesday, the 29th ult. The present membership is close on 9,000.

The Allotments Act, 1922.—This new Act, which came into force early in August, goes a long way towards meeting the objections of plot holders who were formerly liable to be dispossessed of their holdings at short notice. Prior to the new Act, although they were compensated for the value of the crops, they were not able to reap the full fruits of the time and labour which they had expended. The Act provides that the tenancy of an allotment garden cannot be terminated by the landlord at less than six months' notice, to expire at some period of the year which will not include the dates April 7 to September 28 inclusive. Moreover, in the case of notices terminating at Michaelmas, the tenant will be at liberty within three weeks afterwards to remove any crops which may be growing on the land. There are, however, certain exceptions to these provisions—for instance, where the land is required for building or some other industrial purpose only three months' notice need be given, but compensation for crops and manure will be awarded. Another important provision of the Act is that it requires every borough or urban district council with a population of more than ten thousand,

* *Oxford Forestry Memoirs.* An investigation into the relation between height, growth of trees, and meteorological conditions. By W. E. Haley, B.Sc., Research Officer to the Forestry Commission, School of Forestry, Oxford, and Norman Cunliffe, M.A., Lecturer in Economic Zoology, Oxford. Clarendon Press, Oxford.

unless specially exempted, to establish an allotments committee, which will arrange all matters concerning allotments in the district. It will not, however, have power to raise money by means of a rate or loan.

Lupins for Improving Poor Soils.—The *Estates Gazette*, August 12, 1922, gives particulars of experiments with Lupins that have been carried out in Nottingham with a view to improving the quality of the soil. Lupins possess great advantages for green manuring purposes, since they produce a luxuriant crop (frequently three feet to four feet high) on very light land; being a Leguminous crop, they enrich the soil with nitrogen, and when ploughed in they bind sandy soil together and give body or humus to it, thereby supplying direct plant food and, perhaps most important of all in these soils, helping to conserve the natural moisture. An interesting test was made in 1920, when it was found that

presence in plants and vegetables not only of zinc, cobalt, iron and magnesium, but also of aluminium, cadmium, iridium, and nickel.

A New Head Gardener at the Luxembourg.—The post of head gardener at the Luxembourg, in Paris, having become vacant, candidates for the position were examined on July 24 and 25. Nine candidates presented themselves, and the post was finally awarded to M. Cuny, a former student at the School at Versailles.

Plant Indicators.—An interesting article under this title by Mr. J. M. Murray appears in the *Transactions of the Royal Scottish Arboricultural Society*, July, 1922. Mr. Murray has drawn up a table showing how the natural herbage indicates the nature of the soil, and gives a list of trees which are suitable for planting on land carrying certain flora. Thus, he points out that Heather or Ling indicates a peaty soil in which Scots Pine and occasionally the Larch

Costermongers as Retailers of Fruit.—According to Mr. James Bradnum, president of the London and Provincial Fruit Buyers' Association, fruit growers are feeling the effects of the dearth of costermongers, who before the war came forward when there was a glut and purchased the fruit for retailing on their barrows. The reason, he supposed, was that there was a certain element of risk to everyone engaged in the fruit business, and since a man could now stay at home and secure what he needed to keep body and soul together from the dole, there was lacking the impetus to purchase supplies of fruit or vegetables.

Resignation of Principal of Harper-Adams College.—Mr. P. Hedworth Foulkes, who has been Principal of the Harper-Adams College of Agriculture at Newport, Salop, for 22 years, since the opening of the College, has resigned. At a recent gathering of farmers at the College



OFFICIALS OF THE GLASGOW INTERNATIONAL SHOW AND MEMBERS OF THE DEPUTATION FROM THE ROYAL HORTICULTURAL SOCIETY.

Back row (left to right): Messrs. Jas. Whitton, J.P., V.M.H., Director of Parks and Gardens, Glasgow; John Cairns, Chairman of Committee; Hugh M. Mackie, C.A., Secretary; C. P. Hamsworth, General Manager, Kelvin Hall; Cecil Sommerville, Assistant Manager, Kelvin Hall. Front row (left to right): Mr. Gerald Loder; Mr. W. R. Dykes, M.A., Secretary, R.H.S.; the Right Hon. Lord Lambourne, President, R.H.S.; Sir John Reid, D.L., President Glasgow and West of Scotland Horticultural Society; the Rev W. Wilks; Mr. W. Cuthbertson; Basil W. B. Smith, Convener of Kelvin Hall Committee.

Oats after Lupins yielded $7\frac{1}{2}$ qrs. per acre, while Oats after Buckwheat yielded only $1\frac{1}{2}$ qrs. per acre. Corn growers in districts where poor, light land predominates could well memorise these facts.

With reference to the tests made in 1921, it was found in the cultivation of Lupins that phosphatic and potassic manures gave good results, the poorest plot of any being the unmanured. As a general rule, the application of 3 cwt. of basic slag or basic phosphate per acre, or 2 cwt. bones per acre, as a phosphatic dressing, would be ample, while the potassic dressing would consist of from 1 cwt. to 3 cwt. per acre of sylvinit or kainit. In the Nottinghamshire tests it is observed that in each trial a portion of the land adjoining was left without Lupins, so that in the following years throughout the rotation proper comparison could be made with the crops following the Lupin preparations.

Metals in Plants.—At a recent meeting of the French Academy an interesting communication was received from Professor Bierneske, member of the Academy in Russia which existed in pre-Soviet times. The Professor declared that researches instituted by him established the

may be successfully planted, and so on with various grasses, Rushes, Bracken, Bog Myrtle, Firs, Broom, etc., giving the trees suitable for planting on land occupied by them. He states that many of the natural forest tracts in Britain have been destroyed within the period of written history, and the place of these is now occupied by a sub-climax stage of grass-land, dwarf shrubs or cultivated land. In the grass-land, where man's influence is not too strongly felt, the various species would tend to sort themselves out so that each occupied the position that was best suited to its development. Within certain limits a normal form of succession would take place, and the same would occur among the dwarf shrubs. The forester, in forming his plantations, wishes to jump over these various sub-climaxes that would exist before forest was reached, and at the same time, to arrive at what could remain under natural conditions as a dominant association with societies in it dependent on habitat. When he achieves this end he may be sure that within the limitations imposed by migration barriers, he has got the best possible form of tree-growth for his area.

it was stated that the number of students had increased from four to a hundred and thirty. The reputation of the College had been built up in the face of great difficulties, until it was now known throughout the Empire. Mr. Foulkes had found the work tell seriously on his health, which was the cause of his resignation, but he has been recuperating for some months abroad, and is very much better.

Stocks from Gethsemane.—In December, 1917, a British officer of Lord Allenby's force visited the Garden of Gethsemane, near Jerusalem, where the monk in charge of the garden gave him some seeds of the beautifully scented Stocks which grow there. The seeds were not sown until early in the present year, and proved curiously capricious. Some remained dwarfed, others grew into bushy plants, but very few consented to flower. One group of three seedlings, however, which was planted in the garden of Mr. R. S. A. Housden, President of the London Rotary Club, at Shortlands, Kent, is flourishing, and the plants are blooming freely. The blooms are of a fine shade of pink, with a touch of mauve.

Allotments.—According to Mr. F. Forbes, general secretary of the National Union of Allotment Holders, 1,250,000 people are cultivating allotments in England and Wales. He estimates that each allotment produces on an average ten hundredweight of vegetables annually, or an aggregate of 700,000 tons, of which about 200,000 tons are Potatoes. There is still a growing demand for allotments, the latest return showing no fewer than 50,000 applicants whose wants have not yet been met. It is computed that 250,000 people hold their allotments on land originally acquired under the temporary provisions of the Defence of the Realm Act. With the expiry of D.O.R.A. these allotments, as such, ought to be surrendered in March next. Some provision, however, has been made under the Allotments Act just passed by which, in the case of land that was unrated when originally taken over, local authorities may continue to use it for allotments until it is required for some other definite purpose by the owner.

Appointments for the Ensuing Week.—Monday, September 11.—United Horticultural Benefit and Provident Society's meeting; Bath Gardeners' Society's meeting; Purley Horticultural Society's meeting. Tuesday, September 12.—Auchencairn Horticultural Society's meeting. Wednesday, September 13.—Royal Caledonian Horticultural Society's show (2 days); East Anglian Horticultural Society's meeting; Sheffield Chrysanthemum Society's meeting; Elgin Horticultural Society's show. Thursday, September 14.—Bristol and District Gardeners' Association's meeting. Friday, September 15.—British Mycological Society's autumn foray (8 days) and annual meeting; Eastbourne Horticultural Society's meeting; Moffat flower show. Saturday, September 16.—Haddington flower show.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Gathering and Storing of Fruits.* The summer fruit season being now nearly ended, attention must be paid to the gathering at a proper period, and storing away in a proper manner, the keeping winter stock, which is even more valuable than the preceding. It is a somewhat nice point to know when to gather the respective fruits, some being best at one stage of the ripening process and some at another. As a general rule, we would say that fruit of a precocious character and which ripen rather hastily, and those also possessing some aroma, should be gathered somewhat under-ripe; whilst those which ripen with difficulty, which are long in obtaining colour, and those which are scentless, should remain much longer on the tree. Certainly the way to obtain the greatest amount of flavour is to suffer fruit to become ripe on the plant, but we think that long keeping properties are secured by gathering rather earlier. The colouring of the pip or seed is, perhaps, after all, the most sure criterion; if this is one-half coloured, we think it will seldom be an erroneous proceeding to gather the fruit. It need scarcely be observed that care, much care, must be exercised in handling those for long keeping, especially the Flemish Pears. Some have advised them to be handled like eggs; the latter, however, will bear a much rougher handling than some of the Pears, many of which possess a fine skin, and are very susceptible of bruises. The Pears should only be placed one layer in thickness if possible, and for material we find nothing better than cap paper, where the shelves are solid placing the cap paper double. We think that Pears require less ventilation than Apples; the latter are apt to give out a vast amount of moisture on first entering the room, especially if surcharged with juices through a rainy period. The Pears for long keeping may in such case have something laid over them, in order to prevent excessive perspiration. *Gard. Chron., September 11, 1847.*

Publication Received.—*Catch Crops and Forage Crops.* Free on application to the Chilean Nitrate Committee, Friars House, New Broad Street, E.C.2.

TREES AND SHRUBS.

OLEARIA INSIGNIS.

THIS beautiful species is the most distinct of all the Olearias, and is by no means common in gardens, due no doubt to the fact that, save in exceptional cases, it does not appear to be long-lived under cultivation. In its native state the plant is said sometimes to attain a height of five feet to six feet, but under cultivation I do not remember ever having seen it exceed two feet in height. The fine specimen illustrated in Fig. 59 is practically prostrate, the shoots spreading over the stones which are partly embedded in the soil. It is in an unheated conservatory in Killerton Gardens, near Exeter, the Devonshire seat of the Hon. F. D. Acland. When photographed the plant had some sixty-five flowers and flower buds, and is by far the finest specimen it has been my fortune to see. The specimen illustrated was, with others, raised from seed about ten or twelve years ago, and with others was originally planted out in the rock-garden, but they appeared to suffer from damp during the winter.



FIG. 59.—OLEARIA INSIGNIS FLOWERING IN AN UNHEATED CONSERVATORY.

The only ultimate survivor was lifted a few years ago and planted in its present position. I understand from Mr. J. Wilson, who is in charge of the gardens, that this plant usually produces quantities of good seeds, and when in fruit is almost as attractive as when in flower. *Olearia insignis* is figured in the *Bot. Mag. t.*, 7034, and is a native of New Zealand, where it is found on rocky river banks in the middle part of the North Island in the province of Nelson, where it was discovered by Capt. D. Rough about 1850. It is also reported as being found on the banks of the Karran River, in the N.E. part of the same island, occurring from sea-level up to 5,000 feet elevation. The large, oblong leaves are shiny and coriaceous on the upper surface, while the underside and stems are densely clothed with white or reddish felt. The white flowers are over an inch across, while the peduncles are one-flowered, and vary from six inches to one foot in length. *J. Coult.*

OLEARIA NUMMULARIFOLIA.

WITH reference to the note by J. F. on this plant (page 91), I may say that it is perfectly hardy here. I have plants of it from cuttings which I received about ten years ago from a friend in the Murrayfield suburb of Edinburgh (who had several large plants of it growing in the open ground), another came unscathed through the severe frost of November, 1919, when several of the Veronicas were completely killed. It is rather a slow-growing subject, however, and is not so showy as most of the others when in flower, but, as J. F. remarks, it is a good foliage plant of its kind.

I may also remark that J. F. is in error

in stating that Mr. Bean does not mention it in his *Trees and Shrubs Hardy in the British Isles*. Mr. Bean includes it, along with several others which are not fully described in the text, namely *O. Forsteri*, *O. insignis*, and *O. nitida*, at page 104, and he states that *O. nummularifolia* and *O. nitida* "succeed well in the open in Miss Wilmott's garden at Warley Place, in Essex." The name is also given in the index to the work. It is not, however, included in the second edition of the *Hand List of Trees and Shrubs* grown in the Arboreum at Kew (1902). According to the *Index Kewensis* the correct spelling of the specific name is *nummularifolia*, i.e., without a diphthong. *A. D. Richardson, Edinburgh.*

CUPRESSUS FORMOSENSIS.

MR. H. CLINTON BAKER has sent me a branch bearing cones of the Giant Cypress of Formosa, of which there are several specimens fruiting at Bayfordbury. This is the first time that this species has produced fruit in Britain. It was introduced by Mr. Baker in 1911, when he received a living plant from Formosa, and

also a quantity of seed, which was distributed to various gardens in England, Ireland, the Continent, and North America. A complete description by me of this Cypress, with drawings of the foliage, seed, and cone-scale, was published in *The Gardeners' Chronicle*, March 2, 1912, Fig. 53. Another illustration, Fig. 54, reproduced a photograph of a large tree, 67 feet in girth, growing on Mount Morrison in Formosa. Seedlings grow fast, but are tender to spring frost. The swelling of the branches at their junction with the main stem is a peculiar feature of this species. *A. Henry.*

LAVENDER.

THIS favourite old garden plant may be propagated from cuttings inserted now, making them like other cuttings, and striking them in sandy compost in a cold frame. A frequent cause of failure is the insertion of the cuttings insufficiently deeply in the compost. The cuttings should be put in the soil so far as the foliage, and made quite firm at the base. We generally employ the box method as being convenient for handling.

There are several fine varieties of Lavender in cultivation, and at Aldenham we grow *Lavandula spica*, *L. vera*, *L. vera alba* (the very attractive white-flowered form), *L. vera nana*, *L. Munstead blue*, *L. multiida*, and *L. Twickel purple*, the last a finely flowered, broad-leaved form.

A Lavender hedge is a fine feature in the garden, and the spikes of fragrant flowers are always appreciated, especially for their old-time use of placing amongst clothes to keep moths away, being as effective for the purpose and greatly to be preferred to carbon or camphor. *Edwin Bockett.*

The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the
DUKE OF MARLBOROUGH, K.G., Blenheim Palace,
Woodstock, Oxon.

Pleione.—In the cool Cattleya house the *Pleione*s will now be completing their new growths, and will need more light and air to consolidate the pseudo-bulbs. Sufficient water should be given to keep the compost moist. The cool-growing varieties, *P. humilis* and *P. Hookeriana*, will still require liberal supplies of water until their growths are completed. The position most suitable to them is one close to the roof ventilators of the cool house. These old species of Orchids are not grown at the present time so extensively as their merits deserve, as there is a particular charm, all their own, in the different species of all classes of Orchids.

Cool Orchids.—The various members, both species and hybrids, of the genus *Odontoglossum* comprise the principal occupants of the cool house. This family of Orchids includes some of the most beautiful as well as most useful plants in cultivation. The late summer and early autumn is generally regarded as the most suitable season for attending to the roots of these plants, as the climatic conditions at this season are generally favourable to their re-establishment. Every effort should be made to repot plants at the season when they will receive the least check possible; and that is whenever the plant is about to develop fresh roots. *Odontoglossum*s from now onwards commence to push new roots from the bases of the newly-made growths, hence the necessity of attending to the more forward specimens first, until all that are in need of new material are attended to. Should the old compost be sweet and the plants in small pots, they may be shifted without much disturbance of the roots; but should the compost be sour, pick out all the decayed material and place the plants in pots of the same size, or even in smaller ones.

Potting Compost.—As regards the kind of potting material for Orchids, there have been innumerable mixtures recommended for their cultivation, from leaf-soil to pure fibre. As I am a firm believer in a clean, open compost for these and all other plants, I recommend a mixture made up of equal parts of good Peat, fine A.I. fibre, and Sphagnum moss, with a slight addition of broken leaves. As the best compost that can be put together is easily ruined by faulty watering after repotting, too much care cannot be given in the application of water to newly potted plants. It is essential that the pots be well drained to ensure a free passage for water, and the compost should be made moderately firm.

HARDY FRUIT GARDEN.

By H. MARKEHAM, Gardener to the EARL OF STRAFFORD,
Wrotham Park, Barnet.

Lifting Unfruitful Trees.—Although it is too early to commence root-lifting, preparations should be made as early as means will allow. Collect and prepare suitable soil for the different kinds of trees, so that when the proper time for lifting arrives all will be in readiness for carrying out the work as speedily as possible. The soil for all kinds of stone fruits should contain plenty of lime and should be sweet and fresh. For Pears and Apples use a good, medium quality, fibrous loam, enriched with a little manure and mixed with a quantity of brick rubbish to keep it open. Manure is sometimes not needed, but a little sweet decayed dung well mixed with the loam will greatly assist the trees to develop fibrous roots. Large trees that have hitherto borne little or no fruits may be

brought to a satisfactory state of bearing by lifting their roots, pruning them and replanting them nearer the surface in a sweet fertile soil prepared expressly for them. Whenever this work is undertaken take care not to miss severing a single tap-root, otherwise the work and trouble expended will be in vain. I have lifted unfruitful trees of very large size, carefully preserving as many of the roots as possible, and replanting the latter nearer the surface, where they could receive the full benefit of the sun's warmth, with excellent results and far beyond my expectations. Not only have such trees borne heavily after root-pruning, but the individual fruits produced have been large, exceptionally clean and good and well flavoured.

Strawberries.—Remove all runners from Strawberry plants as fast as they appear, and keep the beds free from weeds by running the hoe repeatedly along the rows. Do not disturb the soil too deeply, as many of the roots grow near the surface. Plants that were put out early are growing freely, the recent rains having benefited them greatly, and the same is true of plants in older beds. With a little care and attention the plants should develop fine, sturdy fruiting crowns by the end of the season, and produce strong flowers next spring. In some gardens young plants are set out expressly for supplying early runners; they are kept free of flowers and encouraged to grow for the production of strong runners early, an excellent method which is worth adopting by growers. The Strawberry crop this year was a very poor one, owing to a variety of untoward circumstances, and the plants should receive a little extra attention to compensate for these adverse conditions.

PLANTS UNDER GLASS.

By T. PAYMAN, Gardener to Sir C. NALL-CAIN, Bart.,
The Node, Codicote, Welwyn, Hertfordshire.

Nerine.—Plants of *Nerine Fothergillii* and some of the hybrid *Nerines* are pushing up their flower spikes and should be well exposed to the light in a cool greenhouse. At this stage of cultivation the plants should not be over-watered, but when the flower spikes are removed and the plants are making their foliage, every encouragement should be given them to make as much growth as possible. It is not necessary to repot these plants every year; once in three or four years will suffice. Some of the surface soil, however, may be removed, and a little rich soil used as a top-dressing.

Swainsonia galegifolia.—This species and its varieties *purpurea* and *alba*, are useful for training up pillars in the greenhouse, also for training around sticks or wires to form specimen plants. They grow very quickly and will, provided they are given manure water on frequent occasions, cover a large amount of space in a very short time, even when the roots are confined in receptacles of moderate size. Cuttings made from the young growths will root freely if inserted in light, sandy soil. Stand the cutting pots on a mild hotbed. This plant will grow in almost any soil, but a mixture of loam, leaf-mould and sand will be found the most suitable.

Humea elegans.—A sowing of this graceful plant should be made sometime during the present month. The seed should be sown in pots or pans filled with a light, open compost. When the seedlings are large enough to handle they may be pricked off singly into very small pots and stood near the roof glass in a cool greenhouse. To be successful with this plant it should be given cool treatment and great care must be exercised in watering it. It will be found to thrive much better when in the young stages of growth if kept a little on the dry side; when the young plants are overwatered the soil becomes sour, which probably causes the young plants to die quickly. The same treatment should be given whenever the plants are shifted into larger receptacles. Plants coming into flower now need the same care with regards to watering, but it will be readily understood that the plants should never be allowed to become dust dry before water is applied to the roots.

THE KITCHEN GARDEN.

By JAMES E. HATHAWAY, Gardener to JOHN BRENNAND,
Esq., Baldersby Park, Thirsk, Yorkshire.

Mushrooms.—The mushroom house should be well cleansed, the walls whitewashed and materials for new beds gathered and prepared as recommended in a previous issue to raise a winter crop.

Cabbage.—Choose a south border and make a planting of Cabbages, allowing 18 inches between the rows, and setting the plants 1 foot apart in the rows. This will ensure a good crop, as every other plant may be taken out in the spring for making good any that have bolted. Ground which has been cropped with Onions is suitable for the planting of the second batch.

Rhubarb.—No more stalks should be pulled after this date, as divesting the plants of the leaves tends to weaken the crowns. Any decaying stems should be cleared away, so that the crowns may receive all the air possible to ripen them. A good soaking with manure water will help to develop fine crowns for forcing.

Endive.—Plants of the earliest batches of Endive are now ready for bleaching, which may be done by tying the leaves together and placing a pot over them when the plants are perfectly dry. Another batch should be planted in a warm, sunny position, and some should also be transplanted in frames.

Peas.—The season for Peas has been a poor one in the north. We have had plenty of pods but, owing to cold, wet weather, they have not filled. Varieties that have filled their pods well should be carefully picked when ripe and saved for seed, which should be well dried before storing it.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER CLAY,
M.P., Ford Manor, Lingfield, Surrey.

Frame Melons.—These will now be almost over, but where the fruit is still unripe, the bottom heat of the bed should be tested. Good Melons can be grown without fire-heat by renovating the fermenting materials of the hotbed as linings regularly, by closing the frame early in the day with sun-heat, and covering it with mats before nightfall. Discontinue syringing and feeding, admit a moderate amount of air early on fine mornings, gradually increasing the quantity, when gentle warmth in the top pipes will dry up superfluous moisture and prevent sudden fluctuations in the temperature of the frame.

Winter Cucumbers.—With the approach of autumn old Cucumber plants should be cleared out of the houses or pits with as little delay as possible. The houses should be thoroughly cleansed before they are replanted. Stout, healthy, young plants should always be available for planting, but at no time is this more desirable than in the autumn. The plants should, as the pits are cleaned, be put out in pots or upon hillocks of soil and their development hastened by affording them bottom heat of 80°, which will permit of ventilation of the pit. If there is no hurry for the fruit 4 feet apart will be close enough to set the plants, and the laterals may be allowed to extend a little more than usual. The compost should be rather more porous than that recommended for summer culture; it should be of the best quality and free from animal manure. Two sowings of Telegraph or another good winter variety should be made in September, the first early in the month, and the second towards the end. Where a steady supply of fruit throughout the winter is required the month of September should be devoted to the preparation of the plants and the pits in which they are to be grown. In pits without fermenting materials, gentle fire-heat should be used, even in September, as the proper temperature cannot be maintained without artificial warmth. Light, rich top-dressing, with a sprinkling of soot for the destruction of worms, may be applied, and poor compost may be enriched with bone-meal in preference to manure.

Figs.—The fruits from Fig trees under glass should now be over, and the trees in pots, tubs, or borders resting. What is gained by allowing a few more fruits to ripen will be lost when half-rested trees commence casting their fruits early next spring. If the autumn continues fine and dry, pot trees may be kept near the foot of a west wall until the house or pit in which they are to be forced is ready for them. The Fig being subject to attacks of red spider, scale and other pests, the trees should be most carefully washed and dressed with Gishurst compound, the house equally well cleansed with hot water, and the brickwork lime-washed before they are taken in. Sudden and severe autumn frosts do Fig trees no good, therefore the house should be ready for them at the shortest notice. The best trees for very early forcing are those 5 feet to 8 feet high; the fruits on such plants invariably swell to a large size, and are not so subject to dropping as so often happens when the roots are confined to small pots and irregularly watered.

THE FLOWER GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

Propagating Summer Bedding Plants.—The time has arrived when considerable attention must be devoted to the propagation of many of the more important plants utilised for the summer bedding. Those that call for attention during the next week or so comprise chiefly Pelargoniums such as the ordinary Zonals, Ivy-leaved, and the Cape, or Scented-leaved species, where these are used for bedding purposes, Fuchsias and Verbenas, these three being rooted within cold frames. The more tender plants may be struck in heated pits or frames, and of these the more important are Heliotrope, Swainsonia, Mesembryanthemum, Salvia, Streptosolen and Plumbago capensis. Zonal Pelargoniums will probably be rather more difficult to root this year than they were last, inasmuch as the wood is far more sappy. To overcome this drawback it will be advisable, when the cuttings are made, to lay them in a dry, sunny position for a short time, until they show evident signs of wilting. Thereafter they may be inserted in pots filled with sandy compost to strike in the usual way. Cuttings of summer bedding plants should be made from the shorter and more compact shoots rather than from longer, weaker ones. The cold frame method of raising Zonal and other Pelargoniums, Fuchsias, etc., is undoubtedly the best for the purpose if adopted now, inasmuch as if the work is left until later in the year, heat will be necessary in order to strike the cuttings, and though this may result successfully, yet the plants will be of weaker constitution than those struck without fire-heat. The more tender plants for striking in the pits or frames where heat is required should be made in the usual way, and inserted in 48-pots containing good, sandy compost. They should not be crowded too many in a pot, but made firm at the base, and, when rooted, removed to cooler quarters. Guard against any possibility of frost getting to them, though the grower should endeavour to have them as hardy as possible.

Stock Plants.—The propagation of certain tender subjects, used for bedding, should be left until early spring, and a number of stock plants should be reserved when lifting the summer bedding and potted up for the purpose of wintering them in warm frames. From these they can be introduced into mild heat at a suitable time later, and will rapidly then furnish a sufficiency of young, suitable growths that are most useful for propagation as cuttings in gentle heat. The best period for accomplishing this work is just about the advent of the New Year, and plants that can thus be dealt with include Iresines, Ageratum, Salvias, Lobelia and Mesembryanthemums. It will be seen that a certain repetition of plants occurs, therefore the propagator can choose the period most suitable to him. Watch the cuttings carefully, stirring the soil around them lightly from time to time to prevent them from damping off. The material taken from the beds for use as cuttings should be selected carefully so as not to spoil the plants, which will continue to prove attractive until the end of the season.

THE BULB GARDEN.

WHITE GLADIOLI.

THAT colour descriptions are difficult we all appreciate from our own experience, yet one would have thought that in the case of a white variety our troubles would cease. But it is not so, for we find many Gladiolus varieties with scarlet, blue, or purple blotches classed as white—such as Incontestable, Meteor, and Peace. There must be a large number who bought Peace, thinking it was a white variety, only to find that there was a good deal of colour in it.

In looking back among the whitest of whites, such as Alice Carey, Rochester White, Lily



FIG. 60.—GLADIOLUS PERFECT PEACE.

Lehmann (1909), Europa (1911), Chicago White (1913), White Glory (1915), Lily White (1916), Mary Pickford (1917), and Giant White, I give first place to the last-named as the purest white at present on the market.

There was Superb Peace (1918), which I have not seen, and now we have Perfect Peace (see Fig. 60), which obtained an award of merit at the R.H.S. meeting on August 22 last, when shown by Messrs. Kelway and Son. This last is not a pure white, but nearly approaches being so. There is yet another white, which is not yet in commerce, named Fern Kyle. This is a fine flower, but has the same defect as Perfect Peace. I should not be prepared to say which is the better flower of the two without seeing them together. Having seen both flowers, I think they run each other very close indeed.

There is still another white, which for purity and grace may excel all the other whites, but that is another story.

Apart from Mary Pickford, I have not touched on the creamy whites. These, again,

are very numerous, but, so far, I have not seen a variety more to my liking than Snow Glory, which was illustrated in *Gard. Chron.*, October 8, 1921, Fig. 74. *Smilax*.

HARDY FLOWER BORDER

THE DOUBLE SAPONARIA.

THE double form of *Saponaria officinalis* is an old inhabitant of the garden, and is as often found in an apparently wild state as the single one. The chief difference in their appearance is that the double one is mostly confined to a single colony, even if it is a large one; while the single flowered one scatters its seeds about and forms numerous colonies. Both require a deal of garden room on account of their underground stolons; and for that reason I have found outcasts by the seaside, river banks, and on commons. I recently conceived the idea of examining the double flowers, and found the buds so bulky that they split the calyx down one side, like a Carnation. Inside were numerous petals, numerous stamens, more or less perfect, and a number of seed vessels, forming several flowers within the original calyx. There are two carpels in the normal, single flower, completely united and surmounted by two styles. In the double one the carpels varied from three to eight, more or less united, sometimes wholly free, and in all cases open on the inner face. Each carpel was surmounted by one style, so that the ovary was apocarpous, and open at the ventral suture. Each carpel is, of course, the homologue of a leaf. In this case the extra number of petals cannot have originated from the stamens, because several separate flowers within the original calyx have petals, stamens and open carpels. *J. F.*

ORCHID NOTES AND GLEANINGS.

LAELIO-CATTLEYA PRAXITELES.

PANTIA RALLI, Esq., Ashted Park, Surrey (Orchid grower, Mr. Farnes), sends a beautiful four-flowered inflorescence of this hybrid between L.-C. Mrs. Phayre (*C. Dowiana aurea* × *L.C. Norba*) and *C. Hardyana alba* var. Countess of Derby (F.C.C., September 11, 1894). The plant was developed in his gardens from a very small seedling acquired from the collection of the late J. Gurney Fowler, Esq. The general form of the flower is similar to that of the *C. Hardyana* parent, and it is very fragrant. That useful little species, *L. xanthina*, which has played such an important part in yellow hybrids, imparts to this pretty novelty clear Cowslip yellow colour in the sepals and petals. The broad labellum, which has an undulated margin, is violet crimson in front, with gold lines on a purple ground running from the base to the two chrome yellow patches displayed on each side of the middle part as in *C. Warszewiczii*, which was one of the earlier parents.

CATTLEYA MARGARET.

A flower of a cross between *C. Maggie Raphael alba* (*Dowiana* × *Trianae alba*) and *C. Iris* (*bicolor* × *Dowiana*) is sent by Pantia Ralli, Esq. The sepals and petals, which are sulphur yellow, are very well displayed, but the labellum, which in form has almost reverted to the narrow proportions of the *C. bicolor* in *C. Iris*, detracts from the floral effect, although it is very interesting. The short side lobes of the lip, folding over the lower half of the fleshy white column, are tinged with rose, the isthmus and front lobe reddish purple with a fringed sulphur margin.

ODONTOGLOSSUM DORAQ.

THE record of this hybrid in *The Gardeners' Chronicle* referred to (see p. 159) was taken from a report of the Manchester and North of England Orchid Society, in which *Odontoglossum Doraq* (*Dora* × *Aquitania*) was recorded as being shown by P. Smith, Esq. The same name and parentage is included in the *Addenda* to Sanders' *List of Orchid Hybrids*, September, 1921.

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Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 5, Tavistock Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

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SELECT BULBS FOR 1922.

THE bulb grower must have a fellow-feeling with Persephone when the bulb catalogues come in. He turns over page after page, Hyacinths, Tulips, Daffodils, and then come all the lesser fry of Irises, Crocuses, Freesias and the rest, which go to give so many of us infinite pleasure during the coming year in anticipating the unknown, or later on in the enjoyment of the reunion with old friends. What garden lover with the autumn lists on his table is not touched with the tale of Persephone in the "Meadows of Enna"?

"Lo! one she marked of rarer growth
Than Orchis or Anemone:

For it the maiden left them both

And parted from her company.

Drawn nigh she deemed it fairer still,

And stooped to gather by the rill,

The Daffodil, the Daffodil."

Jean Ingelow here puts it in a nutshell. It is difficult to know when to stop marking.

"O fateful flower beside the rill -

The Daffodil, the Daffodil."

Last week I had one of the surprises of my life. A man with snow-white hair and beard, whose knowledge of literature is vast and who can people many a city, town and village with the great figures of the past as Thomas Hardy peopled the streets of Oxford in *Jude the Obscure*, or as Justin McCarthy filled the House of Commons when Gladstone made his great Home Rule speech, who possibly knows how Redesa odorata came to be Mignonette, did not know this plant by sight when he saw it in the garden, and in a joking sort of way I said, "Well, you know this?" As Dr. Thompson, the Master of Trinity, Cambridge, once remarked, "Even the youngest of us does not know everything," so may I venture to suggest that there may be some even among our great amateurs and head gardeners who do not know all the flowers which have "found" me in 1922 catalogues.

Hyacinths come first. Their premier position in practically every list is a silent witness to their lordship in the past as the flower par excellence of Holland, from which country once upon a time all bulbs came. Britain and Ireland can produce as good Tulips and Daffodils, but not as good Hyacinths. The dream of James Justice in 1763 is still a dream. We have still to go to the successors of the Dirk and Pietre Voerhelms and the Von Zompels for our bulbs. I hope there are goodly stocks of the

exquisite double rosy pink Kastanjebloem. It is a very happy name, for the delightful spike certainly suggests a Chestnut flower. It is an old friend that I had not seen for years until a seven-inch pot with three handsome spikes of bloom was brought to my sick-room this last spring. It was very beautiful, and I am told that all visitors who saw it fell in love with it. I have always a fondness for the ultra-dark blue single Menelik and the delightfully fresh-looking pink Lady Derby, and I can never let a year go by without a few Oranje Boven, with its unique small ruddy-apricot bells arranged on spikes which have all the grace and lightness of the well-known Roman Hyacinths. I fancy my persistent advocacy has done something to rehabilitate this variety in public favour, for I know how the past generation of Dutchmen turned up their noses at it and grugged it the room it took up in their grounds. Just as the almighty dollar touched the mid-season Tulip Sarah Bernhardt and made yards into acres, in like manner the British sovereign is touching Oranje Boven, and thousands are becoming hundred-thousands. The Tulip has been grown as a florist's flower in Holland for a much longer period than the Hyacinth, but to a large extent it came to them ready made, whereas the big, fat spikes of the last-named are, I think I am correct in saying, the peculiar and exclusive work of the Dutch.

Both in England and Holland for some years now seedling raising has been quietly going on, and a sharp look-out has been kept for promising sports. Fantasy, which I saw for the first time at Chelsea this year, is a Parrot form of the well-known Darwin Clara Butt, and has the same pretty salmon-pink colouring, but the lacinated petals of Admiraal de Constantinople and lutea major. I am told it is just as easy to grow as its vegetative parent.

The exquisite lemon and primrose mid-season Canary Queen, which is the second bulb to be mentioned in Sutton's 1922 Catalogue, I know very well. For late forcing and for garden decoration it is splendid. It flowers about the same time as Le Rêve and White Swan, and has tall, wiry stems from eighteen inches to two feet in length. All down the ages one great desideratum among Tulips has been a good late-flowering pure white sort. Zwanenburg (a white Darwin), which I first saw in Mr. van Tubergen's nursery at Haarlem, when there were only three bulbs in existence, has now come on the market, and I for one am buying a bulb or two—it is very expensive at present—in the hope that in a few years I will be able to work up a stock of my own. Messrs. Dobbie and Co. this year have Zany in their list. Technically it is a rectified bizarre, with bright cerise markings on a straw-coloured ground. I like it immensely. It has this recommendation, that under glass it is more refined and beautiful than in the open ground. So far we have always been content to have it in flower in late March. Last Autumn we gave a good trial to the Darwin Hypocrite, which I can only find in Messrs. J. R. Pearson's list. It is a grand variety, and equally good under glass and in the open. The colour is a rich deep mauve, which is set off by a good blue base. Two old favourite Darwins quite surpassed themselves this year. They were the large flowered rosy-mauve Melicette, and the magnificent, tall, rich red Teddy. It is a glorious shade. I cannot find the last named in any list I have come across, but it exists all the same, and took rank here this year as one of the "What's that?" grade.

Coloured Freesias are catching on. Were it not so difficult to provide firing there would in all likelihood have been a boom in these flowers. Dainty, which is one of those which made its bow to the public as long since as the Jubilee Exhibition at Haarlem, still more than holds its own. It is so far one of the few rosy mauves, mauve and-pinks that with us have never become blotched. I am buying Apothéose to see if Van Tubergen's claim for it as "the best variety yet raised" is sober fact, or if the firm has mistaken a goose for a swan. "The best yet raised" is a big claim, but I

am bound to admit that when I saw it in London in 1921 it was something quite out of the ordinary.

Dutch and Spanish Irises have a very warm corner in my heart. No one welcomed more than myself the advent of the Dutch Irises. They are so similar to the older Spanish type that in a practical way they may be said to add ten days or a fortnight to their season. Try Voerman (white), Van Everdingen (white and yellow) and Rembrandt (blue) and do not forget the Spanish varieties, Prince Henry (bronze), True Blue (deep blue), Souvenir (pale silvery mauve) and Cajanus (yellow).

Now I have started again with Ixias, I hope never to be without half a dozen pots or so. All the same, they are rather a tantalising tribe, as they only show off their finery when the sun is shining. The pale straw-coloured Hogarth and the large old-rose coloured Englishton have both got my V.G., and I hope to see them again in 1923.

Daffodils have not been forgotten, but I saw so very few last season that I must pass them over. Just as my trial collection of Polyanthus and Poetaz varieties was beginning to flower under glass I was taken ill. However, I can just mention some favourites: Orange Blossom, Albert Vis, Admiration, Jaune à Merveille, Alsace and Orange Cup. I doubt if the first-named is to be found in any English list. To me it is the best of all the Poetaz section, with its white over-lapping perianth and large saucer-shaped, dull orange centre. It is only fit for glass culture. Joseph Jacob.

MR. KINGDON WARD'S SIXTH EXPEDITION IN ASIA.*

No. 23.—SATISFACTORY PROGRESS.

ON September 6, two of my men who had gone across the Litang river to collect seed of some flowers we had found in July (especially of the fine violet *Primulina Meconopsis*) returned with the spoil. They had secured a fair quantity of the Poppy seed—all there was at any rate—and it was thoroughly ripe; indeed, had they been only a few days later, they would have got distinctly less, for the capsules were breaking up. I was delighted to find that there were no grubs in the capsules destroying valuable seeds; nor were the other two *Primulina* Poppies we discovered so plagued. On the contrary, almost every capsule of the sky-blue *Aculeatae* species contained a hungry grub—we picked scores out of the seeds before we could pack them. I recollect it was the same with *M. speciosa* also of the *Aculeatae*. *M. pseudointegrifolia* again is ignored by these ravenous seed eaters.

The collectors also brought back seed of the new *Omphalogramma* and by "new," I mean not the widely-spread *P. vincaeflora*, which is abundant everywhere in this locality; *Primula Cockburniana*, two or three Muscaroid *Primulas*—indeed, all my chief requirements, such as were ripe, besides some which were not.

Meanwhile, we had been working hard for seeds at Mu-li, and still adding a few plants daily to the herbarium. I say "working hard" advisedly, for though not many seeds were as yet ripe down below, such as were kept us busy.

There was the Suffruticosa *Primula*, for example. It grows on every limestone cliff, and is quite one of the commonest plants at Mu-li. Yet, when we came to collect seed of it, we found we had been forestalled—a small looper caterpillar had played havoc with it, and hardly a fertile seed could we discover. Whole plants were entirely bereft, others might yield one or two sound capsules to dozens of empty ones. It was a sorry

* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 23, August 20, September 3, October 8, October 29, 1921; January 7, January 21, March 11, March 25, April 8, April 23, May 6, May 20, June 3, June 17, July 1, July 15, July 22, August 5 and August 26, 1922.

business until I sent two men up the Litang gorge to the cliffs where we had first found the plant. They returned with a fair haul of good seed—apparently the caterpillars did not do business in that locality. They also brought back some blooms, for the plant was enjoying a second childhood. The flowers are quite attractive, being purplish lilac with a large yellow eye; but the lingering lavender fragrance of the leaves is even more delightful. This second flowering of plants which open early in the year is not uncommon. Clearly, it is a rhythm inherent in the species, not to be confused with lingering blooms, or an individual plant flowering later than the majority of its kind. Many species which open to the warm sunshine in May or June flower again for a brief period in the mellow autumn weather, after the worst of the rains are over. This is particularly the case with alpine plants. I have noticed *Primula dryadifolia*, several dwarf *Rhododendrons*, species of *Iris*, etc., regularly flowering twice. And now at Muli we found the charming pink Briar, first seen in June, a mist of autumn blossom. It was also in fruit, and we collected seed from numerous neighbouring bushes.

To return for a moment to the *Suffruticosa* *Primula*. It may be remarked that it grows on

for support, and spreading abroad, was a *Silene* with deep, rose-pink flowers, borne in profusion. On the rocks and grassy slopes the dark violet *Didissandra* still flourished, as did its two paler companions in shady places. Pink *Begonias* still flowered under the hedges, where three or four species of *Clematis* lolled at ease. The most engaging of these last had creamy-white flowers and small, shining, pinnate leaves, brilliantly silvered beneath with silky hairs. All the tribe of *Campanulas*, *Codonopsis*, *Adenophora*, *Leptocodon*, and the rest, were still with us. The large *Codonopsis* (like *C. convolvulacea*, which possibly it is) produced three distinct types of leaves, though always on different plants, according to the situation in which they grew.

Thus, in the dry Pine woods, the stem was only a few inches long, coiled in a tense spiral around some small plant, and the leaves linear, coarse, and few in number. In shady gullies, on the contrary, where thickets of trees and bushes crowded the slope, it grew many feet in length, scrambling round any support in loose coils and hanging in festoons from above; on these plants the pale green, membranous leaves were more or less kidney shaped or heart shaped, and of moderate size.

The third type, found on the drier shrub

days we had an inch and a half of rain. It was warm enough down here yet, though, for when the sun came out the maximum shade temperature rose as high as 70° F., and at night the minimum never sank below 55° F.

On September 10 we returned to the mountains for a month's seed collecting, and of that more anon. *F. Kingdon Ward.*

THE CEDARS AT COOMBE HOUSE, CROYDON.

COOMBE House, Croydon, Surrey, the residence of Frank Lloyd, Esq., is situated on the slopes of Addington Hills, near Croydon. These hills are 465 feet above the level of the sea, and Coombe House estate is at about 340 feet elevation. The site on which the magnificent Cedars illustrated in Fig. 61 are situated is a gentle slope, the soil formation constituting a good depth of sand, which is firm and close in its texture.

It will be seen on reference to the illustration that the four Cedar trees are planted almost in a straight line and all are distinct varieties. The smallest specimen on the extreme



FIG. 61.—THE CEDARS AT COOMBE HOUSE, CROYDON.

the driest cliffs in full sunlight, where nothing else can sustain life. On the other hand, it refuses to grow in company on more eligible sites. Where it does encroach on inhabited districts, it meets the fate already recorded.

Possibly, if it did not, the cliffs from base to summit would be one vast spongy cushion of *Primula*, crawling with beetles, spiders, flies, worms, and other fauna which would find a refuge under its persistent leaves.

When, as sometimes happens, the plant secretes itself in noisome nooks under the cliff, in places too dim for any self-respecting plant not afraid of wholesome daylight, it runs all to foliage, producing very large leaves, but no flowers. However, into the further vagaries of this quaint species I need not enter now. Cultivators will, I hope, be able to experiment with it, and discover its idiosyncrasies for themselves. It is well worth cultivating.

There was a species of *Ceratostigma* on the cliffs very like *C. Griffithii*, now in full bloom. The flowers are a rich cobalt blue, produced in such masses as to smother the little bushes. Another cliff plant found at this time was a creeping *Gentian* with rather large flowers of a dull purple colour, lying down on the rock.

Autumn had scarcely touched the valley yet, and there were numbers of flowers still in the open. Worming its way up through the bushes

clad slopes was intermediate between the other two; the leaves more pointed than in the last, crisper, and of a darker green. It is remarkable how groups of related plants flower simultaneously. Sometimes it is the species of a genus, sometimes the bulk of a whole order which flower at the same season. In the case of *Strobilanthes*, for example, an Indo-Malayan genus comprising a host of species, many of which grow socially, forming the chief forest undergrowth, this phenomenon is so striking that it long ago attracted attention. But we may observe the same thing, in a lesser degree perhaps, in many other more familiar groups of plants. The *Rhododendrons*, for instance, nearly all flower in April or May, *Primulas* in June, *Campanulaceae* in August—*Campanula*, *Codonopsis*, *Adenophora*, *Leptocodon*, and others, *Saxifrages* in August and September, likewise *Delphinium* and *Aconitum*; *Labiatae* and *Compositae*, very many of them, in August; *Gentiana* and its allies in September, and so on. The list might easily be extended—anyone who has lived amongst flowers must have observed this, and will be able to recall instances.

I had hoped for fine weather with the coming of September, but little promise of it was held out. The sky was always overcast by day, and rain fell frequently at night. In the first ten

right never bears cones, owing to its stunted growth. The tallest specimen is of the usual type of Cedar that is, or has been, found growing in the neighbourhood of Coombe, such as Beddington, Blunt Hoase, South Croydon; Moorland Park, Croydon; Addington Palace, near Croydon; and Hayes, on the border of Kent. The deep velvety green is noticeable against the lighter green of the grass and the large branches hang down in a vertical position. The sunlight on the foliage of the new growth gives a light grey tone to the tree; the deep green tone appears later in the season. The third tree from the left (see Fig. 61) is a most remarkable specimen; the foliage is always a light grey colour, and the great branches lie upon the ground and spring upwards again, almost like separate young trees, as may be observed on the extreme right hand of the tree. I feel certain that there cannot be a more beautiful specimen Cedar in the country than this one. Many horticulturists and others have admired it and remarked upon its graceful appearance.

Cones are very freely produced on the tallest specimen. There are numbers this year, and there would have been a great many more cones had not a hail storm stripped hundreds of young ones from the trees. *Mark Mills.*

NOTICES OF BOOKS.

Common Plants.*

THIS book consists of a series of studies written around some common plant or more, discussing the why and the wherefore they have assumed such diverse forms or appearances, as we now find them, and the causes which have been at work in their evolution. The author thinks that evolution is still going on, and that the gay world of flowers may not all remain as they are, but that they may ultimately revert to the anemophilous condition, such as prevails amongst most forest trees, especially the Coniferous type, but says that the struggle is undecided. He states that many plants, notably the successful Hawkweeds and Dandelions, have already dispensed with sexuality. They still produce seed, but the embryo sex is not fertilised, and the pollen is useless. He cites *Matricaria discoidea* (better known as *Matricaria suaveolens*), a North American plant, that has become established round east coast villages, but he might have gone further. If it is not yet found in every county of Britain it soon will be, judging by its rapid spread. It has been recorded from the lighthouse under Herma Ness, the most northern point of the British Isles, yet it is self-fertilising, with only four teeth to the corolla, and no grappus to the fruit to help its distribution. The author states that several races of the Mistletoe seem to exist, for seeds of plants that grow on the Silver Fir will not come to maturity on the Pine, nor seeds of either on deciduous trees.

Dr. Macgregor Skene speaks of the ability of the amphibious Persicary to assume an aquatic habit, but says it is more difficult to understand why the land plant should be hairy. The hairs of the fully grown plant may not be of much use, but when the stems are young and the cuticle not fully developed, the hairs are more crowded at this stage and can be of essential service in reducing transpiration, as in the case of young Beech leaves and many others that usually grow in dry situations. It seems rather a sweeping statement to say that Docks, Nettles, Persicary and Dead-nettle are not part of our primeval flora, and that they can only follow the plough. Some of them exist on commons that have never been ploughed so far as we know, and on river banks, where natural causes provide suitable situations for them. In spite of these remarks the book abounds on every page with facts which cannot be disputed. The first two chapters and the last one are devoted to Wheat; and the student cannot fail to find much that is instructive. The book contains twenty-six illustrations, consisting of reproductions of photographs and line drawings. The editing and printing are excellent.

RIBSTON PARK GARDENS, YORKSHIRE.

WHILST in these gardens recently my attention was drawn to a fine display of Pentstemons, and especially a deep red variety which Mr. W. Simpson, the gardener, selected some two years ago. Massed in two large beds on the lawn, the plants show up wonderfully well, especially towards the evening, and make a striking feature against a dark background of trees and shrubs. The beds had no special preparation, yet the Pentstemons were growing strongly and healthily, many of the spikes being from two to three feet tall.

A fine batch of *Crinums* was also noted, the plants carrying many spikes of bloom. These are growing in front of the greenhouses in a border facing south.

In the fruit houses Vines and Peaches were carrying excellent fruit, the latter trees particularly being models of successful culture. Ribston Park is the home of the Ribston Pippin Apple, and it may interest gardeners to know that the veteran tree still stands guard a few yards from the park gates, and at the present

moment is probably carrying a much heavier crop than many of its descendants. T. H. B.

[The tree of Ribston Pippin Apple, which our correspondent describes as fruiting so freely at Ribston Park, is probably the sucker which developed from the original tree that has died long since. In an article entitled "Old trees at Ribston Hall," as the place was then known, (in *Gard. Chron.*, February 16, 1889), an account of the old Apple tree and the sucker is given, and both are illustrated in the same issue. An editorial footnote states: "The old tree, represented in Fig. 39, is now dead, and the other, Fig. 38, a sucker from the old tree, is, as we learn from the courtesy of J. Dent-Dent, Esq., still living. This sucker tree, in its younger days, was delicate and grew but slowly, but as it has reached to the present day, we may assume that the kindly attentions bestowed upon it have not been without good results. Nothing is known with perfect exactness about the advent of the famous Apple at Ribston Hall, but the best credited story is that the seeds came from Rouen (another Conqueror from Normandy), and were sown at Ribston in 1787. From these sprang many trees which afterwards were planted about in the Park. Some—perhaps one was the progenitor of our present Ribston Pippin, and others were Crab."—Eds.]

FLORISTS' FLOWERS.

EAST LOTHIAN STOCKS.

It will be remembered how, in the course of a slight discussion last year regarding these stocks, I stated that they had originated with Campbell, a gardener at Traprain, East Lothian, and were distributed to a few gardeners in 1867, also that it is inferred they were derived from the Scarlet Intermediate. Since then I have gathered additional material which, without exhausting the subject, sheds fresh light on the history of the plant. Still, I am afraid some other investigator must take up the search before it can be established where and by whom the Intermediate Stock, of which the East Lothian is only a very fine strain, originated. The earliest writers on the plant assume the Scarlet Intermediate to be an English plant, which no doubt it may be, but it is disconcerting to find seedsmen cataloguing German seeds by a similar title, and therefore it cannot be certainly stated that the Scarlet, a very popular variety, as we shall see, was only chosen from among the other German varieties, or, on the contrary, was of English derivation. Anyhow, one Moss is recorded to have raised the plant as a cross between the Brompton and Ten-Week Stock, hence its designation, Intermediate, while it was also known as Buck's Intermediate.

As early as 1845 Hurst and Macmillan offered seed of scarlet and purple Intermediate Stocks, and a few years subsequently white, blue and rose coloured are noted as greatly inferior to the scarlet. This variety was cultivated by the thousand in pots by growers for the London trade previous to the middle of the 19th century, and the reason given for growing it to the exclusion of other colours was the large percentage of doubles it gave, one writer placing it at 80 per cent. This is very interesting, showing the large percentage of doubles to have been a quality of the strain.

Melville, the then gardener at Dalmeny Park, near Edinburgh, wrote to *The Cottage Gardener* in 1857 that he had a fine purple variety from the Scarlet and of the same dwarf, branching habit, another feature of the strain which it still retains, and later that he had obtained a white variety. He also stated that many more colours were in cultivation, but these were not true to type, and therefore unreliable. It is rather perplexing that Campbell, according to David Thomson in 1867, had been working on the plant for years, and had secured the purple and white varieties, to which the name of "East Lothian" was given. I think we can only conclude that the strain was altogether

superior to that of Melville's, which naturally it would supplant.

As stated in my remarks on doubling in Stocks last year (see *Gard. Chron.*, July 23, 1921, p. 50), the true East Lothian produces spikes up to ten inches in length, spurious strains producing non-spicate conglomerations of blooms, or at best very short spikes. I understand the strain is still in existence, but very scarce indeed.

Then there is the question of the percentage of doubles. We have seen that three-quarters of a century ago it threw 80 per cent. double. In 1845 an anonymous writer states that he got no seed one year on account of the whole of his plants producing double flowers, and this assertion is confirmed by other writers. In 1855 it is stated in *The Gardeners' Chronicle* that three-fourths of the plants come double, and as much as 90 per cent. has been quoted, and it may be accepted as near the truth that 85 per cent. is a fair average.

Another matter that emerged was how doubles were secured, and the statements one finds show how difficult it is to come to a right decision. It is to be understood that what follows does not refer to East Lothian Stocks always, but to Stocks generally. A very old practice, and one, curiously enough, recommended by Paxton, was to grow singles close to doubles, some even tying the spikes of these together. Another writer recommended the keeping of seeds for two or more years before sowing, and another to take the seeds from two-year-old plants, which is the usual practice with East Lothians, seasons being too short for seeds to mature in the first year. A writer in *The Horticultural Magazine*, 1848, asserted that doubling is a habit that continues from generation to generation. Glenay believed in starving the plants as a certain means of obtaining double flowers. Another recommendation was to choose "seed-pods" opposite to each other; another "pods in pairs" near the top of the stem; and yet another near its base. We find it also stated that German growers grew Stocks "very strong from seed to seed without check"; and a "Florist" in the *Horticultural Cabinet*, 1846, tells how he lived three years in Germany, "where the best mode of getting double Stocks was attempted I ever saw." Many thousands of various kinds were cultivated solely for seed, and the plants were kept in small pots till the first flower appeared. Single flowers with only four petals were destroyed, and those with five petals were repotted, "and from such only were seeds saved." But not only were flowers with five or more petals selected for seeding, but those with petals wider than usual were also regarded as a good type for a doubling progeny. To conclude this long list of opinions, an early writer on the subject remarks that doubling depended on cultivation, for one grower may have flowers all single, and another from the same seed packet flowers all double! R. P. Brotherston.

SOME DESSERT CHERRIES.

THE purpose of this article is to bring to notice a few Cherries which are not yet so well known as their merits deserve.

The range of varieties grown in the average garden is often unduly restrained, partly from conservatism, but perhaps more frequently from a wise caution as to "new fruits."

There are, however, very few new Cherries, and those to which I direct attention are all of a respectable antiquity, and have stood the test of time in the countries of their origin.

Among the early Black Cherries, Bigarreau de Schrecken stands out as worthy of notice. This is a very large fruit, which comes in with Rivers' Early, but it greatly exceeds this well known variety in size, and seems a better cropper. It is of the tender fleshed class, and in appearance greatly resembles Black Tartarian, but its earliness alone serves to distinguish it from that well-known fruit. I have seen it doing well as a standard; for garden use the fan-trained style suits it well and on a wall it grows to a large size. The flesh is tender, fibrous and sweet, and the colour a rich red-black. The

* Common Plants. By Macgregor Skene, D.Sc., Lecturer on Plant Physiology, Aberdeen University. Andrew Melrose, Ltd., London and New York. Price, 6s. net.

first reference I can find is in the *Illustrierte Monatshefte zum Obst- und Weinbau*, 1868, so it is, I presume, of German origin.

Another very fine Black Cherry from the same country is *Noir de Schmidt*, a rather hybrid name which it has gathered on its way to this country through France, but which we must accept in preference to its original designation—*Schmidt's Schwarzbraune Knorpelkirsche*. This is a large black heart-shaped fruit, firm in flesh and of good, but not quite first-class, flavour.

Its fine appearance and solid flesh make it worthy of notice as a market fruit or for any garden where fruit has to be sent away by rail. It is a good grower and regular cropper. A very late Black Cherry is found in *Géant d'Hedelfingen*, a variety which was raised in Wurtemberg about the middle of last century. This fruit follows *Tradescant's Heart* (syn. *Noble*) in season, and is a firm and hardy variety, with a rich flavour in good seasons. The skin is of a deep mahogany red, and the flesh quite black under the skin and dark crimson round the stone.

Like all late Cherries it is rather liable to crack in wet weather, but less than most. I have found this growing in orchards under various names, but the fruit is so distinct, both by its lateness and its remarkably lopsided, flattened shape when viewed from the side that there is no mistaking it once seen.

It is very fertile, and much in demand among market growers in Kent.

Turning to the *Bigarreux* I should like to call attention to *Emperor Francis*, an excellent late Cherry too little grown.

This is a late *Bigarreux*, following *Napoleon*, and of a fine shining red, most attractive in bulk.

The tree is rather upright in its early stages of growth, but becomes more spreading later. The flesh is firm but not hard, very rich and sweet.

The origin of this fruit I have not discovered so far. It is probably Continental, and is recorded in 1869. Nothing more desirable in the way of Cherries can be found. *H. A. Bunyard*.

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(Continued from page 140.)

(See Tables and Summaries, Ante, pp. 95-100.)

MIDLAND COUNTIES.

DERBYSHIRE.—The fruit crops here and in the surrounding district are very promising. Small fruits, including Black Currants, Red Currants, Gooseberries, and Raspberries were all extra heavy crops. Strawberries looked well until the dry weather set in and moisture came too late. The soil varies. Some parts are very heavy clay, other parts light and loamy, and still others a dark, black soil, more of the texture of peat. *W. Staward, Alfreton Park Gardens, Alfreton*.

HERTFORDSHIRE.—Fruits of all kinds, excepting Strawberries, have done better than was expected earlier. Two kinds of Apples, *Newton Wonder* and *Cox's Orange Pippin*, have behaved in a peculiar way. Some trees of the former, which bore average crops the previous season, had but few, if any, trusses of flower, and standard orchard trees have made no growth compared with that of last year. Trees of *Cox's Orange Pippin* which had a good quantity of swelling fruit have now suddenly dropped the latter and littered them on the ground. From an examination of the fruit it would seem to appear that this is due to imperfect fertilisation. We have been fairly free from Apple mildew and kindred diseases, and it could hardly be caused by either fungus or insect pests, as we have had but little trouble in this respect after late spring spraying. Indeed, as in other parts of this district, it is some years since trees have borne such robust and clean foliage. This in part may be due to the thorough ripening of the wood by last year's abnormal sunshine. Our Strawberry beds were badly spoiled by last year's drought; the surviving plants flowered again

in the autumn, weakening the stools. Raspberries and Black Currants were heavy crops. Red Currants, although good in quality, did not bear so freely. Abundant rains in July helped the fruit crops considerably. Our soil is a heavy loam, overlaying clay for the most part, the under strata varying and including chalk and sand. *A. J. Hartless, Kings Walden Bury Gardens, Hitchin*.

—Apples, our most important crop, are good, though variable. The best-cropped sorts are *Cox's Orange*, *Worcester Pearmain*, *Warner's King*, and *Peasgood's Nonesuch*. The trees are very healthy. Bush fruits were fairly good, but Gooseberries were not quite so good

ally on the larger trees. The flowering season was late, and the individual flowers were not nearly as strong as they should be, no doubt owing to the long drought last season. Black Currants and Strawberries were poor. Pears are a heavy crop on nearly all varieties. Plums and Damsons are also very plentiful. Apricots are a good crop, and the trees appear to be very healthy. Most small fruits were good, including Raspberries, Gooseberries, Red and White Currants. Cherries, both dessert and Morellos, have never been better. Pests of nearly all kinds, except caterpillar on Apple-trees, have been less troublesome than usual, and the growth of fruit trees generally this



FIG. 62.—ONE OF THE FINEST CEDARS AT COOMBE HOUSE, CROYDON (SEE P. 151).

as usual. Raspberries were an excellent crop; Morello Cherries a fair crop. Strawberries were good, but the season was short, owing to the spring drought. The soil is chiefly a deep, light loam. *James A. Paice, Aldenham Vicarage Gardens, Watford*.

—The Apple crop is a poor one; some Apple trees have a good sprinkling of fruit, but few are bearing an average crop, many having no fruit at all. Being on top of a hill exposed to north and east, our trees were crippled severely by a cutting north-east wind while they were in blossom. Pears and Plums, being more advanced, were not injured to any great extent. Peaches and Nectarines are good and the trees making vigorous and healthy growths. We suffer in most seasons greatly from blistering of the foliage, owing to our exposed position. They are entirely free from this disease this year. Our soil is a shallow loam, with a deep clay subsoil, other parts being gravelly. *George H. Hill, Caldecote House Gardens, Bushy Heath*.

—The fruit crops in this district may generally be regarded as satisfactory. With two or three exceptions, there is an abundance. Apples flowered freely, but failed to set, especi-

ally on the larger trees. The flowering season was late, and the individual flowers were not nearly as strong as they should be, no doubt owing to the long drought last season. Black Currants and Strawberries were poor. Pears are a heavy crop on nearly all varieties. Plums and Damsons are also very plentiful. Apricots are a good crop, and the trees appear to be very healthy. Most small fruits were good, including Raspberries, Gooseberries, Red and White Currants. Cherries, both dessert and Morellos, have never been better. Pests of nearly all kinds, except caterpillar on Apple-trees, have been less troublesome than usual, and the growth of fruit trees generally this

season is satisfactory. *Edwin Beckett, Aldenham House Gardens, Elstree*.

—The fruit crops are most satisfactory. Apples in most cases are an excellent crop, and with a great number of varieties severe thinning was necessary. Pears are above the average, especially on bush and standard trees. Plums and Gages, both on wall and standard trees, are producing heavy crops, and here again the fruits had to be severely thinned. Cherries, both sweet and Morello, have been quite up to the average. Strawberries have been plentiful, and Raspberries gave a heavy crop of berries. Bush fruits have all produced excellent crops, the fruit also being of very fine quality. Nuts are most plentiful. The soil is a heavy, stony clay. *T. Pateman, The Node Gardens, Welwyn*.

LEICESTERSHIRE. With glorious weather in spring and no late frosts, fruit trees (except in the case of some Apple trees which had heavy crops last year) have set good and in some cases heavy crops. Pears are very numerous. Raspberries were plentiful, as rains came at a critical time for them. Strawberries were a thin crop owing to last year's drought having destroyed many of the plants, but in some

parts of this district somewhat heavy crops were secured. Bush fruits are very good. The soil varies from heavy to light in texture. *W. Coe, Prestwold Gardens, Loughborough.*

—The Strawberry crop suffered from the drought, and the berries were much smaller than usual. Red Currants were also small through the same cause. Fruit trees have been clear of caterpillars and aphids until now. We had a splendid crop of large fruits of Lloyd George Raspberry. The soil is a heavy loam on a clay subsoil. *A. H. Campin, Whetstone Pastures Gardens.*

HAMPSHIRE.—The fruit crops are above the average, all fruits setting extremely well in the absence of bees. Strawberries were soon over, owing to the drought in May. This had no effect on other fruits. Apples, Pears, Plums, Raspberries, Currants, and Gooseberries are all bumper crops; I have never seen more, and Apples and Pears had to be thinned considerably. Raspberries did not suffer very much last season, as most of them did in many parts of the country, making very sparse canes owing to the long-continued drought. This fruit should be planted in a moist situation, as our bed is here, and well mulched. Insects have not been so troublesome for many years, especially green fly. I still advocate the spraying of all trees and bush fruits, as this keeps the trees clean and healthy, and should be done every year. The soil is mostly chalky, and soon dries out. This applies everywhere in the district, as we are close to the South Downs, which are all chalk. *William Fulford, Ditcham Park Gardens, Petersfield.*

NORTHAMPTONSHIRE.—The fruit crops are, on the whole, very satisfactory. All fruit trees are exceptionally clean and healthy. Raspberries were an exceptionally heavy crop and the fruit of first-rate quality. Pears, Peaches, and Nectarines on walls are all excellent crops. I have never seen Peach trees more healthy and free from aphids. Apples are only an average crop, some trees being loaded, others barren. Our soil is a medium loam, containing much limestone, and fruit trees need much feeding to produce fruit in the best condition. *F. W. Gallop, Lilford Gardens, Barnwell, Peterborough.*

NOTTINGHAMSHIRE.—All kinds of fruits are good, both in quality and quantity in this locality, no doubt owing to their total failure last year, when we had three nights of sharp frost during the blossoming period. The usually light cropping varieties of Apples and Pears are bearing well, and the crop of Damsons is the heaviest I have seen for many years past. *William Rae Scott, Bunny Park Gardens, Bunny.*

—The fruit crops are above the average. Aphids and caterpillars have not been troublesome, and the quality of most fruits is very good. Peaches and Nectarines have never set so regularly or freely during the past twenty years. Pears and Morello Cherries are both heavy crops. Apples are rather irregular. Small fruits, and especially Raspberries, were plentiful and of good quality. *S. Barker, Clumber Gardens, Worksop.*

—All fruit trees blossomed profusely, particularly Pears; much of the young fruit dropped, but leaving a full crop. Raspberries looked bad at the commencement of growth, the foliage being pale in colour and growth unequal. A further pruning of the canes had the effect of all dormant buds breaking, resulting in a full and healthy crop of good fruit. The Devon is our best Raspberry. There has been a complete absence of late frosts in this district. Our soil is very heavy in texture. *James Gibson, Welbeck Gardens, Worksop.*

OXFORDSHIRE.—The fruit crops are well up to the average. Pears, Plums, and Damsons are all heavy crops, and have been greatly benefited by the recent heavy rains. Apples are well up to average, and the trees fairly clean. Peaches and Apricots were badly injured by frosts when in bloom. Small bush fruits were good, and especially Raspberries, which were very plentiful. Strawberries were

a complete failure, owing to the severe drought throughout May and early June, and evidently the plants were much weakened by last season's drought. Filberts, Cohnuts, and Walnuts promise to be heavy crops. *Ben Campbell, Cornbury Park Gardens, Charlbury.*

(To be continued.)

HYBRID DIANTHI IN THE GARDEN.

MR. MARK MILLS (*Gard. Chron.*, July 29) wishes to hear how other growers have fared with varieties of Dianthus Allwoodii, and what has been their experience.

My experience with these hybrid Pinks was in my garden at Tresserve, in Savoy, and has extended over a period of some twenty years. It would have been continued had not the war, with its record of tragedy, also caused a bad set-back to the peaceful pursuit of gardening. About 1895 I started growing and selecting mixed Dianthus, such as those now known in England as Dianthus, Allwoodii. My first packet of seed came from Léonard Lille, seedsman, of the Quai des Célestines, Lyons. After this beginning I continued every season saving seed from the best plants and raising good batches of seedlings, sufficient to plant a piece of ground about 50 yards by 30 yards, putting the plants a foot apart, except in the four little paths which were left 2 feet wide from end to end for purposes of weeding and gathering.

As the plants flowered, I carefully dug up all those of a colour which I did not care to grow, and any plants which from extra weedy habit, sparse flowering, or any other defect, had to be eliminated. In this way I arrived at a very fine strain which excelled both in colour and in fragrance. The weedy habit persisted in a greater or less degree, therefore I let the plants grow their own way without let or hindrance or any attempt at staking or tying. Thus the drawback which would have been insuperable in specimen plants easily passed muster when the plants were grown collectively, for they spread along the ground, entwined and sent up their flowers and grass in erect profusion. This bed used to be the admiration of all visitors to the garden, and the general effect was certainly very beautiful. So floriferous were the plants that friends who came up from Aix went back laden with flowers, and the bed showed no trace of the raid made upon it.

The cultivation was perfectly straightforward, and we never had a season's failure, notwithstanding spells of unpropitious weather. A year's rest sufficed for the ground, which was utilised for some alternate crop, such as Cannas or Asters.

The great enemy was the *courtilière*, which Littré refers to as the greatest enemy of French gardens. In English dictionaries it is translated as Mole Cricket (*Gryllotalpa vulgaris*). I have not met with it in English gardens, although it is not uncommon in the South of England. Our Leather Jacket (*Tipula cleracea*) causes the same kind of depredation and is far more difficult to trap. The *courtilière* starts business in the small hours of the morning, and the witching moment for the chase is between 4 and 5 a.m. We used to look carefully for its traces and then run the finger along the gallery just under the surface, until it took a downward course. An improvised paper funnel was inserted, a little oil poured in, followed by a gill of water, and we then awaited developments. Presently a hideous, drenched creature would emerge, looking for all the world like a beast out of the Apocalypse. The oil had clogged its respiratory organs, and it had forced its way to the surface in search of air. After a few moments of gasping, it would turn on its back, suffocated. We often caught a score in one morning. Unless duly checked, these *courtilières* would make short work of hundreds of plants, eating them nearly through just below the collar.

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Grape Cannon Hall.—I was interested in Mr. William Irvine's note (p. 112) on Cannon Hall Grape. Though not equal to Muscat of Alexandria, this is a very desirable variety, distinct and of fine Muscat flavour. We treat Cannon Hall in much the same way as other Muscats, except that more care is taken in selecting the bunches, only those with a thin mid stem being retained, generally the second bunch on the shoot, for it is practically impossible to set the large rough bunches. I find we get the best results from thin wood, as in the case of most of the Muscat varieties, consequently we prune to a bud in winter, leaving one shoot on each spur, the spurs being 18 inches to 24 inches apart on the rod. The shoots are allowed to meet on the trellis before being stopped; the rods are 3 feet 6 inches apart, so that there are from six to ten leaves beyond the bunch. All subsequent lateral growth is removed. The shoots increase very little in thickness, if at all, after being stopped, and are firm and ripe with the crop. Other cultural details coincide with those of your correspondent, the rooting medium being identical but for a quantity of rough material containing phosphates which I added in making up the border; that is made as firm as possible. Damping is discontinued as soon as the vines break into growth in the spring, and only resorted to for about a week after the crop is set, in order to cause the foot stalk of the berries to lengthen. By this means fewer berries have to be cut away when thinning takes place. At that time the house is kept fairly close, but afterwards the atmosphere in the house is kept continually dry and fresh. *Malcolm Macnaughton, Seone Palace Gardens, Perth.*

The Carrot's Crimson Eye (see p. 45).—Being recently in a chalky district, where the wild Carrot was abundant, I had an opportunity of seeing how the crimson eye varied from plant to plant (see pp. 45 and 86). I discovered that the eye of the Carrot, which usually consists of a single flower, represents an umbellule, often furnished with one to three bracteoles or secondary bracts. In one case there were three crimson flowers, representing the eye. In other cases I could see no eye at all, for two to four umbellules or ordinary white flowers were equally near the centre. I presume that in this case the eye was suppressed. In other cases the single flower stood up prominently in the centre above all the others, and was either cream, blush, pink, bright red, crimson, maroon-crimson or blackish crimson. Sometimes a flower would be half red and half white, exactly through the middle, or irregularly. The young fruits were green, brown or purple. In *Flora Française Suisse et Belge*, *Daucus Carota sativa* has a crimson eye, as has *D. maximus*; *D. gum-mifer* and *D. sculus* have red flowers all round the circumference of the umbellules; while *D. muricatus* has red fruits with bristles like a hedgehog. If these are older types than *D. Carota* they would substantiate the claim that the latter has lost all its crimson flowers except the eye, where that still exists. *J. F.*

Garden Carnations.—I do not like most of the varieties of garden Carnations in commerce, as the flowers are far too heavy and the petals are easily spoiled by rain. I recently bought a set which were stated to need no supports, but they sprawl all over the ground. We need a smaller and more beautiful flower, fragrant, light, and elegant. It is not very likely we shall produce out-of-door Carnation blooms equal in size to the greenhouse perpetual varieties, that will not be top-heavy in growth or an eyesore in the

garden. I am entirely disappointed with the so-called first-class garden Carnations now produced: they need some stiffening of the stems to keep the flowers off the soil. *W. J. Farmer, Redruth.*

A Warning.—Last October I sent a cheque to a well-known and much advertised firm in Holland, ordering five hundred bulbs and forty-eight Roses. After some months the bulbs arrived, but not the Roses. I wrote repeatedly to ask for them, as I was most anxious not to lose the season. In April I received a card to say the forty-eight Roses would be sent the following week. They never appeared. I was tired of writing, so I told the firm unless they returned the money I would send a letter to your widely read paper stating exactly what had occurred. *F. Neville, Murtrey, Frome.*

Dianthus Allwoodii.—Two years ago I had some fifty plants of *Dianthus Allwoodii*



FIG. 63.—PLANT OF *DIANTHUS ALLWOODII*, AS CROWN IN A SCOTTISH GARDEN.

in 4-inch pots sent to my private garden from our nurseries. They were plants which had flowered all the winter under glass, and I knocked them out of the pots and planted them along the edge of a good bed. Last year they were allowed to grow on, and, of course, were straggly, as was to be expected, but they yielded some good flowers. In the late autumn of 1921 I took a bagging hook and cut the plants over to within three inches of the ground. The photo sent herewith (see Fig. 63) shows the result, and proves what fine plants such sorts as Jean and Harold are in borders. My plants must be three years old at least. The minimum of staking is required—one thin strand of raffia keeping the stems upright and in their place. *W. Cuthbertson, Edinburgh.*

Frost in August.—On Saturday morning, the 26th ult., we registered 4° of frost in these gardens. Marrows and Runner Beans were turned quite black, and ice the thickness of a sixpence, also icicles formed on the eaves of the glasshouses. This degree of cold in August must be a record. We suffer severely from early and late frosts each year, the garden being on the level with the River Severn. *W. Gaiger, Spring Grove Gardens, Bewdley, Worcestershire.*

SOCIETIES.

GLASGOW INTERNATIONAL SHOW.

AUGUST 30, 31, AND SEPTEMBER 1 AND 2.—The international flower show, promoted jointly by the Glasgow and West of Scotland Horticultural Society and the Corporation of Glasgow, was held on the above dates, in the famous Kelvin Hall. There were about 340 competitive classes, and a sum of £1,500 was offered in prize money, in addition to which several valuable cups and trophies were also awarded. There were 3,150 entries in competition, and over 70 honorary exhibits. The exhibition constituted a magnificent floral display, and easily ranks as the most important ever held in Scotland. There are three acres under the roof of the Kelvin Hall, and for the accommodation of the show it was necessary to utilise practically the whole of that space. This

never seen equalled. The second was the group of flowers staged by Messrs. DOBBIE AND CO., LTD., Edinburgh. It occupied a space of over 1,000 square feet, and contained what was freely characterised as the finest trade exhibit of Roses ever shown in the country.

POT PLANTS.

A grand display was made in the class for a group of miscellaneous stove and greenhouse plants. The first prize of £40 and the "President's Cup" was worthily won by Messrs. JAMES CYPHER AND SONS, Cheltenham, with an artistically arranged exhibit; 2nd, W. H. COATS, Esq., Woodside, Paisley (gr., Mr. P. McQuarrie); 3rd, COATBRIDGE AND AIRDRIE MATERNITY HOME (gr., Mr. Wm. Linton). For a group of stove and greenhouse plants, arranged for effect, the first and second prizes were awarded to two entries from Colonel GRAY BUCHANAN, Eastfield House, Cambuslang (gr., Mr. W. Ferguson). For a table of tuberous Begonias in flower, 15 feet by 5 feet, arranged for effect with foliage plants including Ferns, to be viewed from all sides, Messrs. R. WATSON AND SONS, Victoria Nursery, Lenzie, were easily first with a grand display of double-flowered varieties. This magnificent exhibit was awarded the Gold Medal of the Royal Horticultural Society; 2nd, Sir JOHN REID, Ardencraig, Craigmore (gr., Mr. John J. Davidson). The premier place for a group of Liliiums was taken by Mr. T. M. PETCH, Highfield Nursery, Great Horton, Bradford. Wm. DUNCANSON, Esq., Fenton House, Alloa (gr., Mr. C. Palmer), excelled for twelve plants suitable for table decoration in 18 varieties. There were 51 classes for pot plants.

CUT FLOWERS.

ROSES.—For a collection of cut Roses, artistically arranged, to occupy a space of 15 feet by 6 feet, there were three entries. Mr. ELISHA J. HICKS, Twyford, Berkshire, was placed first with a very graceful display; 2nd, Mr. THOS. ROBINSON, Porchester Nurseries, Nottingham; 3rd, Messrs. HUGH DICKSON, LTD., Belfast. In the class for six baskets of decorative Roses the award went to Messrs. S. MCGREDY AND SON, Portadown. They showed fine examples of K. of K. and Ethel James. 2nd, Messrs. ALEX. DICKSON AND SONS, LTD., Newtownards; 3rd, HUGH DICKSON, LTD., Belfast; and 4th WILLIAM FERGUSON, nurseryman, Dunfermline. The last-named exhibitor excelled in the class for six ten-inch vases of cluster Roses. For 48 blooms of Roses, distinct varieties, Messrs. HUGH DICKSON, LTD., Messrs. ALEX. DICKSON AND SONS, LTD., and Messrs. T. SMITH AND SONS, Stranraer, were respectively awarded the prizes in the order named. Messrs. ADAM AND CRAIGMILE, Aberdeen, were placed first for 24 blooms, followed by Mr. W. FERGUSON and Messrs. G. PATON AND SON, Tayport. Messrs. HUGH DICKSON, LTD., Belfast, were first for 12 blooms of new Roses, and were also first for 12 blooms of any yellow Rose. In the latter class they showed their new variety, W. E. Wallace. Messrs. ALEX. DICKSON AND SONS were awarded the premier place for 12 red Roses, exhibiting their new variety Lord Allenby. Mr. ALEXANDER PARLANE, Row, was first for 12 white Roses with remarkably fine flowers of Mrs. Foley Hobbs. There were 17 classes in the Rose section.

SWEET PEAS.—Sweet Peas are always a strong feature of the Glasgow show, and on this occasion the entries were good, and competition was strong as usual. The most important class was one for a collection of Sweet Peas artistically arranged on a space of 15 feet by 6 feet. Mr. GEORGE BOWNESS, Busby, was first, followed by Messrs. E. W. KING AND CO., Coggeshall, Essex. Mr. JOHN SMELLIE, Helensburgh, obtained a first prize for 24 vases, whilst premier honours for 12 vases of new Sweet Peas were won by Mr. JAMES PAUL, Killearn. Viscountess COWDRAY, Duncricht House, Aberdeen (gr., Mr. William Smith), had a fine collection of 18 vases, and easily won first prize. There were 20 classes in the Sweet Pea section.

The principal class in the Carnation section was for a collection of Perpetual Carnations

was the first four days' show promoted by the Corporation and the Society, and in respect of size it is understood to be the greatest ever staged outside London.

The first show was held when the Glasgow and West of Scotland Horticultural Society was instituted 110 years ago, and from a somewhat small beginning the annual flower show has attained its national importance. The present venture has been a great success financially and otherwise; the attendance was very gratifying to the promoters.

A deputation from the Royal Horticultural Society, including the President, Lord Lambourne, was present, and made a series of awards to meritorious exhibits. The show was opened by Her Grace the Duchess of Atholl. Apart from the competitive classes the most noticeable feature of the show was the large number of excellent honorary exhibits. Two of these were outstanding, and both were awarded Gold Medals and Special Appreciation by the Royal Horticultural Society. The first was an exhibit covering about 3,000 square feet from the Glasgow Corporation Parks Department. It consisted of a wide range of plants, and was arranged under the supervision of Mr. JAMES WHITTON, V.M.H., Director of Parks. Lord Lambourne said it was an exhibit he had

occupying a space of 15 feet by 6 feet. The 1st prize was won by Mr. C. ENGELMANN, Saffron Walden, with a beautifully arranged collection of grandly grown flowers. Premier honours for a collection of border Carnations were taken by Mr. JAMES SMITH, Darvel.

The principal class for Chrysanthemums was won by Mr. GEO. BOWNESS, Busby, and in the herbaceous section Messrs. G. GIBSON AND CO., Leeming Bar, were first, followed by Messrs. HARKNESS AND SONS, Bedale; 3rd, Messrs. OLIVER AND HUNTER, Moniaive, Dumfriesshire. Dahlias were poor, as the season has been very late. The 1st prize in the principal class was won by Mr. H. CLARKE, Greenway Nurseries, Taunton. Messrs. MAIR AND SON, Prestwick, scored, as usual, for Gladioli. The fancy Pansies were very fine, and 1st prize for 48 blooms was won by Mr. ANDREW FRATEN, Kirkliston, with a grand lot of flowers. There were 112 classes in the Cut Flower section.

FRUIT.

The most important class in the fruit section was for a decorated fruit table to consist of 24 dishes. The first prize, £25 in cash; and a silver rose bowl, value £50, presented by the proprietors of *The Glasgow Herald*, was won by the EARL OF BALFOUR, Prestonkirk (gr. Mr. Geo. Anderson); second prize of £25 was won by WALTER CURRIE, Esq., Castle Levan, Gourrock (gr. Mr. C. Traill); and the 3rd by Lord BELPER, Kingston Hall, Derby (gr. Mr. Jas. McCartney). Messrs. MALCOLM CAMPBELL, LTD., Glasgow, were first for the most artistic display of fruit (home and foreign) on a space of 12 feet by 6 feet. For a collection of 8 bunches of Grapes Mr. DAVID HALLIDAY excelled, and he also won the premier awards in several other classes for this fruit. Lady VIOLET ASTOR, Perth (gr. Mr. Jas. Chisholm), was first for four bunches. The effects of a late season were noticeable on the exhibits of Apples and Pears, all of which were below exhibition size. The best specimens had the appearance of having been protected by glass or some similar means. There were 70 classes for fruit.

Vegetables were not so finely exhibited as usual at Glasgow. There were 85 classes in this section. The principal prize-winners were Mr. JOHN GRAY, Uddingston; Mr. JOSEPH DEVOY, Stranraer; Mr. FRED J. BELL, Whiteley Bay; and Capt. A. G. GILMOUR, Eaglesham (gr. Mr. W. Jamieson). There were also 30 classes open to allotment holders.

AWARDS BY THE ROYAL HORTICULTURAL SOCIETY.

Gold Medal and Special Appreciation to the CITY OF GLASGOW PARKS DEPARTMENT, for decorative groups; and to Messrs. DOBBIE AND CO., LTD., Edinburgh, for groups of cut flowers.

Gold Medals to Messrs. STORRIE AND STORRIE, Glencarse, for fruit trees; Messrs. R. WATSON AND SONS, Lenzie, for Begonias; Messrs. CYPHER AND SONS, Cheltenham, for groups of pot plants; Messrs. SUTTON AND SONS, Reading, for a group of flowers, fruit and vegetables; Messrs. AUSTIN AND McASLAN, Glasgow, for fruit and vegetables; Sir JOHN REID, Craigmore, for specimen Ferns; Mr. C. ENGELMANN, Saffron Walden, for Perpetual Flowering Carnations; and Messrs. ALLWOOD BROS., Wivelsfield, for Perpetual Flowering Carnations.

Silver-Gilt Knightian Medals to D. H. BARTON, Esq., Antrim, for vegetables; Messrs. KERR AND CO., Glasgow, for vegetables.

Silver-Gilt Flora Medals to Messrs. AUSTIN AND McASLAN, Glasgow, for trees and shrubs; Messrs. LAIRD AND DICKSON, Edinburgh, for Alpines and rock plants; Messrs. ALEX. DICKSON AND SONS, Newtownards, for Sweet Peas; Messrs. ALEX. DICKSON AND SONS, for Roses; and W. H. COATS, Esq., Paisley, for a decorative group.

Silver-Gilt Banksian Medals to Messrs. CHARLESWORTH AND CO., for Orchids; DONARD NURSERY CO., Co. Down, for shrubs and herbaceous plants; Messrs. SAMSONS, LTD., Kilmarnock, for Roses and fruit.

Silver Knightian Medal to Messrs. RYDER AND SON, St. Albans, for vegetables.

Silver-Gilt Hogg Memorial Medal to Messrs. MALCOLM CAMPBELL, LTD., Glasgow, for fruit.

Silver Flora Medals to Mr. E. J. HICKS, Twyford, for Roses; Messrs. RYDER AND SONS, for Gladioli; Messrs. SANDERS, St. Albans, for Orchids; Mr. W. LEIGHTON, Glasgow, for floral groups; Messrs. LOWE AND GIBSON, for Gladioli; Mr. ROBERT LAWRIE, Carnwath, for Begonias; Mr. DAVID KING, Edinburgh, for a rock garden; Messrs. JOHN FORBES LTD., Hawick, for herbaceous plants; Messrs. BLACKMORE AND LANGDON, Bath, for Begonias and Delphiniums; and Mr. H. N. ELLISON, West Bromwich, for Ferns and Cacti.

Bronze Hogg Medal to Mr. JOHN OGILVIE, Errol, for fruit.

Silver Banksian Medals to Messrs. KENT AND BRYDON, Darlington, for herbaceous plants; Messrs. STUART LOW AND CO., Enfield, for Carnations; Messrs. FAIRBAIRN AND SONS, Carlisle, for Phloxes and other herbaceous plants; Mr. JOHN SMELLIE, Helensburgh, for Sweet Peas; Messrs. GEO. MAIR AND SON, Prestwick, for the cultivation of Gladioli; Messrs. G. GIBSON AND CO., Bedale, for herbaceous plants; and Mr. THOS. ROBINSON, Nottingham, for Roses.

Silver Lindley Medals to Hon. GODFREY CORBETT, Rowallan Castle, Kilmarnock (gr. Mr. Jas. Dixon), for special cultivation of Muscat Hamburg Grapes; and the WEST OF SCOTLAND AGRICULTURAL COLLEGE, Glasgow, for a scientific exhibit.

Bronze Lindley Medal to Messrs. OLIVER AND HUNTER, Moniaive, for cultivation of Primulas.

AWARDS BY THE GLASGOW AND WEST OF SCOTLAND SOCIETY.

Gold Medals to GLASGOW PARKS DEPARTMENT (large gold medal and special award), for groups of exotic Ferns and flowering plants; Messrs. DOBBIE AND CO., LTD., Edinburgh, for groups of Roses; Mr. DAVID KING, Edinburgh, for rock garden; Messrs. ALLWOOD BROS., Wivelsfield, for Carnations; Messrs. AUSTIN AND McASLAN, Glasgow, for groups; Messrs. CHARLESWORTH AND CO., for Orchids; Messrs. ALEX. DICKSON AND SONS, for Roses and Sweet Peas; Mr. C. ENGELMANN, Saffron Walden, for Carnations; Messrs. FAIRBAIRN AND SONS, Carlisle, for Phloxes; Messrs. KENT AND BRYDON, Darlington, for herbaceous plants; Messrs. BAKERS, Wolverhampton, for herbaceous plants; Mr. ROBERT LAWRIE, Carnwath, for Begonias; Messrs. RYDER AND SON, St. Albans, for Gladioli and vegetables; Sir JOHN REID, Craigmore, for specimen plants; Messrs. STUART LOW AND CO., Enfield, for Carnations; Messrs. SANDERS, St. Albans, for Orchids; Messrs. SUTTON AND SONS, Reading, for flowers and vegetables; H. D. BARTON, Esq., Antrim, for vegetables; WEST OF SCOTLAND AGRICULTURAL COLLEGE, Glasgow, for an educational exhibit of insect pests and fungous diseases; Messrs. STORRIE AND STORRIE, Glencarse, for fruit trees.

Silver Medals to Messrs. BLACKMORE AND LANGDON, Bath, for Begonias and Delphiniums; DONARD NURSERY CO., Co. Down, for shrubs and herbaceous plants; H. N. ELLISON, West Bromwich, for Cacti and Ferns; Mr. HENRY ECKFORD, Wem, for Sweet Peas; Messrs. JOHN FORBES, LTD., Hawick, for herbaceous plants; Messrs. ISAAC HOUSE AND SONS, Bristol, for Scabious; Messrs. KERR AND CO., Glasgow, for vegetables; Mr. W. BUNN, Malvern, for Geraniums; Messrs. LEARMONT, HUNTER AND KING, LTD., Dumfries, for fruit trees; Mr. WM. LEIGHTON, Glasgow, for a floral exhibit; Mr. D. McLEOD, Manchester, for Orchids; Mr. G. W. MILLER, Wisbech, for hardy plants; Messrs. OLIVER AND HUNTER, Moniaive, for Alpines; Mr. JOHN OGILVIE, Errol, for fruit; Messrs. PRINGLE AND ALEXANDER, Glasgow, for topiary plants; Messrs. SAMSONS, LTD., Kilmarnock, for Roses and fruit; and Mr. W. WELLS, JUNR., Mersham, for herbaceous plants.

Bronze Medals to Mr. FRED J. BELL, Whiteley Bay, for Violas; Messrs. ALEX. LISTER AND SON, Rothesay; Messrs. LOWE AND GIBSON, Sussex, and Messrs. LAIRD AND DICKSON, Edinburgh, for Alpines.

ROYAL HORTICULTURAL.

SEPTEMBER 5.—The exhibition in conjunction with the fortnightly meeting on Tuesday last was extensive, and there was a good attendance. Dahlias predominated, in view of the Dahlia show on the following day, and many fine new varieties were forthcoming. A Gold Medal was awarded to Mr. H. J. JONES for Phloxes. There were fewer Orchids than usual.

Orchid Committee.

Present: Sir Jeremiah Colman, Bart. (in the chair), Messrs. Jas. O'Brien (hon. secretary), C. J. Lucas, Gurney Wilson, Fred K. Sander, J. E. Shill, H. T. Pitt, T. Armstrong, E. R. Ashton, W. J. Kaye, Pantia Ralli, and J. Wilson Potter.

AWARDS OF MERIT.

Laelio-Cattleya Carmencita, *Claygate Lodge variety* (C. *Dowiana* × L.-C. *luminosa*), from J. J. BOLTON, Esq., Claygate Lodge, Claygate (gr. Mr. S. Lyne). A fine hybrid, and one of the best of its class. The sepals and petals are citron yellow; the lip is well expanded, and coloured deep claret-crimson, with fine gold lines from the base.

Cypripedium Albion (*niveum* × *Astarte*) from Messrs. STUART LOW AND CO., Jarvisbrook, Sussex. A very desirable hybrid with pure white flowers of fine substance, a few very small purple spots appearing on the dorsal sepal. The C. *insigne* *Sanderæ* in C. *Astarte* improves the flower in size and shape compared with most C. *niveum* crosses.

GROUPS.

A Silver-Gilt Lindley Medal was awarded to a noble specimen of the remarkable *Arachnanthe Lowii* shown by Sir JEREMIAH COLMAN, Bart., Gatton Park (gr. Mr. Collier). This gigantic Bornean species has not been shown for many years, and the fine specimen, with three leafy stems, and three spikes, each six or eight feet in length, and bearing between them over one hundred and sixty flowers, was a great attraction. A singular feature in the species is that whereas the greater number of the flowers are cream white heavily barred with claret red, there are always from one to three larger totally dissimilar clear yellow flowers, sparsely dotted with purple at the base and which further fertilisation by insect aid.

Messrs. STUART LOW AND CO., Jarvisbrook, Sussex, were awarded a Silver-Flora Medal for a very effective group in which white *Phalaenopsis*, the blue *Vanda coerulea*, the rare *Epidendrum Brassavola*, and other species were arranged with a good selection of hybrid *Cattleyas* and *Laelio-Cattleyas*, together with *Sophronitis* crosses, including the beautiful *Sophro-Laelio-Cattleya Marmion* (S.-C. *Doris* × L.-C. *luminosa*).

Messrs. SANDER, St. Albans, were awarded a Silver Banksian Medal for a compact group in which the best subjects were the large and handsome *Cattleya Henschelii* (*Dupreana* × *Warszewiczii*), a model flower of rich colour; the yellow C. *fulva*, in which the peculiar lip of C. *Forbesii*, an old ancestor, well appears; some fine C. *Warszewiczii* alba and other white-petalled hybrids; their fine mauve *Odontioda brugensis*, and among the species the rare *Stanhopea peruviana aurea*.

RICHARD G. THWAITES, Esq., Chessington, Streatham Hill, showed a selection of six of his new type of *Cattleya Hardyana* alba var. Mrs. Alan, the most mature plant with a flower with pure white sepals and petals and large, deep, claret purple lip well representing the class.

Floral Committee.

Present: Messrs. H. B. May (in the chair), S. Morris, G. Reuthe, John Heal, J. F. McLeod, Wm. Howe, D. B. Crane, W. B. Gingell, C. R. Fielder, T. Stevenson, A. Turner, H. J. Jones, C. E. Pearson, W. P. Thomson, W. G. Baker, E. A. Bowles, W. R. Dykes, W. B. Cranfield, J. W. Barr, Jas. Hudson, W. Cuthbertson, G. W. Leak and Rev. J. T. Bennett-Poë.

AWARDS OF MERIT.

Centaurea Cyanus Silver Queen.—This is a silvery white variety of the well known Cornflower, and no doubt will be equally valued as a cut flower, both for market purposes and

for home decoration. Shown by Messrs. BARR AND SONS.

Gladiolus Rt. Hon. Countess Beatty.—A strikingly beautiful *Gladiolus* of perfect form. The large, widely expanded blooms are of milk white colour, which is relieved by a largish crimson-lake blotch on the lower segments. Shown by Messrs. KELWAY AND SON.

Primula Mooreana improved.—Farrer states in *The English Rock Garden* that *Primula Mooreana* is the very best of the various *Primulas* grown in the gardens under the name of *P. capitata*, and as this is an improved form its great garden value is readily apparent. A good plant bearing several spikes of blue flowers in a head on powdered stems, was shown by LADY ABERCONWAY.

Streptocarpus Princess Mary.—A splendid example of the large-flowered hybrids, and very free-flowering. The widely expanded flowers are of rose shades of colour and their throat is straw-yellow. Shown by Messrs. R. and G. CUTHBERT.

Joint Dahlia Committee.

Present: Messrs. H. B. May (in the chair), D. B. Crane, H. J. Jones, John Green, Jas. B. Riding and Arthur Turner.

NEW DAHLIAS.

The following varieties were selected for trial at Wisley:—

Protest.—A large, Decorative variety of good shape and rosy mauve colour, which becomes paler at the tips. Shown by the CENTRAL GARDENS SUPPLIES.

Warrior.—A pretty, small Paeony-flowered bloom of flattish shape and velvety crimson colour, which is paler in the centre.

Crimson Glow.—A compact and effective small Paeony-flowered bloom, which has slightly rolled petals. The colour is vivid crimson.

Zena.—A small, yellow-flowered, Decorative variety, which is stippled with bronze at the margins.

Sophire.—A small, graceful, star-shaped, white Paeony-flowered variety.

Marcella.—A small, Paeony-flowered Dahlia of bright rose-pink colour. The above were shown by Messrs. J. BURRELL AND SON.

Dorking Star.—An elegant and valuable silvery mauve Star Dahlia, which has a fascinating crimson rayed centre. Shown by Messrs. J. CHEAL AND SONS.

Richard Henckeroth.—A large Decorative variety of vivid scarlet colour. This and the following were shown by members of the Dutch Dahlia Society.

Flambeau.—A large Decorative variety of brick red colour flushed with scarlet.

Wake Up.—A small flower of Decorative type, coloured ruby-crimson and broadly tipped with white.

Misses G. Wurflein.—A large Decorative variety of claret crimson colour with a velvety maroon centre.

Mr. Dresselhuys.—A medium-sized flower of the Decorative section. The colour is rosy-lilac, paler at the tips of the florets.

Giverveltji.—A very small Decorative variety, which approximate the Pompon in size. It is of rosy-lilac colour.

Oranje boren.—A large orange-apricot coloured Decorative variety.

Prince of Wales.—Another uncommon coloured variety of the Decorative section. It is of buff-orange shades of colour.

GROUPS.

Mr. H. J. JONES for the second time this year gained the highest award of a Gold Medal for herbaceous Phlox, and excellent as was the earlier exhibit, it was surpassed on the present occasion. It was a great exhibit of Phlox, in every sense of the word, for there was enormous quantity, high quality and admirable variety. Of the very many sorts the following is a short selection: Riverton Jewel, September Glow, Asia, Hollandia, Mrs. A. F. Godfrey, Snowdrift, Europe and Gloire de Marc. In another part of the hall Mr. JONES arranged a graceful and valuable collection of Montbretias (Gold Medal).

Equal in extent and also of great merit was a very large exhibit of Asters contributed by Messrs. SUTTON AND SONS. This extensive collection included all the different types of garden "China Asters," such as Sutton's Giant Comet, Giant French, Ostrich Plume, Mammoth, Victoria and the elegant, graceful, single-flowered type, and in these were a great many most desirable varieties in many shades of colour (Silver-Gilt Banksian Medal).

Gladioli were very prominent and the chief exhibit of these valuable flowers was by Messrs. KELWAY AND SON, who had a very representative collection. Amongst the yellow-flowered *Primulinus* sorts we noted Major, Golden Girl and Maid of the Mist; while amongst the large-flowered varieties it was perhaps those of brilliant colours that attracted most attention, and of these the following is a selection: J. W. Kelway, Colossal, J. L. Clucas, Star of Langport, Sir H. Talbot and Nonpareil (Silver-Gilt Flora Medal).

In a corner space Mr. W. F. GULLICK showed many *Gladioli* which illustrated the very highest skill in cultivation, and the method of arrangement was especially effective. Of his many sorts Red Emperor, White Giant, Proserpine, Yellow Hammer and Pink Perfection are the names of only a few of the varieties so well shown (Silver Banksian Medal).

Adjoining the handsome Dahlia exhibit of the Dutch Dahlia Society Mr. K. VELTHUYS had a tasteful display of excellent *Gladioli*. Goodly numbers of varieties were represented, and amongst them Proserpine, of the same dazzling colour as the well-known Tulip of that name, was most prominent (Silver-Gilt Banksian Medal). Against the end wall Messrs. R. H. BATH, LTD., had an interesting collection, which included Sappho, Red Emperor, Electra and Halley (Silver-Gilt Banksian Medal).

The Foremarke Cup "for 20 spikes of named *Gladioli* of the exhibitor's own growing" was awarded to Messrs. LOWE AND GIBSON for a praiseworthy collection, and in another place they had a graceful exhibit which included Salmonia, Alice Toplady and Woodcote. Mr. EDWARDS, a new exhibitor at the hall, had elegant spikes of such *Primulinus* sorts as Brilliant, Yellow Queen, J. P. Roen and Valuta (Bronze Banksian Medal).

Gladioli and Dahlias of good quality and pleasant variety were staged by the CENTRAL GARDEN SUPPLIES (Silver Banksian Medal). Mr. S. MORRIS had an interesting selection of Montbretias of which he has raised so many valuable sorts. The very best was His Majesty, large yellow flowers heavily edged with dull crimson. He also had Princess, Admiral Jellicoe and a vase of seedlings (Silver-Gilt Banksian Medal).

Border flowers were also staged in goodly quantity. Mr. W. WELLS, Junr., had many valuable Phloxes, Asters, Lupins and other hardy flowers of great merit (Silver Flora Medal). Messrs. B. LADHAMS, LTD., again showed several interesting tall Lobelias, Veronicas, Montbretias, Pentstemons and Helianthemums (Silver-Gilt Banksian Medal). Mr. AMOS PERRY showed Achillea Miliefolium Cerise Queen, many *Gladioli* and other seasonal flowers (Silver-Gilt Banksian Medal). Messrs. WATERER, SONS AND CRISP also had the brilliant Achillea M. Cerise Queen, with Lupins in variety, Pyrethrum and *Gladioli*. They also showed good Roses (Silver-Gilt Banksian Medal).

Mr. T. CARLILE showed Delphiniums and Phloxes (Bronze Banksian Medal). Mr. G. REUTHE had his customary collection of Alpines and shrubs (Silver Banksian Medal); the Misses HOPKINS staged a small rockery and an exhibit of border flowers (Bronze Banksian Medal). Mr. F. C. WOOD had a large collection of seasonal border flowers (Silver Banksian Medal); Mr. F. YANDALL showed Violas (Bronze Flora Medal); and Messrs. W. CUTHBERT AND SON again displayed Pentstemons (Bronze Banksian Medal).

Roses in variety and in good condition were contributed by the Rev. J. H. PEMBERTON (Silver Banksian Medal). Messrs. D. PRIOR AND SON (Bronze Banksian Medal), and Messrs. B. R. CANT AND SONS, had goodly vases of Covent Garden, Royal Sovereign and Golden Emblem.

Mr. C. ENGELMANN had a collection of fresh Carnations in variety (Silver-Gilt Banksian Medal); Messrs. ALLWOOD BROS. and Messrs. STUART LOW AND CO. also showed Carnations (Bronze Banksian Medals).

Just inside the entrance Messrs. L. R. RUSSELL, LTD., arranged a good collection of pot-grown Clematis in such sorts as Nelly Moser, Lady Londesborough, Mrs. G. Jackman, Ville de Lyon and Lady Northcliffe, with heavily berried Fire Thorns (*Pyracantha coccinea*), the golden variegated Jasmine and other shrubs. On a table space they had many interesting Bromeliads (Silver-Gilt Banksian Medal). Messrs. R. and G. CUTHBERT staged a large collection of Streptocarpus which illustrated a splendid large-flowered strain (Silver-Gilt Banksian Medal).

Dahlias were, in view of the next day's show of the National Dahlia Society, prominently shown by several exhibitors, and these we shall mention in our report of the special show. The exhibitors were the DUTCH DAHLIA SOCIETY (Silver-Gilt Banksian Medal), Messrs. J. CHEAL AND SONS, who also had many interesting trees and shrubs, including fruiting crabs in variety, flowering branches of Veronicas, Yuccas, Tamarix, Myrtus Luna, and most brilliant fruits of *Eunonymus latifolius* (Silver-Gilt Banksian Medal), and Messrs. CARTER PAGE AND CO. (Bronze Banksian Medal).

Fruit and Vegetable Committee.

Present: Messrs. C. G. A. Nix (in the chair), J. Cheal, G. P. Berry, Geo. F. Tinley, E. A. Bunyard, S. B. Dicks, P. C. M. Veitch, T. Pateman, J. C. Allgrove, W. Bates, W. Wilks and W. H. Divers.

Several new varieties of fruits were submitted for awards, but none was considered worthy. Messrs. LAXTON BROS., Bedford, had several new Apples, including Tit-Bit, raised from King of the Pippins and Blenheim Pippin, a fruit of high colouring after the style of Lady Sudeley; Pear Laxton's Cropper is a seedling from Marguerite Marillat crossed with Doyenné d'Été, a very pretty fruit with a red flush on the side next to the sun. Laxton's Supreme Plum, a new sort raised from Denniston's Superb × Victoria, is like a small, pale Victoria and of good quality. Mr. T. PATEMAN, The Node Gardens, Welwyn, showed a late Black Currant which he met with in a garden in the Midlands; this variety, also another seedling late Black Currant shown, were recommended for trial in the Wisley Gardens. Mr. J. C. ALLGROVE, Middle Green, Langley, showed his fine Gage Plum Allgrove's Superb, which received an Award of Merit on August 31, 1915. This nurseryman also exhibited fruit trees in pots, and choice gathered specimens of Apples, Pears and Plums. The fruit trees were remarkably well grown and finely cropped, the varieties including Allgrove's Superb, Jefferson, McLaughlan's Golden Gage and Denniston's Superb Plums, and Apple Rev. W. Wilks, the latter carrying several very large fruits each. Pears Dr. Jules Guyot, Marguerite Marillat and Triomphe de Vienne were of remarkably fine quality (Silver-Gilt Hogg Medal).

METROPOLITAN VEGETABLE AND FLOWER SHOW.

SEPTEMBER 2.—An exhibition of garden produce from allotment holders was held at the Guildhall, London, on the foregoing date, with the patronage of the Worshipful Company of Gardeners, and under the auspices of the Vacant Land Cultivation Society, the National Union of Allotment Holders, and the London Gardens Guild. The schedule included twenty-six classes, the great majority of which were for vegetables. Extraordinary numbers of entries were received in nearly all classes; the largest number, one hundred and thirty-two, was in Class 7, for twelve Potatoes, in two varieties, six of each. The number of entries in the 26 classes totalled 1,450; fifty societies entered in the societies' classes.

The show was opened by Lord Leverhulme, who, in his remarks, emphasised the importance of the allotment movement, and referred to the passing of the new Allotments Act, which will give allotment holders greater security of tenure than they have had in the past. Lord Leverhulme was supported by Sir Kingsley Wood, who has worked hard in the House of Commons in the interests of allotment holders. This gentleman referred to the great displacement of allotment holders, which would take place next March, and urged greater activity on the part of all such cultivators, by approaching the local authorities where evictions were likely to take place.

On the whole the show was a wonderful demonstration of the value of the allotment movement and the high quality of the produce which can be grown by enthusiastic cultivators in the London district. Several exhibits of flowers, in many cases grown in window boxes in the most congested areas of London, gave colour and variety to the exhibition.

One of the most important classes was that for a collection of six different kinds of vegetables, arranged on a space 4 feet by 3 feet. The number of entries was fifty-two. Competition was very keen, and many of the exhibits comprising the collections were of exceptionally high quality, and would have done credit to professional gardeners. The first prize was won by Mr. BENNETT, 78, Liverpool Road, Watford, his Celery, Carrots, Onions and Leeks being of outstanding merit. Mr. H. A. BANKS, West Norwood, followed closely.

In the classes for Potatoes, competition was especially keen, and the produce generally of a good quality, though we must confess we were a little disappointed to find nothing of particularly outstanding merit. The best tubers were seen in the class already referred to as having attracted the largest number of competitors. The winning varieties were Duke of York and Arran Comrade, the tubers of the former being large and of fine shape and finish, while the latter were also good in shape and quality. The successful exhibitor was Mr. W. WILLIAMS, Willesden. The collections of six varieties of Potatoes contained many excellent tubers, and the judges had considerable difficulty in making their decision.

Carrots, Celery, Vegetable Marrows, were all shown excellently. The premier prize for Carrots was won by Mr. NICHOL with almost perfect roots of the Long Red Surrey variety.

The principal award, which took the form of the Freedom of the Worshipful Company of Gardeners, and was given to the exhibitor obtaining the highest number of points in the show, was gained by Mr. J. R. SMITH, of Liverpool Road, Watford; the Silver Challenge Cup offered by the same company for the best exhibit in the Society's classes, was won by the WELL HALL ALLOTMENT SOCIETY.

Obituary.

John Morgan.—We announce with regret the death of Mr. John Morgan, partner in the seed and nursery firm of Thompson and Morgan, Ipswich, which occurred at his residence on August 21 after a short illness. The deceased, who was a native of Ipswich, had from early life been engaged in horticulture, and had a very extensive knowledge of hardy plants and their seeds. Mr. Morgan was of a very retiring nature, and did not appear much in public; but he was a most enthusiastic worker in the Ipswich and District Gardeners' Association, frequently presiding in a vice-presidential capacity at their meetings, while for the current year he was president. His funeral took place at Ipswich Cemetery on August 24 amidst many manifestations of sorrow and esteem. The floral tributes were numerous and beautiful. Besides those from relatives and friends, emblems were sent by the Ipswich and East of England Horticultural Society, Ipswich and District Gardeners' Association, and the seed and nursery staff. The business will be carried on under the old name.

Mrs R. V. Berkeley.—Garden lovers everywhere will learn with the deepest regret of the death of Mrs. Berkeley, wife of Mr. Robert Berkeley, of Spetchley Park, Worcestershire, and sister of Miss Ellen Willmott. The sisters shared a deep love of gardening, and Mrs. Berkeley gathered together in her beautiful gardens at Spetchley Park a notable collection of rare and interesting plants, for several of which she gained Awards at the Royal Horticultural Society's meetings. Mrs. Berkeley died of heart failure on Monday, the 21st ult., and was buried on Thursday, the 24th ult., at Spetchley.

TRADE NOTES.

MR. TURNER is about to sever his long connection with the firm of Messrs. Hurst and Son, Wholesale Seed Merchants and Growers, 152, Houndsditch, London. He joined the firm in August, 1890, and was for two years in charge of the seed trials. He was after this transferred to the vegetable seed department, had some office experience, and eventually went to the flower seed department. Here he was very successful, and became head of the "shop" in 1897, and of the whole flower seed department in the spring of 1907.

Before joining Messrs. Hurst and Son, he was with Messrs. Mahood and Son, Putney, in both their nursery and seed departments, and his nursery experience was of considerable value to him in his subsequent work.

Mr. Turner has taken a nursery at Hastings, and his many friends will join with us in wishing him every success in his new venture.

Mr. Vernon Roscoe, who has been appointed to succeed Mr. Turner at Messrs. Hurst and Son's, has had the advantages of working under him for some years.

MR. H. STEWART PATON, who up till recently was a director of Samsons, Ltd., Kilmarnock, has joined the firm of Messrs. Aastin and McAslan, Glasgow, as a partner, where he will undertake the management of the nursery department. Mr. Paton has had a lifelong connection with the trade, and his large circle of friends will wish him every success in his new sphere of activities.

ANSWERS TO CORRESPONDENTS.

APPLE LEAVES SCORCHED: W. F. F. The disease is known as Apple Leaf-scorch, and is not due to a fungous attack, but to weather conditions, or, more often, unsuitable soil conditions.

ASTERS ROTTING OFF AT THE ROOTS: A. O. W. and W. A. L. The plants are attacked by stem rot caused by a fungus (*Phytophthora* sp.). All diseased plants should be lifted and burned and healthy specimens sprayed with Bordeaux mixture.

GRAFTED APPLE STOCK INTENDED FOR BUDDING: H. M. Do not cut away the head of the stock above the bud until the winter, or, better still, next February. Even then it is usual to leave a portion about 4 inches long above the bud to secure the new shoot to, so as to make it grow straight. No growth will start from the bud until next spring. Certainly budding can be done on two-year old wood.

MUSCAT VINE LEAVES TURNING YELLOW: H. K. The fungus *Botrytis* is present on the foliage, but it is very possible that this is only secondary and not the actual cause of the complaint. The primary cause must be looked for in some wrong cultural treatment, which only those on the spot can determine.

MISTLETO ON APPLE TREES: D. H. Shoots of Mistleto have been grafted on to Apple trees by the ordinary method, but it is difficult, and many of the scions fail. You mention seeds, and that method is probably what you mean, and is certainly the natural way to establish this plant on trees. The mistake was in cutting cavities in the branches, possibly killing the only part to which the young

Mistleto could attach itself and grow into the wood. Select a smooth, live piece of bark on a branch of moderate age and rub the berries upon it with the fingers till the clammy or viscous juice makes them adhere. If this is done on the lower side of the branches birds are less likely to interfere with the berries; you could tie a rag loosely over them to keep the birds away. Apple, Lime, Black Poplar and the common Sycamore are the trees upon which the Mistleto grows most readily. The seeds take a year to push the root end of the embryo into the bark, so that leaves need not be expected to appear until the second summer. The seeds are quite mature in January or February and ready for fixing on the bark.

NAMES OF FRUIT: F. J. S. Peach Noblesse. —Somerton. 1, Warner's King; 2, not recognised; 3, Woodcock; 4, Grenadier; 5, Hawthornden; 6, Bess Pool.—W. H. J. 1, Red Astrachan; 2, Mr. Gladstone; 3, not recognised; 4, Potts's Seedling.—W. G. A Crab Apple.—J. C. W. and S. Col. Vaughan.—M. and C. Mr. Gladstone.—J. S. Apple Lord Derby; the Plum resembles Mirabelle.

NAMES OF PLANTS: S. P. 1, Escallonia illimita; 2, Send in flower; 3, Hedychium Gardenianum.—J. W. 1, Epilobium purpureum; 2, Veronica speciosa var.; 3, Eucalyptus Gunnii; 4, Acacia armata.—A. J. S. Hyoscyamus niger (Henbane).—L. E. The large mauve flower is *Dierama pendula*; the small blue one *Anchusa* species, possibly *A. tinctoria*, but material insufficient. H. B. O. 1, *Heeria elegans*; 2, *Helix Solierii*; 3, probably *Aster Linosyris*, but cannot determine without flowers; 4, *Aster acris*; 5, *Aster* sp. (send in flower); 6, *Aucuba japonica*; 7, *Euonymus japonicus*; 8, *Aucuba japonica*; 9, *Prunus pissardi*; 10, *P. serrulata*; 11, *Saxifraga decipiens*; 12, *Antennaria dioica tomentosa*.

NECTARINES EATEN BY INSECTS: W. J. S. It is quite possible that earwigs and woodlice are the cause of the damage. Place hollow Bean-stalks amongst the branches, and also some small pots with a little loose hay in them, and examine these every morning, and destroy all insects that collect in them. The cracking of the fruits is no doubt due to the recent heavy rains following dry conditions of the soil about the roots.

PEACH AND ROSE TREES DAMAGED: *Anxious*. The material supplied was quite insufficient to enable us to form any opinion as to the cause of the damage to your Peach and Rose trees.

PEACHES WITH NO FLAVOUR: H. A. T. The fruits sent were not affected by any disease caused by a fungus. The trouble has been caused by some wrong method of cultivation, which only those on the spot can determine. We think, however, that your gardener's conclusions are probably correct.

POTATOS IN STORE: M. The tubers in store are not very likely to become infected with disease unless they are in actual contact with the diseased ones. Sprinkling the tubers with a mixture of quicklime and flowers of sulphur is sometimes advised.

ROSES FAILING TO OPEN SATISFACTORILY: *Constant Reader*. The reason of your Roses making such poor blooms is due to the cold, wet weather, in conjunction with a bad attack of mildew on the foliage.

SECOND BLOOMING OF AN APPLE TREE: *Greenway Gardens*. The second blooming of Apple Trees is not unusual. It is generally the result of some check the plant has received, and may be attributed to the long period of drought and heat last summer and autumn.

TOMATO LEAVES DISEASED: F. K. The disease is caused by the fungus *Botrytis*, which attacks the stem through dead leaves and shoots. Burn all dying and dead vegetable matter in the house and ventilate the latter as much as possible.

Communications Received.—C. H. P.—J. J.—H. J.—W. J. C.—E. B.—F. B.—J. S. D.—J. L. W.—W. K.—H. S. T.—A. T. J.—J. C. E. K.—E. N.—M. O. S.—T. C. S.—R. H. C.—C. R.—D.

THE

Gardeners' Chronicle

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 57.8°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London. Wednesday, September 13, 10 a.m. Bar. 29.2; temp. 58°. Weather—Fine.

The Garden in 1922.

It is probable that there never has been a greater contrast between the climatic conditions of successive gardening years than that between 1921 and 1922. Up till the end of June, however, the present was a repetition of the previous year. A spring drought made many seed beds sterile and led to gloomy prognostications of a recurrence of the losses which gardeners suffered in 1921. Unresourceful gardeners who do not make a practice of successional sowing, and who do not take the precautions of shading, cultivating, and, in the last resort, watering seed beds, found that the drought at sowing time rather delayed their operations of sowing and transplanting or led to not infrequent failures. Those with more ample resources, material and mental, were, however, able in large measure to get the better of adverse conditions and, with their young flower and vegetable plantations in a good condition, they reaped the reward of their skill when the rains came in July. Even so, however, not a few plants never recovered from the check which they experienced as seedlings, and in some gardens such plants as *Zinnias* are now making miserable efforts to flower on stems scarcely a foot high. Since the end of June, an almost unbroken succession of wet days and a large deficit of sunshine have left their mark on the garden. Top fruit, which is not unprofitable, is ripening but slowly in all but specially favoured localities. Victoria Plums, for example, on trees under our observation were not fully ripe in the first week

of September. Bush and small fruits, on the contrary, caught the early sun and ripened well enough. Potatoes are generally a very heavy crop, though disease has appeared in wet lands and is likely to take its toll of tubers during storage. Not only is the crop large, but the tubers are extraordinarily large, particularly in such early varieties as *Epicure* and *Witchill Seedling*. Tomatoes, which ripened out-of-doors last year and produced a large crop, have given up trying either to swell or ripen their fruit and reflect in their belated condition the sunlessness of the season. On the other hand, although trees and shrubs were late in starting into full growth, the wet season has caused a remarkable luxuriance of later growth and in particular recently transplanted trees and shrubs have done extremely well. They may not ripen their wood well, but they have firmly established their root systems. The wet season has also been responsible for a marked extension of the flowering season of many herbaceous (and shrubby) garden plants—*Catmint*, *Stocks*, *Campanulas*, *Antirrhinums* and particularly *Cistus* seem unable to cease from flowering and make the season memorable in that these and many similar subjects are blooming side by side with more autumnal subjects such as *Asters* and *Golden Rods*. Even more vigorous than that of garden plants has been the growth of weeds, and heavy and ceaseless labour has been required to keep them down. No review of the garden in 1922, however brief or partial, may omit reference to the wonderful display which *Roses* have made. Under conditions which might have been expected to make for all manner of diseases, they have flowered and are still flowering in unusual luxuriance. Only *La France*, of the many varieties growing in the garden on which these observations are based, has succumbed to climatic conditions; all the others, in spite of mildew and other fungous pests, have both flowered profusely and made great growth. Adepts in summer pruning of fruit trees have had, in not a few cases, difficult work in judging of the time when to perform this operation. Late growth and subsequent rapid extension of the shoots have produced a state of affairs on trained Apple trees which to remedy will require much judicious pruning in the winter, particularly if, as bids fair to be the case, there is a deficiency of fruit buds to permit of the adoption of the excellent practice of spur pruning. Happy is the gardener who, in these sunny September days, can spare the labour to keep the soil stirred so that the warmth of the sun can penetrate into the ground and warm it somewhat before winter comes. Perhaps of all garden crops, the Nut crop is the most prolific. For that the fine weather of February is no doubt to be thanked.

The British Mycological Society.—The twenty-sixth autumn fungus foray of the British Mycological Society opened at Keswick, in the Lake District, on Friday, the 15th inst., and will continue until the 21st inst. The headquarters of the foray will be at the Royal Oak Hotel, Keswick. The following arrangements have been made:—Friday evening.—Council meeting at 8.45; Saturday.—Start at 10 o'clock for Thirlmere. Fisher Crag and Great How will be explored; in the evening, at 8.45, the annual meeting of the Society will be held; Sunday.—Walk in the afternoon, at 2.30, via Gretna Bank to Latrigg. Monday.—Start at 11 o'clock for Borrowdale, through Great Wood and Barrow Wood. In the evening, at 8.45, Mr. F. T. Brooks will deliver his presidential address, entitled, "Some Present-Day Aspects of Mycology." Tuesday.—Leave at 11 o'clock for Bassenthwaite Woods. Papers for the

evening at 8.45:—"Luminosity in *Panus*," by Professor A. H. R. Buller, D.Sc., F.R.C.S.; "Notes on Fungi in the Alps," by Mr. Somerville Hastings, M.S., M.R.C.S. Wednesday.—Start at 11 o'clock for Whinlatter and Wythop. Papers for the evening, at 8.45:—"Fungus Hunting in the West Indies," by Miss E. M. Wakefield; "Edible Fungi," by Mr. Carleton Rea. There will be conveyances from headquarters to the woods when distance requires.

Mendel's Centenary.—Celebrations of the centenary of Gregor Mendel will take place at Brünn, Czecho-Slovakia, on the 22nd, 23rd and 24th inst. The programme will include addresses on the personality and work of Mendel, and papers will be read by prominent Mendelian students from various countries. There will be an excursion to neighbouring caves and to Mazocha. In 1910, a monument was erected to Mendel's memory at Brünn, of which town he was abbot when he enunciated his celebrated principles of plant breeding.

Trials of Raspberries and other Rubi at Wisley.—The Royal Horticultural Society desires to make a test of (1) Raspberries (both summer and autumn fruiting) and (2) other kinds of Rubi. Five plants of the former and three of the latter, of each variety to be tried, should be sent to reach the Director, R.H.S. Gardens, Wisley, Ripley, Surrey (Horsley Station, L. and S.W. Rly.), by November 30, 1922. The Director would be obliged if those proposing to send varieties for these trials would let him know the names of the varieties to be sent, on the entry forms (which may be obtained from him), by the end of October.

Ghent Quinquennial Exhibition of 1923.—The Organising Committee of the Ghent Exhibition is appealing to horticulturists to prepare their exhibits for this demonstration of horticultural art, to be held in Ghent in April next. The programme of the exhibition, which comprises no fewer than 778 classes, will be sent on receipt of a request addressed to "Palais de l'Horticulture et des Fêtes, Ghent, Belgium." An advertising stamp, to affix to the outside of envelopes, has just been issued. The wording is supplied in French, Flemish and English, and the design represents the three principal towers in the centre of the city of Ghent. These will also be sent, in sheets, to anyone interested, on request. The XVIIIth Quinquennial Exhibition, organised by the Royal Agricultural and Botanical Society of Ghent—the oldest on the Continent—promises to surpass its predecessors, which for more than a century have marked the progress of horticulture.

Rot in Apples.—In a paper recently published in the Scientific Proceedings of the Royal Dublin Society, Mr. H. A. Lafferty, A.R.C.Sc.I., and Dr. G. H. Pethybridge (of the Seeds and Plants Disease Division of the Department of Agriculture), describe an unusual form of rot in Apples, found on specimens submitted for examination in 1920. The diseased fruits were apparently healthy when gathered, but began to rot about ten days later. After prolonged study of the disease, during which certain new scientific discoveries as to various types of rot in Apples were made, it was found that the specific disease under investigation was caused by a species of fungus. The source from which the fruits became infected is not known, but, as in other cases of Apple rot, it had been observed that the affected fruit was confined to the lower branches of the tree, near the ground, it is believed that infection came from the soil as a result of rain splashes, etc. Judicious propping up of hanging branches would probably, it is suggested, suffice to prevent infection. Fortunately, in the opinion of the authors, there is no reason to suppose that the particular form of Apple rot described in the paper is likely to become a serious menace to fruit growers in Ireland.

Walnut Industry in France. Although the Walnut industry is an important one in France, the production of Walnuts decreased by about one half during the quarter of a century following the year 1885. From 1885 to 1916

the production averaged from 500,000 to 800,000 quintals per year, but the annual variation during that period was from 210,000 to 1,590,000 quintals. We learn from the *International Review of the Science and Practice of Agriculture* (XII., No. 11), that efforts are being made in France to secure the safeguarding of Walnut trees by the State, to increase the returns by skilful cultivation, by combating disease and insect pests, by the improvement of varieties suitable for dessert purposes and oil production, and by extending the area under this crop. One author, M. L. Rigotard, advises the formation of a special organisation for the study of the Walnut tree, the founding of a "Station for the study of Walnut trees," equipped with chemical and pathological laboratories, an observation field and an experiment field.

Grading and Packing Apples. A demonstration in the grading and packing of Apples will be given at the South Eastern Agricultural College, Wye, Kent, on Friday, 22nd inst., at 2 p.m. All who are interested in this important matter are cordially invited to attend the demonstration.

Crop Rotation for Allotments.—The Middlesex Education Committee is issuing, through allotment associations, a plan showing a model scheme of rotation of crops, with the object of stimulating interest in systematic cropping and raising the standard of cultivation in allotments. The points emphasised are the use of catch crops and intercropping, the practice of green manuring, and the clearance of the ground before the winter so as to permit of winter cultivation. In order to encourage plot holders to cultivate their holdings more systematically the Committee will issue certificates to individuals who cultivate allotments most successfully, and also to associations whose plots show general cultural excellence. The whole scheme is to be explained in detail in lectures given throughout Middlesex by the County Horticultural Instructor, Mr. G. W. Pyman.

Municipal Rose Gardens.—In an address delivered before the Convention of the American Institute of Park Executives, Mr. Robert Pyle, President of the American Rose Society, urged the formation of Rose Gardens in public parks, and gave evidence of the popularity of the municipal Rose garden at Hertford. No fewer than 23,000 visitors entered this Rose garden on July 4, 1920, and this number was largely increased on July 11, popularly known as Rose Sunday in America, when visitors come from a radius of 100 miles of the park. In the two succeeding years the attendance has steadily increased, no fewer than 149,600 people visiting the gardens in one year, the highest total on one day being 35,000. Such splendid results should stimulate our own National Rose Society to hasten its efforts in the formation of the proposed National Rose Garden in this country, for we cannot believe that the people of this country are less interested in this beautiful flower than the citizens of America.

Land Drainage. The Ministry of Agriculture and Fisheries announces that, subject to the sanction of Parliament, funds will be available for carrying out drainage schemes for the alleviation of unemployment, primarily in rural districts, during the coming winter. The bodies to whom advances will be made for this purpose are—(a) drainage authorities; and (b) county agricultural committees. The latter are intended only to deal with those portions of the country for which no drainage authority has been set up. The Ministry, in the case of each scheme submitted to it and approved, will be prepared to advance the whole of the money required, subject to certain conditions, of which the following are the most important: All the work must be done so far as possible by hand labour. Seventy-five per cent. of the labour must be ex-Service men, if available. Of the remaining 25 per cent., the majority must be married civilians, if available. The wages payable for ordinary labour will be the agricultural rates for the district, as fixed by Conciliation Committees or otherwise. All work must

be completed by March 11, 1923, as no public money will be available after March 31, 1923. On the conclusion of the work, a proportion of the net cost, up to 33.1-3 per cent., will be refunded to the Ministry. Preference will be given to schemes in which a number of owners or occupiers will combine for the cleansing of main drainage channels and brooks. Owners or occupiers of land who desire to participate in the scheme should apply to the county agricultural committee for their county, and not to the Ministry.

Mr. Owen Thomas, V.M.H.—Mr. Owen Thomas has lately been the recipient, on the occasion of his golden wedding, which occurred last month, of congratulations from the whole of his wide circle of friends, from their Majesties the King and Queen down to the humblest member of the horticultural world, for during his long life he has gained distinctions of many kinds. Born in 1843, in a little village on the outskirts of the Bodorgan Estate of Mr. Owen Fuller Meyrick, in the Isle of Anglesey, he began to earn money at ten years old, being employed as errand boy at a wage of 3s. per week. He was one of eleven children, and as the average wage of a labourer was at that time about ten shillings per week,



MR. OWEN THOMAS, V.M.H.

he was obliged to begin to get his own living as soon as possible. Mr. Owen Fuller Meyrick, in whose service young Thomas started his gardening career, was a rich bachelor who was extremely fond of his garden, and was one of the few who cultivated Orchids in those days. One department of the garden was a nursery for the propagation of fruit trees and shrubs, and it was here that young Thomas was employed. He stayed at Bodorgan for nine years, passing by turns through all the departments, and in 1863 he left home and accepted a situation in the Chester Nurseries of Messrs. F. and A. Dickson and Sons. He only remained at Chester for a fortnight, being then sent as a journeyman to Little Aston Hall, Sutton Coldfield, where extensive alterations and renovations were being carried out. In 1865 he moved to London, entering the service of Messrs. James Veitch and Son, by whom he was sent to the gardens at Prayton Manor, near Tamworth, where he remained for seventeen years. He next went as head gardener at Impney, Droitwich, where parts of the estate were quite new, and needed considerable laying out, but not quite two years afterwards Mr. Thomas left Impney to take charge of the celebrated gardens at Chatsworth, Derbyshire, in succession to Mr. Thomas Speed. In 1891, Mr. Thomas Jones retired from his position as head gardener at Windsor to the late Queen

Victoria, and the position was offered to Mr. Thomas, who had now reached the front rank of gardeners. Needless to say, he accepted the great honour conferred upon him, and served the late Queen for ten happy years, until her death, in 1901. To quote Mr. Thomas' own words: "No man has ever had so kind, so considerate, or so thoughtful an employer as I had during those years, and no gardener had a happier or a better home than I had at the Royal gardens. The same kindness was continued to me for six months after Her Majesty's death, by His Majesty King Edward VII., until arrangements were completed for my successor." Six months afterwards he retired on a generous pension, and has lived quietly at Hanwell ever since.

National Chrysanthemum Society.—The National Chrysanthemum Society commences its 1922-3 session on Monday, September 18, when the first meeting of the Floral Committee will be held at the Royal Horticultural Hall, Westminster, at 3.15 p.m. The other meeting of this Committee will be held on Tuesday, October 3, at Holland Park Rink, Kensington, and at the Royal Horticultural Hall on Mondays, October 16, and October 30; Thursday, November 16; Mondays, November 27, and December 11; all the meetings except the one on November 16, commence at 3.15 p.m. The Executive Committee meetings have been arranged for Mondays, September 18, October 16, November 27, and December 11, at 6 p.m. at the offices of the General Secretary, 5, Tavistock Street, Covent Garden, W.C.

Home Production of Timber.—In an interesting paper read before the Botany Section of the British Association on the 12th inst., Lord Lovat stated that although private forestry saved the timber situation during the war, it could not do so again in the absence of State aid. With State encouragement, however, as last year, under the unemployment grant, individual and corporate enterprise would be continued. Lord Lovat showed that last season 11,000 acres were planted, 11,000 acres prepared for planting, and 4,000 acres cleared of scrub at a cost of under £70,000, and he pointed out that for every £100 granted by the State, labour obtained £273, as the result of private enterprise. He expressed deep regret that the Government had decided not to support this method of providing for unemployment during the coming winter. He estimated that the annual consumption of timber during the next decade would be between 11,000,000 and 13,000,000 loads of sawn and hewn timber, and 1,500,000 loads of pulpwood, and these quantities, on a 1920 basis, would cost over £120,000,000. Russia being ruled out as a factor, and with America and Canada steadily needing a larger proportion of their output, we should be chiefly dependent upon the Baltic for supplies, whereas if 1,770,000 acres of State forest and 3,000,000 acres of private forests were made productive at home they would ensure the supplies of timber in any case of emergency of not more than three years' duration.

Distribution of Plants from the Trinidad Botanic Gardens.—The first issue for the current year of the *Bulletin* of the Department of Agriculture of Trinidad and Tobago contains an interesting catalogue of plants offered for sale to planters and residents. These plants are supplied at low prices chiefly from the St. Clair Experiment Station, Trinidad, and they include forty-eight kinds of fruits, Oranges being represented by as many as twelve, and Grape Fruit by eight, and Mango by twenty-two varieties; seven kinds of "beverage" plants; nine kinds of spice and perfume plants; six kinds of rubber producing plants; six producing drugs; five fibre plants; eight different timber and decorative trees; thirty-one kinds of decorative foliage plants; forty of decorative flowering plants; twenty decorative climbers; and forty-nine Palms. The catalogue is much more than a list of names; it is educational, as a short description follows each name, and notes are attached indicating the particular value of each plant, its peculiarities, and often, a word or two concerning cultivation.

Enfield Manor House in Danger.—The iron hand of so-called "progress" proceeds in its work of the destruction of interesting relics of former days, and we hear that the latest building to be threatened with destruction, in order that a cinema may be built upon its site, is the ancient Manor House at Enfield. This house is of special interest to horticulturists on account of its having been the residence from 1664 to 1696 of Dr. Robert Uvedale, the famous botanist. He was at the time headmaster of the Enfield Grammar School. Here he lived with his boarders, whom he kept in good health by taking them for a walk over Winchmore Hill every morning and making them hold their heads over boiling vinegar on their return! The house was formerly known as Queen Elizabeth's Palace, and was reputed to have been a hunting lodge of the Virgin Queen. There is an exceptionally fine Cedar at the back of the house—now used as the local post office—which is sometimes said to have been planted by Queen Elizabeth, but was actually brought to Dr. Uvedale by two of his old pupils who had made a journey to Palestine. Dr. Uvedale's Herbarium, in fourteen volumes, forms Volumes 302-315 of the Sloane Collection in the British Museum. He died at Enfield in August, 1722, and was buried in the churchyard there. It would be a sad way of celebrating the bi-centenary of his death to destroy the house in which he lived so long.

Modification of American Quarantine Law.—The United States Department of Agriculture Press Service reports that, on account of the scarcity of supply of certain plants which have been excluded from the States by the regulation popularly known as "Quarantine 37," the Federal Horticultural Board has temporarily modified its provisions extending the period in which they may be brought in. This applies to *Rhododendron ponticum* and *Azalea pontica*, which have not been permitted entrance since June, 1922, except for propagation purposes. Permits valid until July, 1923, will be issued for plants of three years' growth or less, with the roots washed free from sand, soil or earth. Special permits will also be issued for the same period permitting the importation of seedlings of the Japanese Maple, *Acer palmatum*, of three years' growth or less, with the roots thoroughly washed.

Appointments for the Ensuing Week.—Monday, September 18.—National Chrysanthemum Society's Floral Committee meeting, at R.H.S. Hall, 3.15 p.m. Tuesday, September 19.—Royal Horticultural Society's Committees meet; lecture by Dr. A. B. Rendle on "Plants of interest in the day's exhibition." Wednesday, September 20.—Hertford Horticultural Society's meeting. Thursday, September 21.—National Rose Society's autumn show at R.H.S. Hall; Manchester and North of England Orchid Society's meeting. Saturday, September 23.—Paisley Florists' Society's show; Walkerburn Flower show.

"Gardeners' Chronicle" Seventy-five Years Ago.—*New Red Currant.* We have received through Messrs. Knight and Perry, some very fine red Currants, from Mr. Roberts, gardener to his Grace the Duke of Cleveland, at Raby. They were large, handsome, less red than the common red Currant, and less acid; to us their flavour appeared to be intermediate between the red and white varieties. Mr. Thompson has furnished the following memorandum respecting them.—Raby Castle Red Currant.—Very handsome bunches of a large red Currant, from Raby Castle, Durham, were seen in excellent condition on the 8th inst. The racemes were nearly six inches in length; the berries large, of a darker colour than Wilnot's Red, but not so deep as the Red Dutch. The pulp contains more mucilage than is usual in red Currants, and consequently the sharpness of the flavour is not so perceptible in the first instance. In size it is equal to Knight's Large Red; but its principal merit is its late ripening." *Gard. Chron.*, Sept. 18, 1847.

Publication Received.—*The Dahlia in Australia.* By E. E. Pescott. Whitcombe and Tombs, Ltd., 9-10, St. Andrew's Hill, Queen Victoria Street, E.C.4. Price 3s. 6d.

THE ROSE GARDEN.

THE ROSE SEASON IN SOUTH-WESTERN SCOTLAND.

ROSES in this peninsular region of Scotland have been wonderfully successful during the past summer, considering the difficulties with which their cultivators have had to contend. The season, compared with that of last year, has been comparatively sunless, with a lamentable superabundance of wind and rain. Nevertheless, the Roses in many notable Wigtownshire gardens, and at the Messrs. Smith's greatly extended nurseries, on the confines of Stranraer, so intelligently and successfully superintended by Mr. Baxter (a nephew of the famous firm of rosarians), have been wonderfully fine. Grown in strong clay, which is very retentive of moisture, they require very little stimulant of a manurial description. There I had the privilege of

also grown in the flower gardens at Logan House, in Kirkmaiden, where also luxuriate such splendid apricot and yellow varieties as Golden Emblem and Mrs. Wemyss Quin. Of lemon-coloured Roses of recent origination, two of the most attractive are Mr. Arthur Wm. Paul's radiant Emmeline, and Golden Ophelia; the latter, raised at Colchester, is a derivative from the famous Ophelia of Waltham Cross. *David R. Williamson.*

HARDY FLOWER BORDER

ADENOPHORA POLYMORPHA.

THE above species was originally described by Ledebour in *Flora Altaica*, but the plant is scattered over China as well, and is variable in form. I had specimens recently from the garden of Miss Willmott, Warley Place, Great Warley, which serve to show how closely allied Adeno-



FIG. 64.—*SOLIDAGO MISSOURIENSIS*: R.H.S. AWARD OF MERIT, AUGUST 22, 1922.

seeing a new variety, of a rarely beautiful dark cerise colour and artistic formation, bearing the name of Mrs. Tom Smith, which has not yet been introduced to general cultivation, but will soon be available. In those nurseries, such dark Roses as George Dickson, Victor Hugo, and especially Commandant Felix Faure, are grandly grown. Golden Emblem and its finest yellow contemporaries also luxuriate there. These varieties, whose largest and perhaps noblest representative is Souvenir de Claudius Pernet, have succeeded admirably in my own Rose borders this year, notwithstanding the blasts and frequent deluges of desolation to which they were exposed. My French namesake, raised by Monsieur J. Pernet Ducher, of Lyons, after flowering exquisitely in the tropical summer of last year, was destroyed during the late autumn by frost.

Among the most effective of my Roses this season have been Gorgeous (a variety eminently entitled to its expressive name, which I recently saw in magnificent form in Messrs. Haves' Rose gardens at Ambleside), Hugh Dickson, and George Dickson, still the finest and most fragrant of the bright and dark red varieties that are yet in cultivation; the beautiful pink-coloured George Gordon; the uniquely attractive Juliet and Queen Alexandra, and the pre-eminently popular Golden Emblem. That distinctive yellow variety, entitled Margaret Dickson Hamill, which I recently saw at the Stranraer Rose Nurseries, is

phora is to Campanula. At first sight I thought the plant was *C. rapunculoides*. The purple blue flowers were similar in size and colour in both cases, as well as the irregularly ornate leaves. In good soil both plants produce long racemose branches on the lower part of the main stem. The *Adenophora* differed generically in having a deeply cup-shaped disc around the base of the style, and the stems and leaves were simply more coarsely hispid than those of *Campanula rapunculoides*. The *Adenophora* also had the credit of not being stoloniferous, or creeping below ground, and therefore a better behaved garden plant. Many people have a liking for *C. rapunculoides* until they introduce it to their herbaceous borders, where it soon runs riot and is difficult to eradicate. *J. F.*

SOLIDAGO MISSOURIENSIS.

UNDER the name of *Aster hybridus luteus*, this plant (see Fig. 64) received an Award of Merit at the R.H.S. meeting on August 22 last, when exhibited by Mr. Amos Perry, of Enfield. It has small, star-like flowers of a clear Primrose yellow, and they are produced in such abundance as to form a veritable bouquet or shower of blossoms. The habit is all that could be desired, and as the plant grows only about 2 feet tall, it is suitable for the middle row of an herbaceous border. It will be eagerly sought after by those who desire bright flowers in the garden in July and August. *W. L.*

The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKEE, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Treatment of Newly Potted Orchids.—It is advisable to place all the newly potted plants together, where they may receive special treatment as regards spraying, shading and damping between the pots to cause them to become re-established at the roots as quickly as possible. The compost should not be used in too dry or too wet a condition, and when it is observed to have become dry a surface watering with a rose-can will be sufficient to settle the compost around the plant, letting the plant almost dry out between each application of moisture. The dull, cool weather recently experienced has suited these plants, and as proper atmospheric conditions are of primary importance in the cultivation of all plants in glass-houses, the nearer the houses are kept at an equable temperature the better the plants will thrive. At this season the night temperature of the house should range from 58° to 60°, with a rise of 10° during the day time according to the weather and with the higher temperature a greater amount of humidity should be used to counteract the drying effects of fire-heat.

General Remarks.—In autumn the majority of Orchids are completing their season's development, and the grower should endeavour to get the growth of the plants consolidated as much as possible, to prepare the plants for the coming winter. Should the weather continue damp and unsettled, as it has been during the greater part of August, the management of Orchids should be modified as regards atmospheric moisture, it being a mistake to overcharge any of the houses during such weather as we have recently experienced. More especially does this apply to inmates of the Cattleya, intermediate, and cool houses. As regards the warmer houses, a certain amount of atmospheric moisture must be maintained in order to counteract the drying effects of artificial warmth and to prevent the spread of insect pests. Differences of locality and in the positions and structure of the houses must also be taken into consideration, as these affect their capacity for holding atmospheric moisture. Everything depends upon a proper balance being maintained in the different departments. Even in the warmest division, atmospheric moisture can be overdone, especially during damp, cold weather, as an excess of moisture in any house has a tendency to lower the temperature very considerably. It is not good practice to continue syringing or spraying each time the air in the houses gets in the least dry, especially in the autumn, when numbers of the plants are finishing their growths and preparing for rest. To enable the new growths of those plants still growing, and the new pseudo-bulbs to mature, and to prevent the development of spot disease, each division should be allowed to get comparatively dry for a few hours during the middle of each day. It is essential at this season that plenty of light should reach such plants as the deciduous *Calanthes*, *Thunias*, *Cattleyas* and *Laelias*, *Vandas*, *Catasetums*, *Cycnoches*, *Mormodes*, *Dendrobiums*, etc., which have finished their growths, and all those plants which require well ripening or maturing to produce a full crop of flowers.

THE KITCHEN GARDEN.

By JAMES E. HATHAWAY, Gardener to JOHN BRENNAND, Esq., Baldersby Park, Thirsk, Yorkshire.

Radish.—One or two sowings of Radishes should be made now in frames for late use. The plants should be kept well syringed and the frame closed towards the evening to ensure a quick development of the roots.

Mustard and Cress.—To maintain the supply of these salads, make sowings every fortnight in shallow boxes or small frames. Sow on a flat surface and cover the seeds with brown paper until they commence to germinate.

Brussels Sprouts.—The wet weather has suited these plants, and any that seem inclined to become blown over should be supported to a stake. Shorten a few of the bottom leaves on the early crop, as this will make the buttons swell better.

Frost.—In the colder parts of the country frost may be expected this month, and materials for covering French Beans, Marrows, etc., should be kept in readiness. A constant watch should be kept for a sudden fall in the temperature, as often a short snap of frost in September is followed by good weather until November.

Tomatos.—Plants intended for winter cropping should be planted out or placed in large pots. Do not use too much fire heat, but give the plants every encouragement to form sturdy growth by admitting plenty of air and exposing them fully to the sunlight.

Leeks.—As Leeks continue to grow, earth soil about the stems, but before doing this see that the plants are in a moist condition at the roots.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir C. NALL-CAIN, Bart., The Node, Codicote, Welwyn, Hertfordshire.

Clarkia elegans.—This annual is very useful for cultivating in pots, and will produce a fine display of colour in the cool greenhouse next spring. It may be obtained in double and single forms and also in distinct colours. *Clarkia elegans* and its varieties produce their flowers in long, loose sprays, which make the plants more effective for pot culture than the pulchella varieties. The seed should be sown thinly in small pots and the seedlings thinned out to one or more; or it may be sown in pans and the seedlings pricked off into small pots when large enough to handle. To be successful with *Clarkias*, a cool treatment is necessary at all stages of growth, and the plants should be stood near the roof glass to prevent them becoming drawn and weakly. The young plants should be potted when needed until the roots are in receptacles from 6 to 7 inches in diameter. Pinch out the tops of the main shoots on one or two occasions to promote a bushy habit, and thus make more floriferous specimens.

Antirrhinum.—This popular plant is useful for cultivating in pots, and will provide a fine display of flowers in their many beautiful colours. *Antirrhinums* should be grown in cold frames during the winter and given plenty of fresh air whenever weather conditions will allow, but they need protection from severe frost.

Mignonette.—Plants of *Mignonette* that are being grown to produce flowers in the autumn should be secured to neat stakes to keep the young growth erect. When the receptacles are well filled with roots, the latter should be given liquid manure water on two occasions each week. Another sowing may be made now to produce plants for flowering next spring. Prepare the pots and compost as advised in a former calendar. When the seedlings appear, grow them near the roof glass in a cool pit, and admit air freely on all possible occasions.

Achimenes.—As the various batches of *Achimenes* pass out of flower, the plants should be removed to a cold frame where they can be fully exposed to the sun and air. Continue to water the plants for so long as the foliage remains green, but once the leaves and stems have died down, water should be withheld and the roots kept dry and stored in a moderately warm house during the winter. The same treatment applies to tuberous-rooted *Begonia* and the later batches of *Gloxinias*.

THE FLOWER GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

Planting Bulbs.—Tulips of the Darwin and Cottage sections may now be planted. These lovely May and June flowering bulbs are well worthy of inclusion in the herbaceous borders, blooming, as they do, at an early period, when the general collection of plants is not yet at a flowering stage. Hardy *Cyclamens* may be planted now. *C. neapolitanum*, *C. neapolitanum album*, *C. Coum*, *C. repandum*, and *C. europaeum* are gems for inclusion in the rocky and rock edges, and they look very pretty planted in big batches between hardy Ferns.

Pentstemons, Calceolarias, Phloxes.—The propagation of these useful plants from cuttings should be commenced also, and for these I prefer the box method in cold frames.

Climbers.—The moist, sunless season has encouraged climbers to make very quick, rampant growth, and careful training is essential, otherwise the plants will rapidly become a tangled mass of growths, rendering them the opposite of interesting and beautiful. In connection with the training, judicious thinning of the growths should be carried out. Members of the *Vitis* family have made especially free growth, and Vines that are grown for their autumn colouring will be much benefited at the present time by a little feeding with manure water.

Hedges and Lawns.—Attention is also required with regard to the quick growth of these. Where *Lavender* is grown to form a low hedge, the plants should be clipped over when the flowers have been gathered for drying, in order to keep the hedge in a trim shape. The lawn mowers should be used freely to maintain the lawns in a healthy condition; the grass verges should also be kept trim and neat by means of the edging shears.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

Early Vines.—The work of root-lifting and root-pruning early vines, also adding top dressing to the border, should be completed while the weather is favourable. Although each of these operations is performed in a different way, not one can be completed without the aid of a good compost, which should be prepared in quantity equal to the probable demand. Ordinary soil at this season is by no means cold, and the roots will have a chance to recuperate before the vines are started in December. Root-lifting is undertaken when the compost of the border is exhausted. The work should be commenced at the extreme front of the border, removing the old compost bit by bit, saving all the roots from injury and keeping them tied in bundles, and moist, until the drainage is put in order.

Soil for the Vine Border. New turves placed grass side downwards on the drainage material should form a good base for the compost, which should be made firm by even treading and placed high enough for accommodating the first layer of roots arising from the lowest part of the undisturbed border. The roots should be carefully spread out, examined, and all faulty or injured parts removed. When this is done, place a little soil over them and make it firm. Another layer should follow, and so on until all is finished. The atmosphere of the viney during this process may be kept rather closer, but, having an abundance of roots in the undisturbed border, the vines seldom show signs of having been interfered with. All good Grape growers make their borders piecemeal, adding a little from year to year as the roots require it. The best time to perform this work is soon after the crop is cleared or the premier leaves show signs of ripening. Vines always do best before the roots reach the extremity of the space allotted to them, especially when the front is made up of a turf wall. In this case the drainage

need not extend beyond the front of the border, as fresh air by this means and warmth from fermenting materials in the front of the turf wall can then exercise their beneficial influences beneath the compost. The space may be filled with fresh fermenting leaves of Oak or Beech, if not before, certainly when the vines are started. Gentle warmth working into the front of the border soon causes a profusion of active roots to develop at that part, but on no account should decaying matter be allowed to remain for more than one season, otherwise the vines will receive a check in growth when it is taken away to make room for the extension of the border. The addition of two feet at a time is ample; the old retaining wall should be forked down and the roots tipped back with a sharp knife. The old border being firm, some care is necessary in building the old and new together, otherwise, if the soil is loose enough to settle, the young roots will be broken and water will pass through the cavity instead of penetrating evenly through the border.

Top-dressing Vine Borders.—Early vine borders should be top-dressed in September, and, being an annual operation, all old mulching material and inert soil should be removed to prevent the surface of the border becoming too high. When the surface roots have been laid bare by pricking over, the loose material may be drawn off with an old broom, a rake, or the hands. Substitute fresh compost, well enriched with bone-meal, to the depth of two inches. This covering cannot be made too firm. Besides the bone-meal, old vines may have, in addition, a dressing of a suitable vine manure. Outside borders should be treated in a similar manner, but the mulch of fresh stable litter should not exceed three inches in depth.

HARDY FRUIT GARDEN.

By H. MARKHAM, Gardener to the EARL OF STRAFFORD, Wrotham Park, Barnet.

Peaches and Nectarines.—The crops of Peaches and Nectarines in the open are, generally, very good and the individual fruits have grown to a good size and coloured well, especially the midseason varieties. Examine daily the fruits that are ripening and remove them a trifle underripe so that they may be taken from the branches without undue squeezing by pressure of the hand. All fruits intended for travelling long distances, also those for marketing, should be gathered a few days underripe and should be very carefully packed in soft material in shallow boxes. Peaches ripen very quickly when gathered and packed in boxes after they have attained a certain stage. The trees are making an abundance of new, soft growth which should be removed forthwith. Some of the leaves overhanging the fruits may be tipped a little to expose the latter to the light and air.

Pears.—A goodly number of these fruits are approaching maturity and to prolong their season too many should not be gathered at one time. In gathering them be careful not to bruise them. The variety Williams Bon Chrétien is, with us, over and Madame Treyve, Beurré d'Amanlis, Margaret Marillat, Louise Bonne of Jersey, and Beurré de l'Assomption are amongst the next to follow, these in turn being succeeded by Conference, Doyenné du Comice and many others of the best varieties. Keep all late Pears worked on the Quince well supplied with nourishment and do not overcrop the trees.

Apples.—Examine the trees carefully and remove a few fruits at intervals of several of the early dessert kinds, so that the supply may be lengthened. Quarrenden, Irish Peach, Benoni, Kerry Pippin, James Grieve, Lady Sudeley, Ellison's Orange, and Worcester Pearmain are all useful early sorts. Choice dessert kinds which are frequently attacked by tits should be protected with nets of small mesh, otherwise many of the best of the fruits will be spoiled. In the orchards, starlings and blackbirds are our worst enemies, and these birds usually attack the fruits of Ecklinville Seedling, Keswick Codlin, and other soft-fleshed varieties.

NOTICES OF BOOKS.

Champs et Bois Fleuris.

MONSIEUR HENRY CORREVEON, to whom lovers of plants are already indebted for the *Flora of the Alps* and other works, has added to the happy obligation by a new volume bearing the title, fragrant with promise, of *Champs et Bois Fleuris*.* Monsieur Correveon has an international reputation for his knowledge of the Alpine flora, and his frequent visits to this country have resulted in his forming many friendships amongst garden lovers in Great

entirely covered by it at blossom time. In the course of his account of the common Hazel, the author recalls the strangely long endurance of belief in the magical qualities of the twig which were extolled so long ago as 1665 by the Jesuit father Jean-François in a work on the art of discovering springs. In far more remote times the Greeks held, also, that by means of Hazel wands hidden water courses and hidden treasures may be found—a belief which endures actively at the present day.

The change of flower colour with change of station is referred to on several occasions;



FIG. 65.—DAHLIA COCCINEA (SEE P. 164).

Britain. In these wintry days of late summer it is a solace for those who tend their gardens under sombre skies to turn to the radiant pictures which illustrate this volume. They epitomise and idealise the seasons and recall memories of Alpine woods and meadows, and provoke desires to revisit the pleasant cantons of Switzerland when the fields are ablaze with their spring flowers.

Monsieur Correveon writes charmingly and with a rare knowledge of plants. Of each subject illustrated he has something useful to say, and he says it as becomes a lover of Nature with simple directness. Thus of the Perce-neige (*Galanthus nivalis*), which, with *Eranthis hyemalis*, holds the place of honour in Plate 1, he points out that the popular name is a misnomer in that, unlike the *Crocus* or the *Soldanella*, the flowers of which really do come up through the frozen snow, the *Galanthus* only appears after the snows are melted. Of the *Eranthis* we learn that it occurs by millions among the vines on the hills of Wusenthal, the sides of which are

thus the Dog Tooth Violet (*Erythronium Dens-canis*), illustrated in Plate 4, like many other Swiss Alpine plants, an intruder from the South, is of a pale rose colour in Northern Italy, whereas in Switzerland it takes on a deep rose colour. Similarly *Campanula glomerata* (Plate 34) has deep violet blue flowers in the lower meadows and paler colours in the mountains.

Though many of the plants figured are good garden plants, others are the proper ornaments of wild places. Among the latter is, for example, *Campanula rapunculoides* (Plate 50), which no one who knows its possessive habit would ever introduce into a garden—its place, as M. Correveon says, is in Nature's arid and empty spaces.

M. Correveon is a delightful guide. He knows the Alpine flora, and in leading us, his companions, in search of plant treasures, he discourses charmingly and learnedly of the properties and histories of the plants which will meet our journey's end. We are grateful to him for his work in popularising the love of plants, and can recommend his book to all who have a large love of plants and a little knowledge of French.

* *Champs et Bois Fleuris*. By Henry Correveon, illustrated by 75 plates in colour by Mlle. E. Rivier. Published by Delachaux et Niestlé, Neuchâtel. 30 frs.

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THE DAHLIA.

THE National Dahlia Society's Exhibition during the past week marked a notable occasion in the recent history of the Dahlia, seeing that the show was the first held entirely under the auspices of the National Dahlia Society since pre-war days, and those responsible are to be congratulated on the success of the exhibition, which assumed an international character in view of the fine display made by the Dutch Dahlia Society, several members of which body exhibited flowers selected by the Floral Committee for trial in the Wisley gardens.

Those who have an especial interest in this beautiful autumn flower cannot fail to be pleased with the modern developments in the direction of garden varieties, for, beautiful as the exhibition varieties may be, it is a notorious fact that many of the choicest exhibition sorts are totally unsuitable for the garden. The ordinary grower needs a plant which possesses a neat, compact habit of growth and one which bears a profusion of flowers on tall, wiry stems, enabling the blooms to be displayed well above the foliage. These qualities are found in certain varieties of all the types, but we think that the modern decorative kinds best fulfil the requirements of the garden, and especially the Decorative, Paeony-flowered, Collerette, Single, and Star types, varieties of most of which gained recognition at the recent show as being worthy of trial at Wisley. It is true that there are many beautiful varieties in the Cactus section, and especially when we consider such sorts as *Mary Purrier*, *Red Ensign*, *C. E. Wilkins*, *John Riding*, and *Amos Perry*, for these are as free-flowering as could be wished and extremely valuable for use as cut blooms indoors.

To the ordinary observer one of the most puzzling problems is how such a variety of form in the flowers of these plants has been evolved by the florist, for a Show or Pompon Dahlia is as different as could be from, say, a Cactus or a Star variety, and, again, a Star, or Single, Dahlia differs enormously from either of the other types. Doubtless this has been brought about by the introduction and cultivation of more than one species. These various species have been used by the hybridist for effecting his purpose, and visitors at the Dahlia Society's Exhibition were afforded the opportunity of seeing three of the species, namely, *D. coccinea*, *D. variabilis*, and *D. Merckii*, which were sent by the Director of the Royal Botanic Gardens, Kew. We took the opportunity of photographing all three

species, and they are reproduced in Figs. 65, 66, and 67. Of these, the oldest in gardens are *D. coccinea* and *D. variabilis*, for *D. pinnata* and *D. rosea* of Cayanilles are synonyms of *D. variabilis*.

The story of the introduction of the Dahlia into this country is well dealt with by Mr Harman Payne in an article entitled "When Was the Dahlia First Introduced into England?" in *Gard. Chron.*, September 23, 1916, in which he explodes the generally accepted belief that Lady Bute, said to be the wife of the English Ambassador at Madrid, sent seeds to the Royal Gardens at Kew in 1789. His researches elicited the fact that the

nineteenth century, but this is not the only evidence of the great progress that has been made in the evolution of the Dahlia in recent years.

According to Mr. Shirley Hibberd, the formation of the florists' Dahlia began in the year 1813, when Donkelaar, of the Botanical Gardens at Louvain, obtained a series of double flowers which were freely distributed. Early in the nineteenth century, the French had been assiduously cultivating Dahlias, though but little was heard of their operations owing to the influence of politics in every department of public intelligence. When the Allies entered Paris, in 1814, single and double



FIG. 66.—DAHLIA VARIABILIS.

flower was apparently not introduced into this country until after 1796, and probably not until 1802 or 1803. Specimens in the Natural History Museum Herbarium have been found, with the inscription on the back, "C. G. Ortega (Lady Bute)." These were grown in Lord Holland's garden about the year 1805, but it is stated in *Bot. Mag.*, Tab. 762, that a nurseryman of Chelsea, one Fraser, grew *Dahlia coccinea* in 1803.

When, however, we come to the introduction of the Cactus Dahlia, we are on surer ground, for the progenitor of this type, *D. Yuarezii*, was shown by that grand old florist, Mr. Henry Cannell, of Swanley, in 1879, he having obtained it from Mr. Cullingford, of Phillimore Gardens, who in his turn received it from Messrs. Ant. Roozen and Sons, of Overveen, nr. Haarlem, Holland. This firm had obtained it some years previously from a French nurseryman who is supposed to have imported it from Mexico. It seems hardly credible that a plant now so well known as the Cactus Dahlia should have been unknown in this country in the early 'seventies of the

varieties of Dahlias were seen in profusion, and doubtless the credit for their origin was due to Donkelaar. By the year 1830 British florists had popularised the flower in this country, and had founded a publication known as the *Dahlia Register*. It was not, however, until 1870 that the National Dahlia Society was formed, by which time apparently there was a decline in interest for the flower, but from that time onward the popularity of the Dahlia has been steadily maintained.

Dahlia coccinea (see Fig. 65), of which *acutiflora*, *bidentifolia*, *Cervantesii*, *crocea*, and *frustranea* are synonyms, has, as shown in the Kew specimens, scarlet florets and a yellow disc, but, according to L. H. Bailey, in the *Standard Cyclopedia of Horticulture*, the colour range is from scarlet through orange to yellow. It is doubtless to this species that we owe the single races, for there are no apparently double forms.

Dahlia variabilis (see Fig. 66) has many synonyms, among others *rosea*, *pinnata*, and *superflua*. It has been cultivated certainly since 1805 in this country, and its evolution

from a single flower to the handsome, double florist's form now known as the Show Dahlia is a remarkable horticultural transformation. It must be remembered, however, that each floret of the Dahlia consists of a separate individual flower, and the disc florets have all been metamorphosed into rays. This type of Dahlia is not so much in favour nowadays as with the older florists, for many people object to its stiff, formal appearance. Nevertheless, the colours are exceedingly beautiful, and a well-grown bloom still secures a certain number of admirers.

D. Merckii (see Fig. 67) (syns. minor, glabrata, Decaisneana) is the best-marked species of the genus, and, as a wildling, a most elegant plant. The stems grow to a height of some four feet, and are much branched. The leaves, as may be seen from the illustration, are of a very distinct form, and the leaf stalk is more or less winged. The flowers are only about two inches in diameter, and coloured a pretty pale lilac, set off by the central yellow disc. The plant is dwarfier and rather more spreading than most species of Dahlia, and the finely cut character of the foliage makes it more attractive than that of the two other species we have described.

GARDEN NOTES FROM S.W. SCOTLAND.

I AM afraid I must withdraw all that I wrote about *Veronica salicifolia* on page 110, and suspend judgment, for Mr. Richardson has gone far to convict me of error by sending me specimens of the species which he grows. I must plead in excuse that I was misled, if misled I have been, by a very high botanical authority in whose company I visited Mr. Walpole's famous garden in county Wicklow. He taught me to regard the *Veronica* with pendent racemes as true *salicifolia*.

Any gardener, amateur or professional, who has suffered, as we have done here, from the inordinate exuberance of *Polygonum sachalinense* and *P. cuspidatum*, will think twice before admitting another species; it is, therefore, with some hesitation that I venture to report favourably on *P. campanulatum*. Thus far it has shown no disposition to ramble, and its pretty panicles of white, rose-tinted little bells are very freely produced in August. The stems and foliage are seductively succulent, yet rabbits leave it alone, as they do the rest of this most variable genus. One of the quaintest species and the latest to flower is *P. equisetiforme*, which poses as a slender Rush all the summer, until in autumn it studs its two to three foot stems with little starry white flowers. It is not a spreader.

Mr. Arnott bestows well-merited praise on *Inula glandulosa* (page 119), a fine thing, and so is *I. grandiflora*, which closely resembles it; but for brilliancy, good habit and persistence of bloom, commend me to the Himalayan, *I. Royleana*. Beginning to flower here this year on 9th July it is still on this 26th August carrying flat golden blooms five inches across on stiff two foot stems.

I know not where *Cnicus pulcherrimus* comes from, nor where I got it, but it is an attractive member of a generally unattractive genus. From a tuft of boldly pinnate radical leaves, it sends up a three foot stem, so stiff as to require no staking, bearing a large, solitary Thistle head of good crimson. The stem is set with smaller pinnate leaves, gleaming white on the under surface. Altogether it is a desirable plant.

For those who have plenty of room and can command a moist, open glade, *Spiræa arborea*, one of the *Sorbaria* group, introduced from China by Wilson, makes magnificent display at this season, flinging out its great panicles of chalk-white blossom, 12 to 18 inches long. But room it must have, for it may grow 20 feet high and as much across, enough to smother any neighbour of less robust habit.

The flowering season of *Rhododendrons* has closed here with the last blossoms of *R. Scottianum*, one of the *Maddeni* series, and

reputed to be tender. Hitherto it has made good growth in the open under a north wall, and has flowered freely. The leaves are bright green, 4 inches long and 2 inches broad, densely lepidote below; the flowers are in groups of two to four, more widely funnel-shaped than those of *R. Edgworthii* and *R. crassum*, but with narrower perianth segments, pure white with occasional carmine splashes outside, not so powerfully fragrant as the two species above-named. Having only 10 stamens with pale anthers, the blossom lacks the richness imparted to that of *R. crassum*

THE ALPINE GARDEN.

CAMPANULA HAYLODGENSIS.

THE pretty little *Campanula haylodgensis* has been in cultivation for very many years, but it never seems very plentiful, although it is not difficult to cultivate. It originated in the garden at Hay Lodge, Edinburgh, where several pleasing hybrid *Campanulas* were raised, and, as there were not so many dwarf Bellflowers in cultivation thirty or forty years ago, it was more plentiful at that time than it is now.



FIG. 67.—DAHLIA MERCKII.

by its twenty tawny anthers, and to that of *R. Edgworthii* by its rose-coloured pistil and stigma.

To those who are now studying the autumn bulb lists, let me recommend a trial of *Ornithogalum pyramidale*, whereof the cheerful white panicles are not so often seen in June borders as they deserve to be. It requires as little care after being deeply planted as the common Star of Bethlehem, and is far more ornamental.

The profusion of strap-shaped leaves which *Lycoris squamigera* sent up in spring have entirely disappeared, and now the stout, two-foot stems are pushing up, each with a cluster of large, fragrant flowers of pale flesh colour and lavender. I don't know who was the sponsor of this Japanese species, nor why he chose the name of a Roman general's mistress to bestow on a blameless *Amaryllid*. *Herbert Maxwell, Monreith.*

At least, this is my impression from observations. It was understood that it was raised from *Campanula Bellardii* (pusilla) and *C. turbinata*, but I observe that the late Mr. Farrer hazarded the opinion that it was probably between the former and *C. isophylla*. The habit of the plant would support Mr. Farrer's suggestion, as it is difficult to trace the trailing habit to either *C. Bellardii* or *C. turbinata*. But this is mainly a matter of academic interest, and in writing of the plant from a gardening standpoint it is unnecessary to elaborate the question. It is a remarkably pretty, low-growing, trailing *Campanula*, never aggressively rampant, and has pleasing, shining, yellowish-green leaves and wide, open, saucer-like flowers of a clear blue in late summer and autumn. It has some resemblance to *C. Profusion*, raised by the late Mr. E. H. Jenkins. For some time a double form, the origin of which I am totally ignorant, has been in cultivation. *S. Arnott.*

ORCHID NOTES AND GLEANINGS.

LAELIO-CATTELEYA RUBICON.

A TWO-FLOWERED inflorescence of this fine new hybrid from Mr. J. E. Shill, gardener to Baron Bruno Schröder, The Dell Park, Englefield Green, shows its fine quality in size, colour and shape, all of which are excellently well developed in the fine culture always manifest in The Dell Orchids.

The parentage is Laelio-Cattleya George Woodhams × C. Hardyana. The sepals and very broad, well-displayed petals are clear mauve colour, and the lip deep ruby claret in front, the colour extending in a broad margin over the side lobes, the disc and base being bright orange yellow with some ruby lines. Attractive features are the great contrast between the dark front of the lip, the orange yellow of the base, and the velvety appearance of the surface.

FOUR NEW HYBRIDS.

FIRST flowers of four new hybrids, taken in most cases from plants in two-and-a-half-inch pots, are sent by Messrs. ARMSTRONG AND BROWN, Orchidhurst, Tunbridge Wells, the records showing careful consideration in the selection of parents.

LAELIO-CATTELEYA RUBY KING.—Raised between their charming L.-C. Golden Wren (C. iridescens × L.-C. Thynne) and C. Hardyana; this has for basic species C. bicolor, C. Eldorado, C. Warsc-wiczii, C. Dowiana twice, and L. xanthina. C. Dowiana influences the size and shape of the flower, which has rose-pink sepals with a gold shade and rosy mauve petals. The lip, which will compare favourably with any known Laelio-Cattleya for beauty and intensity of colour, is clear Buttercup yellow on the lower half, the broad front lobe and margins of the side lobes being bright ruby red, with a slight purple shade.

CATTELEYA ORIENT.—Raised by crossing C. Adula (bicolor × Hardyana) and C. Venus (Dowiana × Iris), this showy flower retains the C. Dowiana shape, but evidence of C. bicolor appears in the thick, ivory-white column and the firm substance of the flower. The sepals and petals are sulphur yellow with a rose flush and the lip deep Tyrian purple, with thin gold lines from the base.

CATTELEYA BRIGHT EYES.—This variety results from a cross between C. Prince John (Dowiana Rosita × Hardyana) and C. Armstrongiae (Hardyana × Loddigesii), the latter parent much influencing the form of the lip and the intensity of its colour, which is deep ruby claret, with gold blotches on each side and a gold base, the sepals and petals being light rosy mauve.

NEW HYBRIDS.

(Continued from July 29, page 68.)

Name.	Parentage.	Exhibitor.
Cattleya Avalanche	C. Mary Sander × C. Snow Queen	Sanders.
Cattleya Bright Eyes	C. Prince John × C. Armstrongiae	Armstrong & Brown.
Cattleya Courtrai	C. Luddemanniana × C. Rex	Sanders.
Cattleya Jules Serrie	C. Warsc-wiczii × C. Dietrichiana	Sanders.
Cattleya Margaret	C. Magpie Raphael alba × Iris	Pantia Ralli, Esq.
Cattleya Orient	C. Adula × C. Venus	Armstrong & Brown.
Cattleya Shrewsbury	C. intertexta Juliettae × C. Dusseldorferi Undine	Sanders.
Cattleya Thisbe	C. micans × C. Pittiana	Sanders.
Cattleya White Lady	C. O'Brieniana alba × C. Percivaliana alba	Stuart Low & Co.
Cypripedium Albion	C. niveum × C. Astarte	Flory & Black.
Disa Julia A. Stuckey	D. Italia × D. grandiflora	Duke of Marlborough.
Laelia 'harm	L. autumnalis × L. grandiflora	Baron Schröder.
Laelio-Cattleya Golden Glow	L.-C. Sunrise × C. Venus	Flory & Black.
Laelio-Cattleya Idina	L.-C. Soulangue × C. Nena	Hassall & Co.
Laelio-Cattleya Onhill	L.-C. Ophir × C. Sybil	Hassall & Co.
Laelio-Cattleya Osric	L.-C. Oriens × C. Dowiana	Pantia Ralli, Esq.
Laelio-Cattleya Praxiteles	L.-C. Mrs. Phayre × C. Hardyana Countess of Derby	Sanders.
Laelio-Cattleya Queen Mary	L.-C. Lustre × C. Peetersii	Lt.-Col. Sir George Holford
Laelio-Cattleya Rosita	L.-C. Ingramii × C. Titus	Flory & Black.
Laelio-Cattleya Rubicon	L.-C. Geo. Woodhams × C. Hardyana	Baron Schröder.
Laelio-Cattleya Ruby King	L.-C. Golden Wren × C. Hardyana	Armstrong & Brown.
Laelio-Cattleya Victor	L.-C. Purple Emperor × L.-C. Rubens	Stuart Low & Co.
Miltonia cottonensis	M. Bleuana × M. Charlesworthii	Sir J. Colman.
Odontoglossum Agapetum	O. amabile × O. Maillardianum	Charlesworth & Co.
Odontoglossum citrinum	O. eximium xanthotes × O. Boadicea	F. Smith, Esq.
Odontoglossum luridum	O. Harryanum × O. Olympia	Charlesworth & Co.
Odontoglossum Queen Astarte	O. Astarte × O. Queen of Gatten	Sir J. Colman.
Odontoglossum Tonaz	O. Regale × O. Lambentanum	R. Gerish, Esq.
Odontoglossum Yellow Prince	O. King George × O. Queen of Gatten	Sir J. Colman.
Phalaenopsis Re. nier	P. Luddemanniana × P. Schilleriana	A. Regnier.
Sophro-Laelio-Cattleya Mac	S.-C. Atreus × L.-C. Maqueda	Stuart Low & Co.

CATTELEYA MULLERI ORCHIDHURST VARIETY. The origin of this large, snow-white hybrid is the crossing of C. Mrs. Myra Peeters (Gaskelliana alba × Warneri alba) and C. intermedia alba, and with such a pedigree a fine flower was assured. It is firm in substance and without colour except the faintest suspicion of sulphur yellow in the finely crimped lip. The cross has also been raised by Messrs. Sander.

CHINESE TREES AT ALDENHAM.

(Continued from page 138.)

HIPPOPHAE RHAMNOIDES PROCERA: 11 ft. This variety has the appearance of being an intermediate form between H. rhamnoides and H. salicifolia, inasmuch as its habit approximates to the first-named, whilst the foliage more closely resembles the latter. It may readily be distinguished from the type by the silky (villous) pubescence of the young growths, and by the downy character of the leaf surfaces. A handsome variety of this genus than any of the above was introduced in quite recent years by Mr. Geo. Forrest, and is still under number, viz., 10,396, though it has been determined as a variety of H. rhamnoides.

IDESIA POLYCARPA VESTITA: 12 ft. This apparently differs from the type in having densely pubescent undersides to the leaves. It is a very distinct tree, with fine foliage, and it is said to have yellow flowers, that are followed by brick-red fruits.

LIRIODENDRON CHINENSE: 12 ft. This is of much interest, and, though it closely resembles its American ally, the leaf has a much more pronounced waist. It is perfectly hardy, and will undoubtedly make a very handsome tree in this climate. Mr. Wilson speaks of a fine specimen he saw, 70 ft. tall and 5 ft. in girth. It has not yet flowered in England; the bloom is stated to be similar to, but smaller than, that of its congener.

MELIOSMA BEANIANA: In the warmer parts of the country the Meliosmas may be expected to prove very successful, and it is to be hoped that they will thrive in less favoured localities. At Aldenham, where the climatic conditions are not the most congenial, this species, named in honour of Mr. W. J. Bean, V.M.H., who is one of the greatest living authorities on trees and shrubs, grows freely and makes well-ripened wood. A very fine specimen at Aldenham is now 12 ft. in height. This species suffers less from the effect of spring frost than is the case with either of the two relations that follow.

MELIOSMA CUNEIFOLIA: This tree is said to grow, in a wild state, about 20 ft. high, and in

this country will probably make a large shrub. The foliage is ornamental, and Mr. Bean speaks highly of the flowers. They are small, but freely produced in terminal panicles, and are pleasantly scented with a Hawthorn-like fragrance.

MELIOSMA VEITCHIUM: Little can be said of this species in cultivation, but from Mr. Wilson's enthusiastic description of it in its native habitat it must be a grand tree of great beauty. This, and M. Beaniana, belong to the pinnate-leaved section of the genus, and the foliage, suggestive of Rhus typhina, is very ornamental. The Aldenham specimen is now a healthy young tree, 7 ft. tall; it has proved, however, a slow grower.

PAULOWNIA TOMENTOSA LANATA (see Fig. 68): I do not know whether this species of Paulownia will flower more freely in our uncertain climate than the old P. imperialis, but its behaviour up to the present has been quite satisfactory. It is now a fine young tree, about 30 ft. in height, and by the well-ripened condition of the wood it has already proved itself to be a far harder and more suitable subject for gardens north of London than the other species. It bears white flowers, not purple, as P. imperialis does.

POLIOHYRSIS SINENSIS: This is an interesting and rare tree of moderate growth, the specimen at Aldenham being 10 ft. high. It evidently needs some age before the flowers are produced, and these are described as white, changing to yellow, and produced in a terminal inflorescence.

POPULUS LASIOCARPA: This, the most striking of all Poplars, is a very ornamental tree, with fine, bold foliage, each leaf being nine or ten inches long and almost as wide. The beauty of the foliage is enhanced by the deep red colour of the stalks and midrib. The tree succeeds well near the water's edge, and the 18-ft. tall specimen at Aldenham is very handsome. It grows more slowly, and in the end makes a smaller tree, than the average members of this genus.

POPULUS SZECHUANICA: Although not quite so fine in foliage as the foregoing, this is a valuable tree of rapid growth, now measuring 25 ft. tall, with a stem girth of 18 in. There seems to be two forms, in the better of which the young leaves have a very pretty rosy pink underside shading to grey.

PRUNUS: Mr. Wilson introduced a large number of members of this large family; many had been previously known through the botanical travellers of China, some had already found their way into cultivation, but certain numbers were quite new. Of the latter I have selected a few that call for description, having already made good-sized trees at Aldenham.

PRUNUS CONRADINAE: 13 ft. As a standard this makes an effective tree of somewhat pendulous habit. It carries quantities of white flowers early in March.

PRUNUS PILOSUSCULA MEDIA: A free-growing tree, now 15 ft. high. It is one of the most beautiful of the genus when in blossom, and was given an Award of Merit when shown before the Royal Horticultural Society on 5th April, 1921. The flowers are pale pink and produced in clusters all along the branches; they are made additionally attractive by the prominent stamens, and by the purplish tone of the expanding foliage. P. PILOSUSCULA BARBATA is a very closely allied variety, and there is probably only a slight botanical difference whereby the two are separated.

PRUNUS SERRULATA THIBETICA: 10 ft. This is an attractive tree, with quantities of small white flowers that are succeeded by bright red fruits. If the stem is kept clear by the removal of the lower branches the ornamental reddish-brown bark, peeling like that of a Birch, is seen to great advantage.

PRUNUS TENUIFLORA: 16 ft. A beautiful Cherry, allied to, and not unlike, the handsome Prunus Sargentii. The flowers vary from white to pink, and are succeeded by small black fruits. A. E. Thatcher.

(To be continued.)

MARKET FRUIT GARDEN.

It would hardly be possible to find a greater contrast in seasons than that presented by 1921 and 1922. Last year the total rainfall up to the end of August was only 8.90 inches at my place. This year, for the same period, the rainfall amounted to 20.49 inches, which is 5.26 inches more than the total for the whole twelve months of 1921.

Of the two extremes of drought and wet I prefer the latter. Work is frequently upset by rain, it is true, and this means irritating difficulties in harvesting and marketing the crops of fruit; but that is better than seeing the trees suffering and crops deteriorating week after week in a monotonous drought. On my light land, at any rate, the fruit is infinitely superior in a moist season. It is a pleasure to handle the fine, well-grown specimens of Apples and Plums. Curiously enough, the fruit is much sounder than it was last year; there is scarcely any scab to be found on Apples, and Plums are very much freer from brown rot. Yet one would expect fungous diseases to be more serious in a wet season.

THE PLUM CROP.

Although a cold, wet summer spoils the demand for fruit (that is its worst feature), I am inclined to think that it has been advantageous on the whole for the disposal of the immense Plum crop this year. The season has been lengthened. Varieties come on one after the other, instead of ripening with a rush, as they do in a hot, dry summer. The glut of Plums would have been far worse if this had been a season like 1921.

There has been much talk about the glut of Plums, but really the demand for good coloured varieties has been remarkable, considering the quantity of fruit. During the height of the glut of Evesham Egg Plums, which were certainly dirt cheap, I was selling Belle de Louvain and Victoria at 6s. 6d. per half-bushel in some markets, and only a few went as low as 4s. 6d. in London. Certainly they were a splendid sample and all carefully graded. These prices are not high, but I was quite prepared to find mid-season Plums down to a penny a pound wholesale with such a big crop. I have never attempted to grade Plums before. The labour has been heavy, but there is no doubt that it has paid well. During a glut a good, sound sample sells where others can hardly be given away.

GOOD AND BAD PLUMS.

I suppose the growers of the Evesham Egg Plum score in a scarce season, but when there is a good crop of other varieties these Plums are practically useless to the growers, and they spoil the market for better kinds. It is to be hoped that no one plants the Egg Plum now. Its heavy-cropping powers are the only point in its favour. The public very much prefer coloured varieties like Rivers' Early Prolific, Czar, Belle de Louvain, Victoria, Pond's Seedling, and Monarch. These are the varieties for large growers. I should say that it would pay small growers to plant some of the choicer dessert kinds and sell them direct to shops, fancifully packed in small, non-returnable packages.

APPLE PROSPECTS.

As is usual when there is a heavy crop of Plums, Apples are in very little demand. The best dessert kinds are realising fair prices, but mid-season cookers can hardly be sold at all. It will probably pay to keep back everything that will stand it until after the rush of Plums is over. Late Apples are certainly not over-abundant, and will probably sell very much better.

The reports on the Apple crop collected by *The Gardeners' Chronicle* indicate a good yield in gardens, taking the country as a whole; but it is noticeable that all the reports from Kent are under average. This supports the evidence from commercial growers that late Apples are scarce in the Kentish orchards. This must have a great influence on the commercial crop of the whole country, which is not very abundant. There are plenty of fine fruits of Worcester Pearmain to come forward, and many growers

have good crops of Cox's Orange Pippin; but Bramley's Seedling, Lane's Prince Albert and other late kinds are on the short side and should be worth money.

BOXING APPLES.

I am going to try my hand at the packing of Apples in British standard boxes as soon as there is a large enough quantity of Worcester Pearmain ready to gather. Boxing should help the sale of this variety, as several growers found it did in last year's glut. Boxes are now reasonable in price. In small quantities they can be had at 9d. each, and in large quantities at between 7d. and 8d. These prices are for the wood cut to size; but the putting together of the boxes is very quickly done, and makes a suitable job for wet weather. The large, coloured

unsightly as it may be, has its value. The weeds use and hold soluble plant food which must otherwise be washed out of the ground, and will return them to the soil when eventually turned in, together with a great deal of humus which is built up of materials obtained free from the air. The orchards will receive almost as good a green manuring as if a corn crop had been grown for the purpose.

BUD-FORMING MANURES.

The August dressing of bud-forming fertilisers was applied to all my plantations in bearing in the latter part of the month. It was promptly washed in by rain, and ought to get to work at once, unless the weeds get most of it. I used a compound manure which is largely employed under glass as a top-dressing for Vines



FIG. 68.—PAULOWNIA TOMENTOSA LANATA AT ALDENHAM HOUSE GARDENS (SEE P. 166).

label of the Federation of British Growers looks well on these boxes.

WEEDS.

One drawback of a wet season is the prevalence of weeds in orchards. My plantations have never been worse in this respect. There seems to be no way of avoiding it. For weeks the ground has been too wet to cultivate or hoe, even if time could be spared for the latter, while in the brief dry periods little horse cultivation could be done owing to the trees being weighed down with fruit. Now I am having the weeds mown off, and motor cultivation and hoeing will follow as soon as the surface is dry enough to make it useful.

As a matter of fact, this carpet of weeds,

and Tomatos. It contains 5 per cent. ammonia, 7 per cent. water-soluble phosphate, and 7 per cent. potash; and 80 per cent. of the materials are organic. I do not know whether these are the right proportions for fruit trees, and, in the absence of research on any large scale, I doubt if anyone else knows either. We are still working in the dark in manuring fruit trees. Last year I used a home-made mixture of mineral fertilisers, which was cheaper, and apparently answered very well; but organic manures are supposed to be better for fruit. I believe they are, but it is a point that badly needs proving definitely. We pay very highly for plant food in organic forms without really knowing whether the cheaper mineral forms would not do equally well. *Market Grower.*

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(Continued from page 154.)

MIDLAND COUNTIES (Continued).

OXFORDSHIRE.—Taken on the whole, the fruit crops are excellent, and the trees much cleaner and freer from blight than usual, taking into consideration the extremely dry season of last year. I have the heaviest crop of Peaches out-of-doors I have ever had, and the trees are clean and vigorous. *J. A. Hall, Shiplake Court Gardens, Henley-on-Thames.*

—The fruit crops generally are good in every respect. Some Apple trees which carried heavy crops last year are rather thinly cropped this season. Victoria and Early Rivers' Plums are carrying very heavy crops; all leading branches have needed support, and even with that I have lost some branches during the recent strong winds. Standard Pear trees are well cropped, especially Marie Louise, Prince of Wales, and Fondant d'Automne. Wall trees of these fruits were in flower earlier, during which time the nights were very cold, with frost, and a good deal of the fruit failed to swell. Strawberries were good and plentiful, as also were Raspberries, Gooseberries, and Currants, rain falling just in time to develop the fruits. At the present time we are much in need of sunshine. Insect pests have not been nearly so troublesome as last year, but American blight is appearing on some of the older Apple trees. The soil is a stiff loam on very heavy clay. *Victor R. S. Gammon, Eynsham Hall Gardens, Witney.*

STAFFORDSHIRE.—The fruit crops are very good. Stone fruits of all kinds are excellent. Strawberries were good, but the berries were damaged by the heavy falls of rain. Apples and Pears set well and benefited much by the rain. Soft fruits of all kinds were in abundance. The soil is of a light texture, with a sandy and gravelly subsoil. *Edwin Gilman, Ingestre Gardens, Stafford.*

—Apples are an average crop. The fruits of the varieties Lord Suffield and Charles Ross have been thinned to increase their value. Pears and Plums on walls are abundant crops, and I removed about two-thirds of the number of fruits. Small fruits were abundant and good. American blight is more prevalent than usual this season. The destruction of this pest should be made compulsory. *John Bates, Meaford Gardens, Stone.*

—The soil in these gardens is of a stiff and retentive nature, consequently our crops did not suffer so much from the drought in May as those on lighter soils. During that month Pears and Plums were very badly infested with aphids, especially those on walls, but after the rains came the pest disappeared, and the trees have made vigorous growth. Strawberries set a fair crop, but the berries rotted, owing to an excess of rain. Although Plums are a very heavy crop, Damsons are only an average yield. Apple trees in grass orchards have not made much growth, but are bearing fair crops of fruit, particularly the varieties Blenheim Pippin, Ribston Pippin, and Ecklinville Seedling. The Apple crop here last year was a poor one, and many fruits have fallen this season, but there are sufficient left on the trees. *J. W. Miskin, Woodseat Gardens, Rochester.*

SURREYSHIRE.—The fruit crops are as good as one could wish. We are favoured with a good, deep, heavy, loamy soil. All trees are making good growth. There are several meres around here; the atmosphere seems to be always moist, which appears to me to help the trees to resist fly, etc. Damsons are very plentiful everywhere. *R. F. Jones, Oteley Gardens, Epsom.*

WARWICKSHIRE.—The wealth of bloom on fruit trees and bushes this season was such that I have not seen its like for some years, and the early promise was followed by good crops all round. One feature of the season has been the prevalence of mildew, especially on

Apples and Gooseberries. The possession of an unlimited water supply during the drought and every convenience for applying it was an untold blessing, and has had a great influence on the nature of my report. *Ben H. Martin, Moreton Paddox Gardens, Warwick.*

—The fruit crops would have been very good if we had not experienced such a dry time after most of the fruit set. On the light soils, many fruits dropped from the trees for lack of sufficient moisture in the soil. Birds devoured many of the small fruits, where they were unprotected, during the drought in May and June. Cherries, with the exception of Morellos, were almost a failure. *H. F. Smale, Warwick Castle Gardens, Warwick.*

ENGLAND, S.

BERKSHIRE.—The fruit crops are somewhat varied. Pears, Peaches, and Nectarines are good average crops, and the quality of the fruit is excellent. Apples and Plums are under the average yield, owing to frost at the flowering period. Strawberries flowered earlier than usual, and the finest berries were destroyed; the late fruit failed to swell, owing to want of moisture at the roots. Small fruits were under the average numbers, and suffered in a similar manner to Strawberries. *J. Minty, Oakley Court Gardens, Windsor.*

—The fruit crops are light; Strawberries were very small, owing to the drought last summer and the early part of this season. Our two best varieties this year were President and The Earl. Standard Plums in the open are cropping well, but Plums on walls are poor. Apples, Pears, Peaches, and bush fruits are all good and the trees clean. *A. B. Wadds, Englefield Gardens, Reading.*

—With the exception of four trees in the orchard on grass, Apples are a complete failure. Most of the varieties in the kitchen garden are carrying a fair crop on bush trees and cordons, Irish Peach, Worcester Pearmain, Lane's Prince Albert, and Lord Derby being the best. Pears are much above an average yield, and the trees are clean. Strawberries and Raspberries were average crops, but the berries were small, owing to drought. Small fruits are an average quantity. Plums are a good crop, as also were Cherries. The trees generally are very free from insect pests. Nuts are the heaviest crop that I can remember. *J. Howard, Benham Park Gardens, Newbury.*

(To be continued.)

VARIEGATED FRUITS.

VARIATION is well known in horticulture, but for reasons which are obvious it is most common in ornamental plants.

Among fruits it is less conspicuous and has no "survival value," so that mention of variegated fruits comes to many as a novelty. There are, however, among our hardy fruits many such cases, and a consideration of them raises some points of practical and scientific interest.

The Citrus family is well known for the variety of forms assumed, and for the frequent production of bud sports. It is not therefore surprising to find that variegated fruits occur rather frequently in this genus.

One of the most interesting is the Bicolor Orange, which has silver variegated leaves, and the fruit also shows a segment of the skin having a darker colour. Still more remarkable is the Orange known as Bizarrie, in which the oval-shaped fruit bears longitudinal warty stripes of a Lemon colour, alternating with patches of a smooth Orange skin. The effect is therefore of a fruit made up of alternate segments of Orange and Lemon.

In Pears there seems to be a strong tendency to variegation of the stem and fruit, and striped forms have occurred in the following varieties:—Alexandre Lambré, Soldat Laboureur, Crasanne, Alexandrine Douillard, Beurré Gris, Grûne Magdalene, Louise Bonne of Jersey, Glou Morceau, Duchess d'Angoulême, Delices d'Hardenpont d'Angers, Passe Colmar, Bergamotte d'Ete, Rousselet de Rheims, St. Germain,

Triomphe de Vienne, Doyenné du Comice, Chaumontel, Williams' Bon Chrétien, Marie Leseur, and Vicar of Winkfield. This list is not, of course, exhaustive; there are many others recorded, and, doubtless, hundreds of trees must have thrown variegations which have not been recorded. In nearly all of the above Pears the variegation is seen on the wood and fruit as a stripe of dark green on a yellow ground; in none are the leaves markedly variegated.

A case of a striped Beurré d'Amanlis was recorded in France in 1893, of which the fruit was said to be always earlier in ripening and the leaves slightly variegated, and it is also said that variegated Pears are usually less hardy than their parents.

In Apples, obvious instances of leaf and wood variegation are rare, and so far I have only found it in Duke of Devonshire. This pale yellowish green Apple has darker stripes on the fruit and the leaves are golden variegated with green edges. The young wood shows the disjunction of characters very plainly; a dark reddish brown line stands out conspicuously on the pale yellow green colour of the rest of the shoot. It should be said that the leaf variegation is not easily seen in old trees of this variety; a strongly growing young tree will show it best. There seems a tendency for the yellow to turn green as the leaf ages.

The variegations so far dealt with are all produced by a dissociation of green colour from a yellow ground, but it is possible that there may also be a dissociation of the red colouring matter as well. It is often seen that red Apples, such as Gladstone, have a fifth or more of their surface free from pigment, and, though no striping is seen on the wood, there may be there, also, a corresponding dissociation. If this were so, we should expect to find such Apples splitting up into two types, a pale and a deep coloured form, according to whether the buds were taken from a coloured or a colourless area. In Gladstone this has undoubtedly happened, as an examination of any large number of fruiting trees will prove. There will be found a small proportion of trees bearing always fruits of a pale colour, and the rest having the dark red fruits typical of this variety. Precisely the same is seen in the variety Lady Sudeley, which has thrown the pale striped yellow form from the scarlet heavily striped original type. I think, also, the Red Margaret Apple and the Red Juneating are a similar pair, the Margaret being the deep-coloured form and Juneating the paler.

The Red Bramley's is said to have arisen as a bud sport from the old type, and there are probably many other similar cases. If it be that the selection of buds from a "coloured or plain" area is the cause of such variation, it is obvious that striped coloured varieties will continue to give pale forms, while the pale forms should give only their own type. This is, I think, proved from the fact that Lady Sudeley, though propagated only from dark coloured trees at first, has given the pale form in many places, and it is evidently a chimera which it is not possible to keep true by vegetative propagation. Cox's Orange Pippin has also given a strongly striped variety, and this, I am told, is true to type when grafted.

This throws an interesting light on the origin of identical varieties in two different places, and raises a nice point—is such a fruit one variety or two for the purposes of awards?

In Grapes, green and yellow variegated forms are known, and Warrington Gooseberry has produced a striped variety named Helen Holmes (*Gard. Chron.*, October 20, 1906, p. 280), and a case is also on record of the same fruit having a green or yellow skin and red pulp (See *Gard. Chron.*, 1855, p. 612.) Red-striped White Currants are also known.

The old story, long treated as fabulous, which told of an Apple of which half was sweet and half sour, is now less incredible, and the similar case of Peaches producing Nectarines or fruits with smooth portions becomes clear if Peaches are in some cases chimeras. It is, therefore, evident that certain fruits may have three colour forms—the

original green (or red) form, the striped form, and, lastly, a pale form, probably propagated from a bud taken from an uncoloured area of a striped shoot. In the Pear Vicar of Winkfield these three forms exist—the type, the striped or variegated, and the variety known in France as "*a fruits Jaune*," which is a clear yellow.

These facts are worthy of remembrance by raisers of fruits, as a bud sport of such type will very possibly occur in more than one place, and for such exclusive rights of propagation can hardly be maintained.

Much scientific interest is now manifested in variegated plants and bud sports, and it is hoped that any reader who has had such under his notice will bring them forward, so that they may be recorded. *E. A. Bunyard.*

FLORISTS' FLOWERS.

A FINE CHRYSANTHEMUM PLANT.

THERE is no plant that responds better to good cultivation than the Chrysanthemum. The photograph reproduced in Fig. 69 shows a specimen plant in bloom over six feet in height, and grown in a No. 12 pot. It is of the variety *Louisa Pockett*, a large, pure white flower of the Japanese incurved type, the blooms being of fine form and substance, those on the plant illustrated being from second crown buds. The habit of growth of this variety is all that could be desired and it has stiff, erect stems, which do not require any support. The plant carried nine large blooms of full exhibition size; each flower was nearly one foot across and the same in depth, which is exceptional when the number of blooms on the one plant is considered; only five blooms can be seen, four being hidden from view behind. The best exhibition blooms are obtained from those produced on second crown buds. The plants should be stopped early in March and again in the middle of May. The flowers are then more refined and open much easier and are more incurved than from first crown buds.

This variety is a vigorous grower, requiring a large pot and should be fed freely during the growing season; but feeding should be discontinued when the flowers are one-quarter open. It is advisable to discontinue feeding at this stage as the blooms keep better and last much longer if only clear water is used; for preference rain-water should be given. The plant illustrated was treated in the manner I describe. It began to expand its flowers at the end of September and lasted in bloom until nearly Christmas, which proves it to be a good keeper. This splendid variety is of Australian origin; it was raised by Mr. T. W. Pockett, of Malvern, Australia, and received the First-Class Certificate of the National Chrysanthemum Society and the Award of Merit of the Royal Horticultural Society, in 1916. It is undoubtedly one of the best white exhibition Japanese Chrysanthemums in cultivation. *C. W. Garner, 15, George Street, Bedford.*

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Grape Spot (see p. 141).—In answer to Mr. J. L. Mottram, we have had the worst attack of the disease known as "Spot" on Grapes this year that we have ever had. The variety of Grape attacked is *Lady Downe's*; the same vine has been affected for years in a mild form, but only once before rather disastrously in its effect on the crop. All the diseased berries have been carefully cut off and burned, the house thoroughly cleansed, and the surface soil removed, yet this year we have lost all but three bunches on a triple vine grown in gridiron shape. In *The Fruit Growers' Guide*, the late Mr. John Wright states (page 329) that Cannon Hall Muscat and Muscat of Alexandria are the varieties subject to a small, uneven, whitish spot on the berries while young and tender and swelling quickly. On the depressed patches a series of minute dots

shortly afterwards appears, and under the microscope they prove to be a fungus, *Gloeosporium laeticolor*, which grows outwards, and its mycelial threads traverse the interior of the fruit. Spot also appears on ripening or ripe Muscat of Alexandria, Duke of Buccleuch, and other Grapes with skins highly susceptible to injury by damp. This disease, he states, is very disastrous, often causing serious loss of fruit in a short time. It is also associated with, if not caused by, *Gloeosporium laeticolor* in the half-ripe fruit, whilst that of the ripe fruit is probably *Gloeosporium fructigenum*. There is, he says, no remedy, except attention to ventilation, preventing cold draughts, by admitting air freely and late on sunny mornings, or after a period of sunless weather, during which time the house has been kept close and moist. There is no doubt that the wintering of pot plants in vineries creates a sodden state of the border, and an unhealthy atmosphere, more especially if the hot-water system is not carefully attended to. *Gloeosporium ampelophagum*, mentioned by your correspondent, I have understood to be the Grape stem rot, which causes the pedicel or grape stalk and berries to become shrivelled. This is often



FIG. 69.—A FINE PLANT OF CHRYSANTHEMUM LOUISA POCKETT.

mistaken for shanking. The latter complaint is not the result of organic disease, but bad management. Only one vine in our vineries out of the twenty-three has been affected with "spot." I intend this winter to see if something cannot be done to check this terrible scourge. I have not as yet been very successful with it under the microscope. *Mayflower.*

"Calendar of Garden Operations" (see p. 156).—The Rev. Joseph Jacob may be interested to know that I have a small paper-covered edition of Sir Joseph Paxton's *Cottagers' Calendar of Garden Operations*, which was published in 1887 by *The Gardeners' Chronicle*. The price was threepence, with a great reduction for a quantity, and it bears the words "Two hundred and seventy-ninth thousand" on the title-page. In addition to the hints on fruit cookery, pickles, etc., it contains articles on pigs, the cox, and garden tools. There is a "Floricultural Calendar" contained in *The Flower Garden*, published in 1840 and written by Mr. McIntosh, Gardener to His Majesty the King of the Belgians at Claremont. It is noteworthy that this author's "calendarial observations" commence in August. Another point of interest in this quaint but quite practical book is the "current market price" of almost every variety of bulb and plant mentioned. Mr. McIntosh's august master must have had extravagant tastes, for the former thinks lightly of including rows of ten

or fifteen guinea Tulip bulbs in ordinary border planting. *A. T. Johnson, Ro Wen, Tal-y-Cafn, N. Wales.*

Branch Cuttings of Apples.—I am very pleased to see the interest my simple inquiry with regard to branch cuttings of Apples has aroused. It seems I have touched upon a sixteenth-century method of producing Apple trees to bear fruit at once, without the period of waiting usually necessary. The Apples I saw raised from cuttings or branches were one fine tree of *Blenheim Pippin*, and another, as I stated on page 101, of *Bramley's Seedling*. *H. J. W.'s* note on page 126 gives a good description of one variety of Apple that I noticed, called by my neighbour "a very good cooker." Also "burrs" were apparent on the branches. But I was shown in the first instance a quite ordinary, rather ancient, but quite healthy Apple tree as a suitable subject to obtain cuttings from. My neighbour evidently has a gift in striking Apple branches wherever he chooses, even in the rough hedgerows on his land, which is slightly marshy. But the variety of Apple with burr knots on the branches is, he considers, the easiest to strike. Mr. Treloar's note in the issue for September 2nd throws even more light on the subject. I wonder if he takes his Apple cuttings below an elbow-like bend, and how far below the ground are they inserted? Would Mr. Treloar oblige us with a little more information on the subject, as he seems a successful grower of Apple cuttings? As Mr. Farmer remarks on page 141, "Pitcher" is a curious name, but I expect it originated from the shape of the fruit of the variety *Burr Knot* described by *H. J. W.* on p. 127. *E. F. M. Hewat.*

—In these gardens there are three trees that produce burrs on the branches. They are known to have been here over a hundred years. Two employees have been on this estate for over sixty years, and they inform me the trees were as big then as they are now. Several people have taken branches of these trees home, and I was surprised to find them growing and producing crops of fruit. They never fail to produce a crop, even in most unfavourable seasons. There are two varieties here. One is a yellow fruit with a red cheek that ripens in October, and has a rather acid taste. The other is yellow spotted, and not so acid. On looking up *Bunvard's Apples and Pears*, the first seems to be *Burr Knot* by the description given, only the fruit does not grow so large as the measurements given. The other agrees with the variety *Oslin*, for the description is identical. Apples do not grow to their full size here, as the soil and weather conditions are not favourable to them. The garden is situated in a valley with the river running close by, 580 ft. above sea level, and there is much iron in the soil. *H. J. W.* gives an explanation of how the name *Bide's Walking Stick* was given. It may interest some to know how easily this variety roots. On marking out some rows for *Peas* stakes of this Apple were stuck in at each end and left until the *Peas* were cleared off. When their time came to be pulled up they were found to be quite firmly rooted, and had to be taken up with the aid of a spade. They were given to two workmen on the estate, and have grown into good-sized trees and bear fruit each year. *D. H. Dunn, Hafod, Devil's Bridge.*

Bees Attacking Fruit. Bees have attacked Peaches on the walls in the gardens here this season. Is not this unusual? We have no hives in the garden, but there are some in cottage gardens near. I am also informed that bees are destroying quantities of Peaches in a neighbouring garden where they have never given any trouble previously. One is led to suppose that, owing to the continual dull, wet weather flowers are not providing the usual attraction this season, and that the bees diligently turn to fruit for supplies. Wasps have given very little trouble up to the time of writing (August 30), whereas during former seasons they have done considerable damage to fruit. On an average we have destroyed forty wasp nests annually. This year we have, so far, found only one. *C. Rose, Folly Farm Gardens, Luthamstead, Reading.*

SOCIETIES.

NATIONAL DAHLIA.

SEPTEMBER 6.—For the first time since 1913 the above Society has found it possible to hold an independent show and, while Dahlias were not quite so numerous as might have been wished, the Society have reason for satisfaction in that the R.H.S. hall was well filled with exhibits of great interest and that there was a large attendance. In view of the sunless weather, many would-be exhibitors found themselves in the unenviable position of having to cancel their entries because their blooms would not be sufficiently developed on the day of the show, and this was the experience of some large trade growers as well as amateurs. But what the Dahlias lacked in quantity, they made up in quality, which was fully equal, if not superior, to any that have been shown in past years.

The DIRECTOR of the Royal Botanic Gardens, Kew, sent vases of three Mexican species from which innumerable garden Dahlias have been raised; these are illustrated in Figs. 65, 66, 67. The small, graceful Lilac-coloured blooms of *D. Merckii* and the brilliant crimson flowers of *D. variabilis*, together with the vivid scarlet of *D. coccinea* attracted a great deal of interest as well as admiration for their grace and beauty.

Various miscellaneous exhibits of the previous day remained, and these materially assisted to make the success of the show. Several medals were awarded to trade groups, including Gold Medals to Mr. H. J. JONES for a magnificent collection of Phloxes and Delphiniums, and to Messrs. KELWAY and SON for Gladioli.

The Joint Dahlia Committee met in the morning and selected the following novelties for trial at Wisley:

Adorable.—A bold Decorative variety of uncommon colouring. The large, perfectly-formed blooms are set on long, stout stalks and their orange-buff coloured florets are definitely tipped with white.

Arthur Bouquet.—Another large, handsome bloom of Decorative type. The colour is a very pleasing tone of warm orange-yellow.

Nectar.—A large Decorative variety of equally good type as the above, but of bright yellow colour.

Edith Page.—A beautiful exhibition variety of soft yellow colour which becomes flushed with pale colour on the outer florets. This variety was adjudged the best seedling exhibition Cactus Dahlia in the show.

Shepherdess.—A very large, pure white Decorative variety of great merit. The above were shown by Messrs. J. STREDWICK and SON.

Lady Greer.—A delightful, medium-sized, Paony-flowered variety of delicate, rosy-mauve colouring.

Leonie Cobb.—This is a charming miniature Paony-flowered variety of compact rounded shape and Lilac-pink shading, with a gold-dusted centre. These two varieties were shown by Messrs. J. CHEAL and SONS.

Border Perfection.—A very large bloom of the Decorative type and rich crimson colour. This and the following were shown by the DUTCH DAHLIA SOCIETY.

Nelly.—As a cut flower the stems of this small Decorative variety seemed unduly long and stout, but probably it would be ornamental in the border. The compact little flowers are of orange-scarlet colour.

Jubilee.—One of the most striking novelties of the year. It is of rather more than medium size, and although of Decorative type, the narrow, incurving petals give it a suggestion of Cactus form. The colouring is pleasing shades of lilac.

OPEN CLASSES.

In both classes for show and fancy Dahlias Mr. S. MORTIMER was first, and Messrs. WM. TRESEDER, LTD., were second, with exceedingly good specimens of the types of Dahlias which were so prominent at the bygone shows. The perfectness of form and delightful colouring of such varieties as Standard, Prince Bismarck,

Arthur Rawlings, Tom Jones, John Hickley, and Wm. Powell (in the first prize collection) attracted a great deal of attention, as also did Dandy, Nansen, Arthur Harrison, and Tom Jones in the second prize exhibit.

The only exhibit of eighteen Cactus Dahlias, six blooms each of distinct varieties, was by Messrs. J. STREDWICK and SON, who were deservedly awarded the first prize for a magnificent collection of such sorts as Supreme, Thos. Want, Sunbeam, Valour, British Lion and Washington. Messrs. STREDWICK were also first with 24 blooms on boards, showing Megantic, Silverhill Park, Washington, Valour, F. W. Fellowes, and Mr. A. Harvey in great excellence. Messrs. WM. TRESEDER, LTD., were placed second.

The twelve Cactus blooms, distinct, which won the first prize for Mr. W. G. CRAMP, were also deserving of high praise; his best specimens were of Emperor and Abbotsford. Mr. H. WOOLMAN, who was a close second, had a fine bloom of the variety E. S. Jackson. The best six blooms of any one Cactus variety were of Miss Stredwick, shown by Messrs. WM. TRESEDER, LTD., who also were awarded a first prize for six splendid blooms of the show Dahlia Arthur Morrison.

MESSRS. J. CHEAL and SONS were alone in the class for twelve varieties of garden Cactus Dahlias, but they made a splendid display with such varieties as Guardian, Richard Box, Empire, and Sweet Briar. They also were awarded first prizes for six varieties of Miniature Cactus Dahlias, showing beautiful blooms of Firefly, Minima, and Little Fred; for twenty-four Pompon varieties, of which the very best were Phyllis, Daisy, Electra, Rufus, and Girlie; for twenty-four vases single Dahlias of great merit; for six vases small Paony flowered, arranged with great taste with hardy foliage; and for twelve varieties of Colletterte Dahlias, amongst which the vases of Cadet, Diadem, Bonfire and Ustance were especially meritorious. In the last-named class Messrs. WM. TRESEDER were placed second with good vases of such sorts as Crimson Queen, Lilian and Peronne, and they were first with somewhat similar varieties in the class for six varieties; while they also secured chief honours in the class for six varieties of large Decorative Dahlias.

AMATEURS' CLASSES.

The Show and Fancy Dahlias were not so well represented in this section, though the first prize six varieties by Mr. H. LAGDEN, were very good and included especially fine blooms of Merlin and Mr. Glasscock. The most popular and best contested class was that for six blooms, distinct varieties, and the first prize was won by Mr. F. A. BROWN with a fine set. Mr. M. HOWARD was first for six varieties of garden Cactus Dahlias; his best vases were of F. W. Fellowes and Planet.

The Gold Dean Memorial Medal, offered for the best nine varieties of Cactus Dahlias was won by Mr. W. G. CRAMP with a worthy collection, which included Mrs. A. Harvey, Sidney Jones, and Abbotsford of great merit. Mr. CRAMP was also first for twelve blooms in four vases. Mr. A. F. BARNES, who included good blooms of Golden Rain and Corona, was awarded first prize for six varieties.

Although they lacked competition, the classes for Pompons were a great feature of the show on account of the high merit of the exhibits. Mr. H. BROWN was awarded first prize for twelve varieties of great excellence. He had such sorts as Glow, Bacchus, and Little Winnie. The six varieties by Mr. A. F. BARNES even surpassed the high standard of the former class, and his were perfect examples of these dainty and charming little flowers.

The first prize six vases of single Dahlias by Mr. A. BROWN, were also exceptionally meritorious, and included Margaret Chouse, Ada Dickens, Princess of Wales, and Fred Brown; Mr. D. B. CRANE, who was a good second in this and the class for six vases of Star Dahlias, was awarded the first prize for a graceful exhibit of four vases of small Decorative varieties arranged with hardy foliage. The first-prize Star Dahlias were

shown by Mr. H. P. HOWARD, who included beautiful vases of Eastern Star and Horley Star.

In the Floral Division, the best dinner table decoration in the class for Star Dahlias was by Mrs. RALPH, who used Dorking Star very effectively. Mr. A. BROWN was first in the class where Star Dahlias are debarred, and Mr. W. STEPHENS was second in each case. Messrs. WM. TRESEDER, LTD., were first with decorative vases of Paony flowered and many other kinds of Dahlia blooms.

TRADE GROUPS.

The DUTCH DAHLIA SOCIETY (hon. sec. Mr. J. G. Ballego) arranged a handsome and imposing group of novelties raised by its members. The valuable, large-flowered Decorative type predominated, and the outstanding sorts were Mr. H. C. Dresselhuys, Apple Blossom, Messrs. J. G. Wurzbain, Jubilee, Mr. J. G. Ballego, Prince of Wales, King Harold, and Kroonprinzess Margaretha. Along the front of the group there were large bowls of dwarf, free-flowering varieties of delicately beautiful colouring (Gold Medal).

Mr. J. T. WEST set up a large collection of great merit. Amongst the Decorative varieties were Victoria, Nancy, Blanche, and The Prince. Prominent varieties of the singles included Oberon, Dazzle and Malcolm, while of the many Collettertes, the best were Judith, White Fox, Arran and Ulva (Gold Medal).

MESSRS. CARTER PAGE and Co. arranged an attractive group against the end wall, and this was representative of nearly all the types. Beauty, Jupiter, Paul Crampel, Lady Lavender (Decorative), Royal Luses, Arcurus, Paragon (Cactus), Starling, Arran, Peronne, and Cameron (Collettertes), are the names of only a few of the varieties so well shown (Silver-Gilt Medal).

Mr. CHARLES TURNER gave prominence to many of the Pompons which have long been a speciality at Slough, and also showed beautiful blooms of Loveliness, Sunray (Decorative), Our Annie, and Aphrodite (Paony flowered), as well as representatives of the other types (Silver Medal).

MESSRS. J. CHEAL and SONS also had an interesting collection. This was particularly strong in the elegant and valuable Star Dahlias, of which Bronze Star, Brighton Star, Eastern Star, Morning Star, and Ifield Star may be mentioned. A large vase of a "new type novelty" attracted a deal of attention. This was a vivid crimson Colletterte Dahlia, which had a double row of ray florets and short, yellow quills (Silver Medal).

SANDY AND DISTRICT FLORAL AND HORTICULTURAL.

THIS society held its show on Thursday, August 31, in the beautiful park of Sandy Place, by kind permission of Mrs. Graves. The weather was not all that could be desired, but during the afternoon there were bright spells of sunshine, and the attendance was good. The display of Roses, Gladioli, herbaceous flowers, and Dahlias, has hardly ever been equalled in the history of the show. Ten Gold Medals were awarded, chiefly for Roses, Gladioli, and Dahlias. In Division A, Class 1, a group of ornamental and foliage plants was arranged on a space 15 ft. x 10 ft. by Sir CHARLES NALL-CAIN, of the Node, Welwyn, who was awarded 1st prize and Gold Medal. The group consisted chiefly of Caladiums, Crotons, Dracaenas, and Palms. He was awarded a similar distinction for a group of miscellaneous plants—Carnations, Bouvardias, and Orchids. For a group of hardy cut flowers arranged on a space of 10 ft. x 10 ft., there were five competitors. Messrs. ARTINDALE, of Sheffield, were placed 1st.

A class for a collection of Roses arranged on tabling 4 feet wide by 5 feet long brought some strong competition. Messrs. CHAPLIN BROS. gained the 1st award, showing Mrs. H. Bowles, K. of K., and Isobel; Mr. J. PIGG, Royston, 2nd; and Messrs. R. HARKNESS and SONS 3rd. In the class for forty-eight cut Roses, Mr. J. PIGG, Royston, won 1st prize with well-coloured flowers, and Messrs. CHAPLIN BROS. 2nd.

For eighteen Tea Roses, Mr. GEORGE BURCH, Peterborough, won 1st place, and Mr. J. PIGG 2nd. For 24 spikes of Gladioli, Mr. W. KITCHENER, Hitchin, was placed 1st amongst four exhibitors. For 24 Dahlias, not fewer than 12 varieties, Mr. S. MORTIMER led, with excellent flowers. In the class for 24 Cactus Dahlias, the 1st prize was awarded to Mr. H. WOOLMAN, Shirley, Birmingham; Messrs. J. CHEAL AND SONS, Crawley, being a good 2nd. In the class for 12 bunches of Cactus Dahlias (six in each bunch), Messrs. J. CHEAL AND SONS led with very fine samples, the same competitors winning 1st place for 12 bunches of Pompon Dahlias, 10 in each bunch.

In a class for a collection of Dahlias, all varieties, staged on tabling 4 feet wide by 10 feet long, lightness and beauty of arrangement being the test of merit, Mr. H. WOOLMAN (Shirley) was 1st. For a collection of cut, hardy herbaceous and bulbous flowers, Messrs. EAMES AND SON came 1st, and Messrs. W. ARTINDALE AND SONS 2nd. Special mention should be given to Messrs. R. H. Bath, Ltd., for their Gladioli, which filled the space at one end of the large tent. Mr. H. Ellison occupied the other end with well-grown Ferns, Palms and Cacti. Messrs. Laxton Bros. made an excellent display of Roses, herbaceous flowers and fruit.

In Section B (open to all except nurserymen) for fruit, the EARL OF SANDWICH (gr. Mr. Prowling) was a successful exhibitor, taking 1st place for a collection of hardy fruits (10 dishes), and six dishes of ripe dessert fruit. Sir CHARLES NALL-CAIN was successful with Grapes, Melons and Nectarines.

For a collection of vegetables (8 varieties) there were nine exhibits, and Sir CHARLES NALL-CAIN was placed 1st, showing excellent Potatoes, Cauliflowers and Carrots; Mr. ROBINSON, of Great Barford, being 2nd.

OXFORD ROYAL HORTICULTURAL.

By kind permission of Mrs. H. Morrell, of Headington Hill Hall, the above society held its summer show in the South Park, Headington, on August 31. The exhibits, both in quality and number, were quite up to pre-war level.

Mrs. MORRELL's head gardener (Mr. A. Gibson) staged, not for competition, a wonderful group of plants, including *Humea elegans*, Lilioms of many varieties, *Acalypha Sanderiana*, Crotons, *Campanula pyramidalis*, *Dracaenas*, and *Gloxinias* (Gold Medal).

In the competitive class for a group of plants, Mrs. LESSING secured 1st prize for a well set-up group which included some fine Lilioms, Crotons, and Caladiums. The 2nd prize winner was Mr. T. H. ROSE, who had a good variety of flower and foliage plants, well staged. H. BALFOUR, Esq. (gr. Mr. A. Hewlett) showed some fine Gladioli, Roses, and perennial Phloxes. The groups of Begonias were very good and made a bold show. Here Mr. T. H. ROSE was 1st, and Mr. E. J. DOUGLAS 2nd. Sweet Peas were very good, although the weather has been somewhat against these flowers. Mr. G. PRINCE, of Longworth, Berks, had on view an excellent stand of Roses. Amongst the most prominent were Los Angeles, Hoosier Beauty, Isobel, Austrian Copper, and Padre. Mr. J. MATTOCK, of Headington, also staged Roses, including K. of K., Golden Emblem, Christine, and Los Angeles. The table decorations were extra good, and the competition very keen. The judges awarded two Special Prizes, and one exhibit was Highly Commended. Mr. H. KEEN was 1st with a choice arrangement of Rose Irish Elegance. Second place was taken by Mr. J. C. HALLY, for a very dainty display of Carnations; Mr. G. E. CORNS securing third place. Special prizes were awarded to Mr. A. JACOBS and Mrs. E. MOSS. Mr. JOHN WALKER put up a stand of Cactus and Single Dahlias. Messrs. RICH AND CO., of Bath, staged Perennial Phloxes, and Mr. ARTHUR ROWLES, Market Street, Oxford, exhibited a very pretty group of miscellaneous cut flowers. Sweet Peas being the outstanding feature. The children's exhibits of wild flowers and grasses added variety and charm to the show.

Fruit was strongly represented and some fine specimens were on view. The Black Hamburgh

Grapes, for which A. BRADSHAW, Esq., won 1st prize, were models of form and finish. This exhibitor also won 1st place for Peaches. For Melons, Pears and dessert Plums, Mrs. LESSING secured three 1st prizes.

In the single dish classes for vegetables, H. BALFOUR, Esq., had the best dish of Tomatoes. For Runner Beans, Mrs. LESSING was 1st; and for Marrows, Mr. W. JACOBS. For Peas, Mr. H. DICKENS won premier honours; and for Cauliflowers Mr. W. JACOBS took 1st prize. Onions were a very strong class. Here Mrs. LESSING won the 1st prize with a very fine dish, and for Celery she was again first. Mr. A. BRADSHAW's exhibit of Carrots secured the 1st place. Mr. R. T. ALDEN was placed 1st in the class for Potatoes, with an excellent dish. For Turnips, Mrs. LESSING was again 1st; and Mr. A. E. BRADSHAW secured the 1st prize for Beet.

In Messrs. Sutton and Sons class for vegetables Mr. A. E. BRADSHAW took premier honours; Mrs. LESSING was placed 2nd; and Mr. R. F. ALDEN 3rd. In Mr. Arthur Rowles' class, Mr. A. BALL was 1st, and Mr. R. ING 2nd. In Messrs. Webb and Sons' class, Mr. W. H. R. POWELL took 1st prize, and Mr. G. SOANES secured the 2nd.

DUMFRIES AND DISTRICT HORTICULTURAL.

AUG. 26.—The annual show of this society was held in the Drill Hall, Dumfries, on the 26th ult. Sir James Crichton-Browne performed the opening ceremony. There was a slight reduction in the number of entries compared with last year, due to the unfavourable season and some leading exhibitors reserving their exhibits for the Glasgow Show. Quality in most classes, however, was excellent, although cut flowers evidenced the unfavourable character of the season. Vegetables were very good, and pot plants were about the average, though they are never a strong section at this show. The most successful exhibitor in the open classes was D. LANDALE, Esq., Dalswinton (gr. Mr. R. A. Grigor), who won the "Courier and Herald" Cup, as being the most successful exhibitor; and the cup for 12 vases Sweet Peas, with first prizes in numerous classes, including the decorated table of plants. C. LOGAN, Esq., Gribton (gr. Mr. E. E. Arnold), was also a very successful exhibitor, and among other leading prizes, secured the silver cup offered for Apples. The prize for the best collection of vegetables went to the same exhibitor. Among other leading first prize winners were J. DAVIDSON, Esq., Summerville (gr. Mr. J. Wilson); Sir C. LAURIE, Bart., Maxwellton House (gr. Mr. F. Maxey); Mrs. SANDERSON, Glenlagaan (gr. Mr. F. Penfold); Major C. R. DUDGEON, Cargenholm (gr. Mr. J. Carruthers); Major KESWICK, Cowhill Tower (gr. Mr. C. G. M. Murray); and Mr. J. TWEEDIE, Mouswald. The Dumfries Burgh Challenge Cup, offered for the best allotment in the burgh, was won by Mr. J. BURNIE.

Mr. D. T. WALLET, Castle-Douglas, won outright the "Dumfries and Galloway Standard" Cup, for the best collection of vegetables in the amateur classes.

ROYAL LANCASHIRE SHOW.

AUGUST 6, 7, 8, and 9.—The horticultural show held at Preston during the Preston Guild week, an event which takes place once in every 20 years, and in conjunction with the exhibition of the Royal Lancashire Agricultural Society, will long be remembered as a record, not only for the large number of exhibitors, but for the exceedingly high quality of the produce. All the exhibits were staged in a large, wooden building, which had to be extended to find room for them. Liberal prizes were given, and everything done to ensure success. No fewer than ten Gold and twelve Silver Medals were awarded.

Competition was keen in the open classes for collections of vegetables, decorated dinner tables, Sweet Peas, hardy herbaceous flowers, and collections of Roses, of which four excellent exhibits were staged. In the class for

a group of miscellaneous plants, in a space not exceeding 300 square feet, Messrs. J. CYPHER AND SONS, Cheltenham, was placed 1st with a beautifully arranged exhibit of high quality; 2nd, Mr. W. A. HOLMES, Chesterfield. Mr. J. McCARTNEY excelled in the class for a collection of Orchids arranged for effect; Messrs. JAMES CYPHER AND SONS were 1st for six Orchids, with fine plants. Mr. JOHN NIXON, Miss NEWSHAM, and Mrs. A. G. BLAIR were the winners in the three classes for table decoration.

Mr. THOMAS WADSWORTH, Bishops Wilton, York, was placed 1st for eighteen distinct varieties of Sweet Peas, and also for twelve distinct varieties, with grand flowers. Mr. W. D. INGHAM excelled in the class for twelve Gladioli. Mr. G. GARRETT, Lancaster, was 1st for twelve bunches of hardy herbaceous flowers; for eight bunches of Phloxes and for six vases of border Carnations, with well-grown flowers in each case, finely staged. The sum of £15 was offered as the prize for a collection of cut Tree Carnations, which Mr. C. ENGELMAN won with a grand display. The class for a collection of cut Roses was the best in the show, all the exhibits being of splendid quality. Mr. THOMAS ROBINSON, Nottingham, was placed 1st, and Messrs. ALEX. DICKSON AND SONS, Hawtmark, 2nd. Messrs. HARKNESS AND SONS, Bedale, won the prize of £25 offered for a collection of hardy perennials, Messrs. G. GIBSON AND CO., Bedale, being placed 2nd owing to an oversight in staging. Mr. W. ROBINSON, Junr., Garstang, was 1st for three collections of vegetables with well-grown and well staged exhibits. Allotment exhibits were numerous and good.

NON-COMPETITIVE EXHIBITS.

Gold Medals were awarded to Messrs. SUTTON AND SONS, for an exhibit of flowers, fruits and vegetables; to Messrs. ALLWOOD BROS., for Carnations; to the COUNCIL FARM, Preston, for a very fine exhibit of plants, pot fruit trees, vegetables, and interesting experimental subjects; to Messrs. BLACKMORE AND LANGDON for Begonias and Delphiniums; to Messrs. R. BOLTON AND SON, for Sweet Peas; to Messrs. DICKSON AND ROBINSON, for Dahlias and very large Onions of the Premier variety; to Messrs. A. DICKSON AND SONS, Belfast, for Roses and Sweet Peas; to Messrs. DOBBIE AND CO., for Roses; and to Messrs. LITTLE AND BALLANTYNE, Carlisle, for trees, shrubs, seedling Pines, etc.

Silver Medals were awarded to Mr. E. W. PARSONS, Worcester, for fruit; to Mr. W. DUCKWORTH, for fruit; to Mr. JOHN ORME, Messrs. ISAAC HOUSE AND SONS, Messrs. ELLINSON AND SONS, Messrs. BAKERS, LTD., Messrs. JOHN FORBES AND SON, Messrs. FAIRBAIRN AND CO., Barrow-in-Furness, Messrs. HARD BROS., and Messrs. CALDWELL, for bright and interesting exhibits of flowers, etc.

Obituary.

Thomas N. Cox. —We very much regret to announce the death of Mr. Thomas N. Cox, who passed away on Tuesday, the 5th inst., at the age of 63. His death has come as a great shock to Messrs. Hurst and Son, and all members of their staff. Mr. Cox was with Messrs. Hurst and Son something like 52 years, and for many years was general manager. He only retired in November, 1920, when a full account of his retirement appeared in our columns. He was then in good health, and it was hoped that he would enjoy many years of happy leisure. Unfortunately during last winter and spring he had a prolonged and painful illness, and although he seemed to be making very satisfactory progress, the long illness must have left him very much weakened. On Friday, the 1st inst., he was taken ill, and was removed to a nursing home, but he passed away on Tuesday, the 5th inst. Everyone who knew him had the greatest esteem for him, and the wide circle of friends in the trade, who knew him so well, will, we are sure, join with us in tendering heartfelt sympathy to the members of the bereaved family.

TRADE NOTES.

THE statutory meeting of Messrs. John Russell (Hampstead), Limited, the company which has been formed to take over the nursery business of the late Mr. W. H. Russell, at Haverstock Hill, etc., was held on September 11, at the Haverstock Hill premises. A statement of accounts to March 31, 1922, was presented, and Mr. J. B. Slade (Messrs. Protheroe and Morris), who was appointed receiver in bankruptcy for the affairs of the late Mr. Russell, and has conducted the formation of the new company, gave an encouraging account of the trading during the summer months. An amount equivalent to a dividend of 7 per cent. for the year ended March 31, had been paid to the preference shareholders, the overdraft at the bank had been completely paid off, and all accounts owing up to the end of June had been paid by the end of July; the business might, therefore, be considered to be, for the first time for many years, in a stable and flourishing condition. The stock and other assets had been valued on a conservative basis, and would be systematically written down each year. A lease of seven years, subject only to the land being required for actual railway purposes, had been arranged with the railway company on whose land the Haverstock Hill nurseries stands, which would give greater stability than the previous arrangement by which the land could be taken at any time if required for any purpose. A considerable portion of the land which was not actually required for stock had been let off as tennis courts, which were bringing in a steady income. So far as contract work was concerned, the policy was being pursued of accepting contracts which consisted chiefly of the supply of material, but avoiding those where labour was chiefly required, as being very difficult to estimate beforehand and likely to lead to loss.

The shareholders present took the opportunity of inspecting the nurseries, and expressed their pleasure at their greatly improved appearance, and the evident value of the stock-in-trade. A vote of thanks to Mr. Slade, for the valuable services he had rendered in stabilising the business and forming the company, was carried unanimously.

NEW HORTICULTURAL INVENTIONS

THE Acme Showcard Co., Ltd., has forwarded a specimen of their collapsible pedestal stand, which they recommend for use in exhibiting cut flowers, etc. The stands are made of cardboard, in various colours, of waterproof material, and are supplied either plain or with the name of the firm exhibiting in the panels.

THE WEATHER.

WEATHER IN AUGUST.

The cold, unsettled, but mainly westerly weather, which commenced in the middle of June, continued in a rather modified form, to the end of August; but during the early hours of September 1, it was terminated by the heaviest fall of rain that had occurred in any one day since the Farnley Observatory was established 51 years ago. As a whole, August was dull, cool, damp, and exceptionally squally, with excessive durations of westerly and southerly currents, but the latter were not of normal strength. It was the fourth successive month with a marked deficiency of easterly winds. Ozono was plentiful, though far less evaporation than usual took place. The mean temperature was barely 56°, and was 2° below the average. Only 140 hours of sunshine were recorded, there being a deficiency of 44 hours. Just over six inches of rain fell, the average being exceeded by 2½ inches. The underground water level was normal; a thunderstorm occurred on the evening of the 8th. The rainfall during the 10½ hours ending at 9 a.m., G.M.T., on September 1, was 2.59 inches in Hesketh Park, but over Birkdale only 1½ inch, and near Woodvale, Ainsdale, less than 1½ inch, even including a later fall at the latter stations. The largest previous falls in one day at Hesketh Park, Southport, were 2.14 inches on July 7, 1872, and 2.13 inches on September 2, 1875.—Joseph Bazendell, *The Farnley Observatory, Southport.*

THE WEATHER IN SCOTLAND.

THE low temperature which characterised June and July continued through August, which showed a deficit of fully 3° on the normal mean. The rainfall, however, was not excessive, the total being 2.86 inches for 15 days, against a normal of 3.38 inches for 17 days; on the 2nd (the wettest day), the considerable amount of 0.99 inch was collected. Bright sunshine was below the normal, with an aggregate of 137.8 hours, giving a daily average of 4.4 hours and a percentage of 29; as in July, there were no sunless days. With a mean of 29.85 inches, the barometer fluctuated from a highest of 30.24 inches on the 10th, to a lowest of 29.44 inches on the 30th. The mean temperature for the month was 54°, with a mean maximum of 63° and a mean minimum of 45°. On the 19th and 21st the highest maximum of 68° was recorded, and the lowest minimum of 39° on the 14th; it is worthy of remark that the minimum temperature shows a greater deficit from the normal than the maximum. On the grass the mean minimum was 40°, with a lowest of 30° on the 26th. This last was the only night of ground frost. At 1 ft. deep the soil temperature showed little variation, the highest being 57°, and the lowest 55°. Dew was frequent during the month. Light winds prevailed, chiefly from the south and west. *John Davidson, Training College Gardens, Kirkton-of-Mains, near Dundee.*

ANSWERS TO CORRESPONDENTS.

BEGONIA MANURE: *T. C. S.* The best manure to use for tuberous-rooted Begonias is dilute liquid manure or dilute soot water; the liquid manure is best made from cow or sheep manure. Good guano is safe, and is an excellent all-round manure; it may be used at the rate of one ounce to a gallon of water.

DIANTHUS BARBATUS: *A. Mc., N. W.* *Dianthus barbatus* is a biennial.

DRESSING FOR LAWN: *H. J.* The best way to apply copper sulphate is to mix it with sand, thus ensuring even distribution. The proportion of sulphate to the square yard is ½ oz.; if about a quarter of a pound is required, it should be mixed with a barrow load of sand and scattered evenly over the surface. The amount of sulphate required is easily ascertained by measuring the surface of the lawn, and the quantity of the sand can be roughly calculated afterwards. The salt should be applied direct to the Plantains, a pinch on each crown.

"EVERLASTING" FLOWERS: *M. O. S.* The flowers should be gathered before they are fully opened, and hung up to dry.

GRAPES DISEASED: *S. W. H. and Perplexed.* The Grapes are affected by Grape Spot, caused by the fungus *Gloeosporium ampelophagum*. Spray the vines and bunches with liver of sulphur at the strength of ½ oz. in two gallons of water, or dust flowers of sulphur on to the leaves and bunches, and repeat the operation at intervals of ten days. It is sometimes of service to wet the rods thoroughly with a solution of iron sulphate when the vines are dormant. Do not feed the roots excessively with nitrogenous manures.

HERBACEOUS PLANTS: *T. C. S. and D. C.* Kniphofias, Montbretias and Gladioli may all be classed as herbaceous plants, as they all more or less die down every year. Montbretias and Gladioli, of course, produce corms, and are grouped under bulbous or tuberous-rooted plants; but in the broadest sense they are herbaceous.

LOGANBERRY: *A. R.* The Loganberry is easily increased by placing the tips of the shoots underground. They "layer" of their own accord if allowed to ramble and touch the soil with the tips.

NAMES OF FRUITS: *X. Y. Z.* 1, Pond's Seedling; 2, Denniston's Superb; 3, Early Transparent Gage; 4, Kirke's Blue; 5, Heron; 6, Jefferson's; 7, Probably Giant Prune. *E. V. J.* 1, Pott's Seedling; 2, Cockle Pippin; 3, Mère de Ménage; 4, Lady Henniker; 5, Ecklinville Seedling; 6, not recognised.

NAMES OF PLANTS: *C. R.* *Lycostera formosa*.—*L. C.* *Chlorophytum elatum variegatum*.

PROPAGATION OF BIGNONIA CHERERE: *C. A., Cape Town.* Our experience is that *Bignonia Chere* is quite easily propagated by means of cuttings, so we do not consider it at all necessary to find a stock upon which to graft it.

PURPLE PODDED PEA: *S. B. D.* The Pea sent is the purple podded variety of *Pisum sativum hortense* named Nero. It is only offered, so far as we know, in Germany, by Messrs. Haage and Schmidt, of Erfurt.

SPRAYING PUMP: *W. H. R.* The bucket sprayer sold by Messrs. Cooper, Pegler and Co., 24a, Christopher-street, E.C.2, has an excellent pump which would force the spray to the top of any wall tree; but the nozzle must be mounted on a 10 ft. Bamboo lance, not on the short brass tube supplied with the machine. Any of the larger machines of barrow type, such as those sold by Messrs. W. Weeks and Son, Maidstone, would also do this work easily, if fitted with a 10 ft. lance.

STEPHANOTIS FRUITS AND SEEDS: *York.* The *Stephanotis* has fruited and seeded on numerous occasions in British gardens, but we do not remember to have heard of a plant fruiting regularly each year as yours does. We doubt whether the seeds have any special commercial value, but we expect some seedsmen would be glad to know where seed could be obtained.

TIGER LILIES DYING DOWN: *H. P. K.* The plants are attacked with the Lily disease, caused by the fungus *Botrytis*. Burn all diseased leaves of the plants and also all vegetable refuse in their vicinity.

TOMATOS AND CUCUMBERS DISEASED: *Regular Reader.* Both the Tomatos and the Cucumbers have received a check of some kind. Drought at the roots or an excessive amount of moisture in the soil might be the cause of the trouble, or any one of the conditions you mention in your letter. The oil in the tub from which the water was drawn for watering would be likely to affect the plants; empty the tub, dry it thoroughly, and then char the inside before it is used again as a receptacle for water.

TOMATO SEED WITH BLACK MARKINGS: *C. G.* Recent research has shown that black spots on Tomato seeds are of a physiological nature, and only seldom due to a fungus. Experiments with spotted seed prove that the latter give perfectly healthy plants, and you would probably find such seed as you send quite suitable for use.

WOOD WASP: *T. W. B.* You are quite correct in assuming the specimen to be an example of the Wood Wasp or Giant Sirex (*Sirex gigas*).

Communications Received.—*W. A. C. R. H. C.*—*E. N.*—*H. C.*—*G. C. D. H. D.*—*J. R. N. H.*—*F. J. N.*—*C. A. P.*—*H. E. G.*—*M. A. A. M.*—*T. G. C. H. Mrs. H.*—*H. E. G.*—*F. W. H.*—*H. W. A. W.*—*J. W. D.*—*A. W. E. R. S.*—*J. J.*—*G. A.*—*S. L. H.*

GARDENING APPOINTMENTS.

Mr. Edward Montague, for fifteen years' Gardener to the late CORONET BRIDLEBURY, Grey Court, Ham, Richmond, as Gardener to LADY EMMA CRICHTON, Netley Castle, Netley Abbey, Southampton, Hampshire.—(Thanks for 2s. 6d. for the R.G.O.F. Box.—Eos.).

Mr. E. Hunt, for the past two years Second Gardener at Greenhill Gardens, Sutton Veny, Wiltshire, as Gardener to Mrs. Leech, Britford Wood, Salisbury.

Mr. R. Etson, previously for twenty years Gardener at Waldenheath, Harrogate, and for two years at "The Convent," Harrogate, as Gardener at "The Stray" Hotel, Harrogate.

Mr. M. L. Sargent, for the past two years Gardener and Bailiff to Mrs. WARNER HOOKER, at The Rocks, Bours Head, near Tunbridge Wells, as Manager and Chrysanthemum expert at the Bridgewater Nurseries, Somerset. Mr. Sargent enters on his new duties about the middle of October.

THE

Gardeners' Chronicle

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 56.2°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, September 20, 10 a.m. Bar. 30.3; temp. 62°. Weather—Fine.

Growing Narcissus in the Scilly Isles.

It is in some respects a sad picture to which Major A. A. Dorrien-Smith points in his sketch of *Narcissus Culture in the Isles of Scilly: its Decline and Prospects of Regeneration*. Up till 1912, the industry, built up mainly by the energy and enterprise of the Dorrien-Smith family, prospered, after which time it declined. The chief cause of the decline appears to have been the spread of Narcissus pests and particularly eelworm. But Major Dorrien-Smith is undoubtedly right in recognising in the methods of cultivation the original cause of the falling-off in the industry. The need for rotation of crops was a lesson dearly learned in the past and one, unfortunately, which has often to be learned by hard experience over and over again. To grow the same plants year after year in the same soil is to supply ideal conditions for pests and to derive the worst consequences of their ravages. With such a climate as that of the Scilly Isles, it should be possible—provided transport is adequate, expeditious and regular—to grow many other profitable crops besides Narcissi and early Potatos. Major Dorrien-Smith is inclined to think that late cropping, as well as early cropping, should receive the attention of the islanders. It is an idea well worth consideration, but at the same time we think that early crops will always secure the best returns. The advantage of organisation on co-operative lines is insisted on by Major

Dorrien-Smith, who points out that at present the produce from the Scilly Isles ranks below that grown in England or in Germany. No one who has sailed past the sunny islands, often passing just eastward of their shores into the mist or fog, can doubt that the Scillies have great natural advantages for crop production. Like all seaward places, to reap the full benefit of this advantage they must have shelter—but that is obtainable with time and energy. Given shelter from the winds, the rapidity of growth in such places is phenomenal, and this gift of Nature ought to be turned to the fullest account by the inhabitants of the islands. Everyone will wish that success may attend the efforts of Major Dorrien-Smith to build up in the Scillies a flourishing horticultural industry.

The National Botanic Gardens at Kirstenbosch,

The Journal of the Botanical Society of South Africa (Part VIII., 1922) contains a series of impressions by distinguished American visitors of the Botanic Gardens at Kirstenbosch. The most interesting point made by all these visitors—Prof. McLean, Dr. Cannon and Mr. E. H. Wilson—is their commendation of the object to which the gardens are chiefly devoted—that of forming a large, representative and well displayed collection of South African plants. There is scarcely a garden in the world which has set itself a corresponding task. Most seek to assemble plants from elsewhere rather than to grow native kinds. Each method has its advantages, though there can be no doubt that at Kirstenbosch the method which is being pursued is the right one. For, in the first place, the richness and variety of the flora which occupies the different regions of the Union provide endless and fruitful scope for the establishment of one of the most beautiful gardens in the world, and one, moreover, possessed of features not shared or rivalled by any other garden now in being, or likely to come into existence. As Mr. E. H. Wilson, who knows the botanical world better, perhaps, than anyone, observes in his appreciation of Kirstenbosch, "I have travelled in many lands and have grown tired of seeing the same species of plants repeating themselves in cultivation in every botanical garden; so it was a great pleasure to me to find (at Kirstenbosch) at last one devoted to the preservation of the local flora and to the cultivation of indigenous plants." In the second place, the despoiling of the flora of South Africa has already begun, and once begun, none may say how fast it may continue. As cited in the Journal, one coloured man alone does at the present time a trade in wild Cape plants to the extent of £300 a month. His coloured scouts are busy collecting Heaths and rare Proteas, and thus it is that the face of the south-western veldt is changing and its glories are becoming a mere memory. Increased interest in the Gardens on the part of the members of the Union is the sure means of enabling Kirstenbosch to realise its aim and become a great national garden. We believe that it will realise this object and that the steady increase in membership, which the Botanical Society of South Africa is experiencing, means that every year a larger number of members of the Union are coming to realise that they have in Kirstenbosch a splendid national possession, destined to become one of the best of all botanic gardens and an example to other parts of the Empire.

New Roses at Bagatelle.—A supplementary meeting of the jury to judge the new Roses at Bagatelle, Bois de Boulogne, Paris, which had been called in consequence of the bad weather prevailing on the date of the original meeting in June, was held on the 11th September. The President of the Jury was M. Rebeillard, and the other members were MM. Pernet-Ducher, Cochet-Cochet, H. Gravereaux, Nonin, Turbat, Lévêque, etc., besides local notables, among whom were MM. Malherbe and Garnier; the Inspector General of Architecture, M. L. Bonnier; and also two foreign specialists, M. Looymans, of Holland, and Senor Rubio, of Barcelona, Spain. M. Forestier, the Curator of the Bois de Boulogne Promenades, conducted the visitors over the Rosery, and gave them information as to the behaviour during their flowering period of the various Roses entered in the competition. The Jury confirmed the award of the Gold Medal to the Dutch Rose *Elvira Aramayo*, which is remarkable for its curious new colour—Indian Red—and for its continuous and abundant flowering. Another Gold Medal was awarded to a new Rose, *Toison d'Or*, of yellow colour, raised by M. Pernet-Ducher, of Lyons. Mme. Alexandre Dreux, also yellow, but of a lighter colour than the last, almost approaching citron, which does not fade in the sun, raised by Messrs. Souppert et Notting, Luxembourg, was awarded a First-class Certificate. Other certificates were awarded to the deep yellow Rose, *Souvenir de H. A. Verschuren*, raised by the Dutch grower of that name, and to *Jules Tabart*, a salmon-pink variety sent by M. Barbier, of Orleans. A Special Certificate was awarded to a new and extremely interesting climbing Rose of the Hybrid Tea section, *Vicomtesse du Fou*. It is vigorous, produces fine, large foliage, and yields throughout the whole season fairly large, light, fragrant flowers of a very pretty metallic pink, with a touch of yellow. This variety was raised by a young workman employed on a private estate in the Doubs, M. Sauvageot. The Jury also noticed the Rose *Independence Day*, a British-raised variety, and especially a variety from Lyons, named Reverend W. Williamson, coral red, transfused with orange—a *Pernetiana* hybrid. They further took particular notice of a lovely white Rose, bearing a name much beloved in France, *Regina de Alvear*. Three other interesting Roses should be mentioned, viz., *Lady Elphinstone*, *Ariel*, and *Vanity Fair*. The varieties *Dental*, *Commandant Lequerré*, and *Maman Dental* did not display their charms to advantage, being intended for more southerly climes. Among Roses which have lately arrived at Bagatelle for inclusion in the next competition is a new variety from M. Pernet-Ducher named *Président Chérioux*, a *Pernetiana* hybrid of bright salmon-pink colour. Messrs. Alex. Dickson and Sons have sent two red Roses, *Crimson Hawlmare*—a development of their previous varieties, *Red Letter Day* and *K. of K.*—and *Earl Haig*, the latter a departure from the light, almost single style of the ones previously mentioned, being large and very full. The bad weather prevailing at present makes it impossible to judge of the merits of these varieties, which will be properly examined in June, 1923.

Horticultural Exhibition in Berlin.—The great centenary horticultural exhibition which opened in Berlin on the 30th ult. remained open until the 18th September. A visitor to the exhibition observes:—In order to realise the immense labour involved in such an exhibition it is necessary not merely to see the completed show, but to consider the circumstances attending it, and it must be confessed that seldom has an exhibition been arranged in such unfavourable conditions—at least, so far as the florists' trade is concerned. Not only had the exhibits to be brought in sufficient quantities to fill a space of 2,000 square yards, but they had to be transported long distances, in some cases from Leipzig to Berlin, many being held up on the way and arriving absolutely dead and useless. Furthermore, the state of finance and the value of the mark are such that business with foreign countries is rendered almost impossible, quotations being given or accepted one

day which the next day are utterly unacceptable. The lowering of the standard of life in Germany has had a considerable influence on the florists' trade, an influence which is clearly shown in the exhibits. Costly flowers, such as Orchids, are very scarce, their places being occupied by much cheaper blooms, such as Asters, Roses, Dahlias, etc. The admirable results obtained with these humble flowers go to show that it is not so much the material which matters as the art with which the materials are made up. It is by no means a light task to keep in its freshness and beauty for twenty days an exhibition of the magnitude of the recent one. But the Berlin florists made it a point of honour to keep the flowers and plants in "exhibition condition" during the three weeks, both for their own sakes and for the sake of the public, who took the greatest interest in the exhibition. Some of the schemes of floral decoration were extremely pleasing, especially one, which was entitled "The Sparrow's Joy." It represented a little attic, suitably furnished and beautifully decorated. Many people who looked at this little exhibit came away with tears in their eyes, it reminded them so forcibly of days gone by.

There was a tendency to evolve systems more closely adapted to available markets and local conditions. The old farmers were being replaced by specialists, such as expert Potato growers and expert fruit growers. Increased crop production involved not only improvement of the land, but improvement of the men on the land.

Organisation at Tresco.—A most successful meeting of all the growers on the island of Tresco, Isles of Scilly, was held in the Reading Room on the evening of the 12th instant. The object of this gathering was to ascertain if it was possible to form an association of growers with a view to trading co-operatively. The chair was taken by Major A. A. Dorrien-Smith, D.S.O., who briefly outlined what was meant by co-operation and earnestly urged the growers to be loyal to each other and to the community at large. "Much harm had been caused by the retrogressive policy of the past, and disintegration and dissatisfaction had ensued as a result. They had met to see if they could work together for the common good." After an interesting discussion, the chairman proposed and Mr. F. Oyler seconded a resolution that "A bulb-growers' association be formed on the island"—

a member of the staff of the Chinese Imperial Maritime Customs he had ample opportunity in his spare time to pursue his hobby. He was encouraged by Sir Joseph Hooker whilst Director of Kew to send home numbered and labelled specimens, and he forwarded a succession of packets of plants collected by him in China, Formosa, Japan, Java, Sumatra and, later, Central America and the West Indies. A large number of new flowering plants and Ferns discovered by Hancock were named after him, as was the genus *Hancockia*. His own private herbarium, which contained about ten thousand specimens, has been placed by Miss Hancock at the disposal of Kew, with the condition that the part not required by the Kew Herbarium should be given to the University of Bristol.

The Potato Crop.—The Potato crop this year is estimated to be one of the best on record, and there is said to be a surplus of more than two million tons over possible requirements. In view of the very low prices prevailing growers may find their Potatoes more profitable for use as food for stock than to sell them. According to the Ministry of Agriculture, in the majority of cases Potatoes may be



THE EARL AND COUNTESS OF MINTO WITH OFFICIALS AT THE OPENING OF THE ROYAL CALEDONIAN HORTICULTURAL SOCIETY'S SHOW ON THE 13TH INST. (SEE P. 185).

Left to right: The President, Mr. David King, the Countess of Minto, Lord Provost Hutchinson, and the Earl of Minto.

Increased Crop Production.—In his address at the joint session of the Sections of Economics and Agriculture, at the British Association's meeting, Sir John Russell emphasised the need for levelling up production in this country. He stated that we produced only 20 per cent. of the Wheat and cheese we consumed, 30 per cent. of the fruit, 40 per cent. of the butter, 60 per cent. of the meat and eggs, 70 to 80 per cent. of the Barley and poultry, and 90 to 95 per cent. of the Oats and Potatoes, vegetables, and milk. With regard to corn and other crops, there were only limited possibilities of adding to the acreage, but something could be done to level up production. The yield per acre for Wheat, Oats, Potatoes, and Swedes varied greatly even in the same county, and it should not be beyond the resources of science to analyse conditions so that those bestowed by Nature on one district might be reproduced in another. A more intelligent and judicious use should be made of artificial fertilisers, and something could also be done by the introduction of new varieties of crops. Meanwhile research was going on in connection with the control of diseases and pests and the investigation of minute organisms working in the soil.

this was carried unanimously. On the proposition of Mr. W. Hartley, seconded by Mr. F. Eveleigh, Mr. S. P. Wells was then unanimously appointed hon. secretary *pro tem*. It was also decided by the meeting that all present and future members should sign a declaration of loyalty to the association in the matter of trading; this rule, among others, is to be incorporated into the Articles of Association. It was further decided to ask the hon. secretary to issue to the Press a *précis* of the proceedings in so far as was relevant, and to invite interested firms trading in agricultural and horticultural requisites to forward trade catalogues, price lists, and literature for the use of members. All communications should be addressed to Mr. S. P. Wells, hon. secretary, Tresco Bulb-growers' Association, Tresco, Isles of Scilly.

Presentation of a Herbarium to Kew.—We learn from the *Kew Bulletin* that Mr. W. Hancock's herbarium has been placed at the disposal of Kew. Mr. Hancock, who died in 1914, was in the Chinese Imperial Maritime Service and was for many years a regular correspondent of Kew. He was a student of botany from his earliest years, and when he settled in China as

fed in the raw state without harm, but where facilities for steaming or cooking are available it is better that they should be cooked or steamed before use. Owners of stock should remember that green Potatoes are not only distasteful, but also poisonous. For pigs, 6 lb. of Potatoes to every pound of dry meal or concentrate may be used; the Potatoes should be thoroughly cooked in a small quantity of water, and the meal then added, the whole being fed as a mash. The maximum quantities for other classes of animals are 17 lb. per head for horses and 28 lb. per head per day for fattening bullocks and cows.

The Cabbage Caterpillar. In many parts of the country Caterpillars of the common white butterfly are very prevalent, these being the second brood, which hatches about August and usually feeds all through that month and September. The second brood causes the bulk of the damage to winter Brassicas. Simple sprays which have been found successful for the destruction of the pest consist of (a) $1\frac{1}{2}$ to 2 oz. of soap in one gallon of water, mixed to give a good lather; (b) 2 ozs. of common salt

NOTES FROM MID-LANARK.

in one gallon of water. If either of these solutions is not effective, naphthalene emulsion, which may be bought from the horticultural sundriesmen, will probably be found suitable. A simple plan used by some is to water the plants by means of a rose can with water warmed to a temperature of 130°.

Peach Growing in the Var.—The Cherries grown in the valley of the Gapeau, in France, are already well known, but the cultivation of another fruit—the Peach—is rapidly gaining ground in the department of the Var. In the vicinity of Toulon, in the Gapeau Valley, and in many other places, Peaches are being extensively grown, one proprietor possessing in some cases a thousand trees. As a rule, the Peaches are grown on the same ground as Vines, both being planted at the same time, the Vines being placed two metres apart, and the Peaches six metres apart one way, and four the other. This system saves much labour and expense, the same manuring and other attention serving for both kinds of trees. The pruning of the Peaches takes place in January, when also measures have to be taken to ward off disease. This year a new pest has made its appearance, *Anarsia lineatella*, a moth, of which the caterpillars eat the young shoots of the Peach and arrest their development. The chief varieties grown are Earliest of All, Amsden, and Précoce des Halles, which ripen in succession. Most of the fruits are sent to Paris. The produce is packed in shallow crates, the smaller fruits in two layers of about 40 in each, the larger fruits in one layer only. They are carefully packed, with white paper and fibre, and are not permitted to touch one another.

Horticultural Exhibition at Geneva.—An exhibition of horticulture has been arranged by the Genevese Federation of Horticultural Societies, to take place in September, 1923, at Geneva, Switzerland, in which an International Horticultural Competition will be included. The schedule and other information will be forthcoming a little later, but any particulars desired may be obtained now by application to the Secretary, M. J. Wolf, at Geneva.

Appointments for the Ensuing Week.—Wednesday, September 27: Irish Gardeners' Association's meeting. Thursday, September 28: Bristol and District Gardeners' Association's meeting; Royal Botanic Society's meeting; Wargrave and District Gardeners' Society's meeting. Saturday, September 30: Finchley Chrysanthemum Society's Show; Carlisle Chrys. show.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Shakespeare's Mulberry Tree.*—"Shakespeare's Mulberry" was planted, it is supposed, in 1609, the year in which, by order of King James, many hundred thousand young Mulberry trees were imported from France, and sent into the different counties, with a view to the feeding of silkworms. Plants being thus abundant, in all probability Shakespeare, in this very year, planted the tree on his return from London in the spring. It might have been still in existence had it not been cut down by the Rev. Mr. Gastrell, a man of large fortune, who purchased the property about the year 1752, and soon after cut down Shakespeare's celebrated Mulberry tree, to save himself the trouble of showing it to those whose admiration of our great poet led them to visit the place. The tree must have been between 140 and 150 years of age when it was thus destroyed. But previously Garrick had a plant secured from Shakespeare's identical tree; and this is still in existence at Garrick's villa. It is upwards of 90 years of age. The trunk reclines in nearly a horizontal position, but the present proprietor of the above villa takes due care of the relic. The stem is supported near its extremity; and very near its base two perpendicular stems have sprung up and are growing vigorously. There is a plant propagated from this tree in the garden of the Horticultural Society. *Gard. Chron.*, September 25, 1847.

It is interesting to note that, in spite of the damp and sunless summer, the flower garden is scarcely less gay than in other and more favourable seasons; indeed, the flowering period of some subjects has been prolonged. Stocks are very good, and flowering over a longer period than usual. *Nemesia* is another subject which has been unusually fine and a blaze of colour all through the summer. *Pentstemons* also are particularly fine; it is seldom that we get so much lateral flowering growth as this year.

Dahlias have grown well and are flowering freely; the Collette sorts are largely grown, being very floriferous, and less rank in growth than some of the other kinds. Of the miniature Dahlias, the variety *Coltness Gem*—*Waterloo*—

or medium-sized bed, but it should be planted thickly, as it is not very robust in growth. The cool season has suited *Calceolarias*, and also the perennial *Lobelias*.

Border Chrysanthemums were never healthier, and they are free from the leaf mining maggot, which so often spoils the foliage. It was remarked some years ago that the late propagation of these plants was invariably followed by earlier flowering, and it would be interesting to know if experience confirms this idea. *Godetias* sown at the usual time are much later than usual in flowering; the variety *Duchess of Albany* is a useful subject for the margin of beds of *Rhododendrons* or other evergreens. Sweet Peas have grown vigorously this year, and in the intervals between rain the flowers have opened clean and bright. *Fred. W. Jeffery, Dalserf, N.B.*



FIG. 70.—DAHLIA CRIMSON GLOW. SELECTED FOR TRIAL AT WISLEY WHEN SHOWN BY MESSRS. BURRELL AND CO., ON SEPTEMBER 5.

is very much in evidence. The most effective display of this variety I have seen is in the Queens' Park, Glasgow; the centre of the long flower border, on each side of the terrace steps, is planted with this variety—twelve hundred plants together!

Antirrhinums are flowering fairly, and they are, without doubt, among the most popular summer bedding plants, being easy of culture, free from disease, and with a colour range to fit in with any scheme. Larkspurs have lately developed a tantalising habit of dying off in all stages, from the seedling to the adult plant. Before this failing became so pronounced Larkspurs and Antirrhinums were successfully employed in combination here. The dwarf variety of Larkspur, *Blue Butterfly*, appears to be less susceptible, and is a bright subject for a small

NEW DAHLIAS.

EXTRAORDINARY numbers of new Dahlias have been submitted to the joint floral committee of the Royal Horticultural Society and the National Dahlia Society at the fortnightly R.H.S. meetings this season, and of these considerable numbers have been selected as worthy of trial in the Wisley gardens. A large proportion of these novelties are varieties of the decorative section.

In these new sorts it is obvious that growers are paying considerable attention to the length of flower stem, so that in most cases the blooms are held erect, well above the foliage. An example of this type of Dahlia is *Crimson Glow*, illustrated in Fig. 70, a *Paenony*-flowered variety of glowing crimson colour.

The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the
DUKE OF MABLBOROUGH, K.G., Blenheim Palace,
Woodstock, Oxon.

Maxillaria.—In the cool division there are nearly always some plants that need repotting; and amongst the most important at the present time, besides the *Odontoglossums*, are the *Maxillarias*, of which there are some species that produce their flowers in a downward direction, and are best grown in shallow teak wood baskets. *M. Sanderiana* is the best known species that produces its flowers in this way; the others may be grown in ordinary pots. These plants grow well in any ordinary Orchid compost, but it is essential that the material should be pressed firmly around the base of the plants. There are other species which occupy the cool house that may have attention at this season, and if it is observed that they are developing new roots they may be repotted if they are in need of fresh material, keeping the compost on the dry side until the new roots enter it freely.

Calanthe.—The new pseudo-bulbs of the deciduous *Calanthes* are well advanced, and in order to obtain strong flower spikes with clear, brightly coloured flowers, the plants should be afforded plenty of room, so that each may receive its full share of sunlight. To this end it is advisable to elevate them near to the roof-glass, and to shade them no more than is absolutely necessary to prevent the sun's rays damaging the foliage or pseudo-bulbs. During the warmest part of the day, when the sun is bright, only a very thin shade is needed, but if exposed to the sunshine early in the morning, and again in the afternoon, the bulbs will finish well, and produce strong spikes of flowers. In the extra light the plants will dry more quickly, and will require water at the roots more frequently. They may be watered on alternate occasions with liquid manure, which will assist them considerably at this season. Plants of *C. Regneri*, and other varieties that bloom in the spring, are only half-way through their growing season, and should therefore be treated the same as the others were when in full growth. Plants of the evergreen section, which include *C. veratrifolia*, *C. Masuca* and the hybrid *C. Dominyi*, are also making their growth, and should be plentifully supplied with water if well rooted. Vigorous, well-rooted plants appreciate an occasional application of manure water. These plants thrive best in a shady part of the Cattleya or intermediate house, with the foliage well up to the roof-glass. Plenty of light is beneficial to all Orchids, but strong, direct sunshine will injure the foliage and check growth of most of them. These evergreen *Calanthes* are occasionally seen growing vigorously when given ordinary store-house treatment.

HARDY FRUIT GARDEN.

By H. MARKHAM, Gardener to the EARL OF STRAFFORD,
Wrotham Park, Barnet.

Figs.—Owing to the cold nights and sunless days the development of fruits of Figs has been greatly retarded, and in some instances they ceased to swell and finally dropped from the trees. To hasten the maturation of the remainder of the crop see that the shoots are well thinned, and some of the leaves, where they are very numerous, may be removed in order that both light and air may circulate freely amongst the branches. All coarse soft growths that are not required for furnishing the space should be cut away, reserving as much as possible of the best short-jointed wood for supplying next year's crop. Examine the roots of trees

growing in restricted borders, and if the soil is found to be dry apply a good soaking of water. The Brown Turkey variety is one of the most dependable sorts to grow on walls, and in some seasons White Marseilles, growing in bush form in a warm corner, ripens a good crop of delicious fruits.

Pruning.—If the usual trimming and pruning of all fruit trees has received prompt attention by this date some of the trees will have developed secondary growths, and these may be stopped, with, probably, the exception of any that are intended to be root-lifted and replanted early. Trees with very strong unfruitful growth should receive early attention.

Plum Coe's Golden Drop.—Trees of this Plum, which are bearing heavily, should not be allowed to get excessively dry at the roots, as nothing is more detrimental to the size and flavour of the fruit than a very dry soil and enfeebled root action. I have known whole crops of this Plum to be almost completely spoiled from the want of water and nourishment at the roots after the stoning period.

Autumn Fruiting Raspberries.—As soon as the fruits commence to colour clear away all weeds, remove useless growths, and net the beds before the fruits are attacked by birds. The berries are ripening very slowly, and require more warmth to hasten their development.

Nuts.—Although the crop at Wrotham at one time looked exceptionally good and promising, recently large numbers of the nuts have dropped without any kernels in them. A sharp watch should be kept for rats, mice and squirrels, otherwise these marauders will quickly take the good ones that remain.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir C. NALL-CAIN, Bart.,
The Node, Codicote, Welwyn, Hertfordshire.

Roses.—Where Roses are cultivated in pots to produce flowers in the early spring the present is a suitable time to overhaul the plants. Any that require repotting should have a considerable portion of the old soil removed and substituted with fresh, sweet loam. Where the soil is found to be in good condition remove only a few inches of the surface and apply a top dressing of rich fibrous loam, enriched with a six-inch potful of bone meal to every bushel of soil. It is not always advisable when repotting Roses to use larger receptacles, but if the same pots are used again see that they are made clean. Plants that only require top-dressing should be turned out of their pots to examine the drainage to see that it is perfect. The plants may then be placed in the open, plunging them in a bed of coal ashes up to the rims of the pots to prevent the latter becoming broken during severe frost. Long shoots may be shortened to prevent the plants becoming loosened at the collar by strong winds.

Chrysanthemums.—After this date it will be advisable to have the house prepared to receive these plants, so that when frost is expected they may be placed out of danger in a very short time. It is not advisable to house Chrysanthemums too early, but, as a rule, after the end of the present month the plants are no longer safe from frost. Any plants that are showing colours in the flowers should be stood in a cool house, or the night dews will spoil the florets, the injury showing at a later date. The later-flowering varieties are best kept out of doors as late as possible, but for preference they should be stood in sheltered positions near a skeleton frame, so that they can be given protection at the first signs of a sharp frost. After housing the plants a watch must be kept for mildew, and the affected parts dusted with sulphur. Fumigate the plants on several occasions to prevent an attack of aphids.

THE FLOWER GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY
GIBBS, Aldenham House, Hertfordshire.

Herbaceous Border.—Continue to look well after the plants in herbaceous borders, cutting away dead foliage and flowers in order to prevent an untidy appearance, and from time to time give an eye to the staking of *Chrysanthemums*, *Dahlias*, *Asters* and other top-heavy flowering subjects, so that they do not get broken, for at this time of the year heavy winds may be expected at any time, even though they may not occur.

Autumn Fruits.—The shrubberies are now very beautiful, many of the trees and shrubs being laden with bright fruits, whilst the foliage of others is assuming glorious autumn tints. This aspect of gardening is certainly worthy of consideration, for bright fruits and foliage make the pleasure grounds very attractive at a dull period of the year. The list of fruiting trees and shrubs is a large one, and perhaps the best subjects are found in the various members of the *Rosaceae*. They include the *Crataegus* or Thorns, and of these the members of the American group are the best for fruiting. Various tones of red are to be found amongst them, and the fruits are, for the main part, considerably larger than those of the ordinary Hawthorns of this country, and are borne generally in great profusion. There are also one or two with yellow fruits and one with blue berries, though this is, I think, almost unknown in this country, and is, I believe, of a tender nature. Following these come the various Hawthorn varieties, both red and yellow, there also being a white-fruited form. *Cotoneasters* and *Pyracanthas*, closely related to the Thorns, are especially fine now, with their freely borne bunches of orange and red-coloured fruits, and we certainly cannot overlook the claims of the *Roses* themselves when one considers the magnificent and striking fruits of such species as *Rosa rugosa*, *R. pomifera*, *R. Moresii*, *R. setipoda*, *R. Sweginzowii*, and *R. Helenae*. There are many beautiful fruiting Crabs, whilst their allies, the Mountain Ash, Whitebeam, Chokeberry, members of the *Pyrus* group, and their close relatives, the *Cydonias* (Quinces) and *Medlars*, all contribute their share in providing colour and interest in the garden in autumn. Barberries are most charming subjects when in fruit, and whilst tones of red and pink predominate, there are certain numbers with black fruits, and one or two with white ones. *Viburnums* offer a large choice of berried plants, carrying fine bunches of red and blue fruits, whilst there is a magnificent yellow-fruited form of *Viburnum Opulus*. The *Euonymus* or Spindle Wood, *Celastrus*, *Coriaria*, and *Billardiera* (tender) are others that provide coloured fruits, and are valuable additions to the list. *Symphoricarpos*, *Lonicera*, *Maples*, *Hollies*, *Skimmias*, and *Pernettyas* are others that should be planted freely for their beautiful berries.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER CLAY,
M.P., Ford Manor, Lingfield, Surrey.

Peaches.—Peach crops in glasshouses will now be over, and the abundance or scarcity of fruits another year will greatly depend upon the treatment the trees receive from now to the end of October. Many growers believe that dryness at the roots causes the wood and foliage to ripen, and only give the roots a few barrels of water, yet when the time arrives for root-lifting or renovating the borders discover that the trees have not received more than half the water they actually required. If properly drained and made, an inside Peach border may be watered practically every week throughout the growing season, and then it will be found that the soil is not too wet to swell and plump up the buds for another season. It is now somewhat late to restore trees that have only been half watered, but no time should be lost in trying to set matters right, as a good set of fruit cannot be expected where the borders are not

moist enough to keep the roots active throughout the winter. These remarks apply to early mid-season and late houses, and those who wish to escape bud-dropping should thoroughly examine their Peach borders. The hose is invaluable for washing the trees, but the main point is a moist border.

Pruning.—The trees in all the Peach houses, with the exception of the late ones, having been pruned—that is, so far as cutting out superfluous shoots can be done, the late trees should now receive the same attention. These trees should be kept extra thin of growth, five to six inches apart being quite close enough to train the shoots. All the shoots retained, especially the leaders in extension-trained trees and the weakest with one bud at the base, should be retained their full length. It is not necessary to cut close home, as the final trimming may be deferred until the trees are detached from the trellis, the chief point now being to let plenty of light and air enter the trees. Borders in which the trees are growing too strongly or too weakly should be dealt with. If growth is too strong root-lifting and relaying are the best remedies, and the firmer the soil is rammed the better. If too weak from age or overcropping, the borders should be well watered with diluted liquid manure, or the surface may be forked over, the old upper soil removed, and fresh compost, enriched with a little soot, lime rubble and bone meal, substituted. The compost can hardly be used too dry, neither can it be made too firm; fresh roots will soon develop, and the weakest trees will be restored by the time the fruit commences stoning. Manure may be used in very extreme cases, but generally the weakest trees can be restored by mulching, top-dressing, and careful summer feeding. As soon as the work is finished tepid water may be given freely, for if they are kept too dry the roots will remain dormant through the winter. Now is a suitable time to obtain a good stock of old turf for use through the coming season, always provided it is cut and stacked in a fairly dry condition.

THE KITCHEN GARDEN.

By JAMES E. HATHAWAY, Gardener to JOHN BRENNAND, Esq., Baldersby Park, Thirsk, Yorkshire.

Carrots.—The main crop of Carrots is ready for lifting, which should be done when the weather is dry. The tops should be cut off to within an inch of the crown and all badly split or damaged roots cast out. Store the sound roots in a root house or other cool place. The top of the pie should be left open to prevent sweating if the weather is hot, covering it in later as the weather becomes colder. Later crops should be kept free from weeds and watered if the weather is dry. Carrots are subject to attacks of aphid, and on the first signs of this pest syringe the foliage well with Quassia extract.

Autumn-sown Onions.—The rows of autumn-sown Onions should be kept well hoed, watered and dressed well with soot and lime. If the seedlings are too numerous they should be thinned, for with plenty of space the plants will harden and winter better.

Cardoons.—These plants should be bleached by using stiff brown paper. First tie the tops and secure the plant to a stake. Then place the paper in position and draw the soil to the height of the paper, afterwards releasing the tie at the top.

Late Potatoes.—The crops of late Potatoes should now be lifted and the tubers stored in clamps. Choose dry weather for the work. Clear away the tops and burn them, and watch carefully for any diseased tubers, for disease soon spreads amongst Potatoes that are clamped. The pies should be made in a dry position and slightly raised above the level of the surrounding soil. Leave air spaces at the top of the clamps for the present.

TREES AND SHRUBS.

THE WEeping LARCH AT HENHAM HALL.

AMONGST the less common trees that are growing in Henham Park, Suffolk, the estate of Lord Stradbroke, by far the most interesting is a magnificent specimen of the weeping Larch. The greatest branch spread is 99 feet, while the stem, which girths 8 feet at a yard from the ground, rises almost perpendicular for a height of 8 feet, after which it suddenly divides into several branches, which extend horizontally and almost at right angles to the trunk for a distance of 50 feet. For the support of these branches some ninety props are in use, these keeping the branches at such a height that one can walk comfortably beneath their shade. The tree is in excellent health, with a plentiful supply of Pea-green foliage, and bears an unusual quantity of cones, which are thickly arranged along the branchlets.



FIG. 71.—GENTIANA PURDOMII (SEE P. 179).

The cones are smaller than those of the common Larch, averaging from $\frac{3}{4}$ to $\frac{7}{8}$ of an inch in length, by an inch in diameter, while the leaves are fully an inch long and arranged in clusters from forty downwards. This tree should not be confused with the usual weeping Larch, as that at Woburn Abbey, or with the hybrid named Pendula, both of which have erect stems with pendulous branch tips, while in the tree under notice the trunk is short and divided into flatly-spreading branches at a few feet from the ground. When grafted on a stock of the common Larch, this pendulous or rather horizontally spreading variety still retains its original character, as several trees that are growing in the grounds adjoining the hall demonstrate. A. D. Webster.

OLEARIA NUMMULARIFOLIA.

I MUST have been side-slipping to have made two errors in one short note (see pp. 91 and 147); but I am not alone in the matter. The original spelling in the *Handbook of the New Zealand Flora*, p. 127, was as given above;

but when introduced in 1899 the plant must have been spelt *O. nummulariaefolia*, as it was recorded in *The Gardeners' Chronicle*, 1899, xxvi., 101, and quoted in the *Kew Bulletin*, appendix II., 1900, with the diphthong. It has appeared elsewhere under that spelling. If the name was taken from the old genus *Nummularia*, the spelling, in my opinion, should have been *O. nummulariaefolia*, as in other feminine Latin nouns. We have evidence of this by the same author in the book above cited, where he describes another species as *O. avicenniaefolia*. Of course the name in dispute might have been derived from *numularius* or *nummularius*, the adjective, and that from the noun *numus* or *nummus*, a silver coin of the Greeks. Both Greeks and Latins varied the spelling. Botanists, too, have their variations. In *Erythroxylum Nummularia* the name is evidently derived from the old generic name. There are, however, such spellings as *Euphorbia Nummularia*, and *E. nummulariaefolia*; and *Gentiana nummulariaefolia* and *G.*

nummularifolia. I did not consult the index to *Trees and Shrubs Hardy in the British Isles*, and did not think of it, seeing that the order is alphabetical, and should have said the plant was not fully described there. J. F.

THE OLDEST TREE.

ACCORDING to the *Kew Bulletin*, the famous tree known as the Big Tree of Tule at Santa Maria de Tule, eighteen miles from Oaxaca, Mexico, is the oldest in the world. This tree is closely related to the swamp or deciduous Cypress (*Taxodium distichum*), and is known to botanists as *T. mucronatum*. Its height is about 150 ft., the diameter of its trunk is 50 ft., and its age is supposed to be about 5,000 years. In 1903 Mr. C. J. Chamberlain, of the University of Chicago, saw the tree, and it was then in perfect health, not a dead twig being in sight. "Before the Pyramids of Egypt were built it was a sturdy tree, and before Moses led the children of Israel into the wilderness it must have reached the usual size of the species; when Rome was founded it must have been known as a big tree."

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 5, Tavistock Street, Covent Garden, W.C.2.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 5, Tavistock Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.

Editors and Publisher.—Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication or referring to the Literary department, and all plants to be named, should be directed to the EDITORS. The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.

MR. MARCH AND FLORAL DECORATION.

IN gardening, as in other things, at intervals, long or short, methods that seemed impossible of improvement have had to give place to others, leaving people to wonder how they could have failed to see how much more desirable the new method was than the old. Something of this kind happened in 1861, on the occasion of the opening of the Royal Horticultural Society's Gardens at South Kensington, in connection with which there was a special exhibition, and for the first time in the history of gardening prizes were offered for table decorations of flowers and fruit, to be arranged in a series of three pieces. Sir Wentworth Dilke provided the prizes, the amount of the first being £10, with several smaller ones following; the judges were Countess of Sherborne, Countess of Ducie, Lady Middleton, and Professor Westmacott. There were twenty-one competitors, and the first prize was awarded to a set so remarkable for the simplicity of its arrangement and the material employed as must have almost taken away the breath of the visitors to the show.

The *Gardener's Chronicle*, on page 647 of that year, presented a full page engraving of the 1st, 2nd and 3rd prize decorations, and so wide is the gulf separating the former from the others that there could be no question as to the fairness of the judgment. But the engraving does not do full justice to the group, which is presented better in colours in the book to which these notes more particularly refer. The receptacles were composed of a flat glass dish, into the middle of which a glass rod was fastened and which supported a smaller glass dish, the centre piece being a little taller than the side pieces. One of these was furnished with *de Meaux* Roses, with a ring of deep blue Pansies, and the other with *Lily of the Valley* arranged among its own foliage and surrounded with *Forget-me-nots*, and each had a setting of common Fern, the tips of the lower fronds lying on the cloth: the rods were slightly wreathed.

The centre piece was furnished, top and bottom, with small clusters of black Grapes resting among vine leaves. The 1861 engravings would need to be reproduced to enable readers to properly estimate the value of these designs as compared with the others, and how it came about that from that time floral decorating was revolutionised. The arranging of the material was done by Mrs. Pickering and Miss March, sisters of Mr. T. C. March, the acknowledged initiator of the designs. The following year the prizes were renewed with additional ones for baskets of flowers, Lady Dorothy Neville joining with Sir W. Dilke in providing the prizes, and the premiums in both cases was secured by Mr. March's designs.

In order to understand in some degree the position of floral decorations at the period in question, it must be remembered that, up to about ten years previously, flowers were not

admitted to the dinner-table at all, nor, in many instances, into any apartment. Where the mistress of a household had flowers, it formed part of the duty of the gardener to make up a bouquet, circular and squat, which was replaced every morning. But the rule was that flowers were cultivated to look at and not to be picked until age or the attention of insects had changed their beauty to ugliness.

The horror of the mid-Victorian gardener at the innovation may therefore be imagined. Mostly the butler relieved him of the irksome duty when shooting, or other parties were entertained. That functionary filled *Majolica* vases with flour-batter, and after raiding mixed borders for double Dahlias and Hollyhocks in all the colours obtainable, stuck the stalkless blooms as closely together as he could upon the surface of that medium. On other occasions the housekeeper would take her turn with a collection of all the kinds of fruits available. Although the "March" flower stand was by no means perfect, and the arrangement of the material not at all artistic, still the simple glass receptacles were at least many degrees more beautiful than those they were decreed to replace, and the management of the flowers showed what could be done with even the commonest kinds. The immediate result was orders for similar receptacles to an extent that defied the resources of the manufacturers to supply, and the beginning of a demand for flowers that has gone on increasing in volume ever since that day.

Moreover, the demand induced Mr. March to write a book to instruct the uninitiated—which embraced a nation—how to set to work. The book is entitled *Flower and Fruit Decoration, with some remarks on the treatment of Town Gardens, Terraces, etc.; and with many illustrations of colour and contrast applicable to both subjects*. It is an 8vo of 106 pages, and seems to have been issued in a coloured wrapper, an obvious reason why it is now scarce. The volume is lavishly illustrated throughout with woodcuts elucidating the text; a coloured frontispiece of the pieces that gained the 1861 premium, and a series of coloured figures in circles showing "what colours will agree," and also thirteen schemes in colour for "bedding" small London gardens. Every detail is described with meticulous care, even to where the sand and clay used to fasten the stems of flowers could be obtained. Similarly, the position to be occupied by every flower, Fern or leaf, is pointed out, and, of course, the arrangement was absolutely formal. It was indeed so formal as to possess a certain attraction, just as there is an attraction in a long avenue of Beech or Lime so great as in the beauty of the pathless woods. This formality, however, soon gave place to what became an exaggerated naturalness.

Mr. March rose early in the morning to deal at Covent Garden, and advised any who might follow his example to keep to the middle of the streets if they wished to escape the dust set abroad from rugs shaken by maid servants early astir. He tells us that very few loose flowers were to be had, and for special occasions these had to be ordered three or four days in advance. Nurserymen at that time were the chief providers of flowers. *Forget-me-not* was chiefly in the hands of an old gentleman at Croydon, who brought it up when he had a mind to do so, and an Essex man supplied all the Maiden Hair Fern. Some of those who kept up a supply of bouquets during the summer threw off their butterfly state at the approach of autumn, and devoted themselves entirely to fruit and mushrooms. And, in a word, it would appear that one Bird was the only merchant who could strictly be called a florist. It was many years subsequent to this period that shops for the sale of flowers were opened in Edinburgh, and other provincial centres would no doubt be equally backward.

We have seen how the production of floral receptacles was accelerated, if not introduced, immediately subsequently to the appearance of "March" stands. And one might be not far wrong in attributing to these and to him the initial impulse to the flower trade in its various sections, in field, shop and home.

Mr. March, though he had no ground, was a keen gardener. His garden occupied the leads of a second story building, measuring 30 feet by 15 feet. Chimney pots and ugly gables were excluded from view by Irish Ivy trained on trellises, and rooted in boxes in which also he cultivated plants which afforded a protection from the heat of the sun. An interesting volume, not the less interesting on account of the side lights it throws on the state of the flower trade and Covent Garden Market sixty years ago, concludes with a list of the chief London nurserymen from whom plants and flowers could be bought.

Very soon the original "March" stand was developed into other designs. Miss Annie Hassard, who also wrote a book on cut flowers, erected a small trumpet vase atop of Mr. March's upper dish, and usually the latter had a trumpet substituted for it. A common style was that of a plate for the under part upon which a trumpet vase was set, the former being furnished with clay to hold the stems, and the trumpet with water. The arrangement of the material and the kind of material as well soon underwent change, not always for the better either, and the rage for wiring flowers, which was advocated by a Miss E. A. Malsing, in 1862, was carried to extraordinary length. But of this lady's doings I may have something to write some other day. R. P. Brotherton.

MR. KINGDON WARD'S SIXTH EXPEDITION IN ASIA.*

No. 24.—WINTER COMES IN THE MOUNTAINS.

TOWARDS the end of August one of the high lamas returned from Wa-kin (whither he had escorted the spiritual government) to take up his duties at Mu-li. This priest called on me, preceded by a small present of groceries. He was quite friendly, and transport was promised for September 10. Accordingly, on that day, after the usual wrangling, we started once more into the mountains. There was no certainty of fine weather, but it was due, and I did not care to delay longer.

Half a day was absorbed changing transport at the first village; consequently, we did not reach our camping ground till dusk—indeed, some of the ponies were delayed till nearly ten o'clock. Luckily, it was a fine night, a circumstance for which I was particularly thankful, since it was my bedding, tent and dinner which hung in the rear.

Next day we reached the summit of the divide, and camped amongst the "woolly cows," as the Chinese call the yak.

In the woods, chocolate and golden Saxifrages still flowered by the wayside, and at one spot were masses of Balsam whose curiously shaped flowers, of the clearest gamboge, were decidedly attractive. Few of the many species of *Impatiens* met with in the drenched forests of Upper Burma are worth cultivating. They run rather to crimson, magenta, purple and other impure colours; or to blotched yellows, pinks, and indecisive colours. But this plant was without blemish, so far as colour was concerned.

A brilliant deep blue trumpet *Gentian* was just peeping open on the alpine grass slopes. Though not unlike the marsh *Gentian* already noted, it was distinct in foliage at least; also its flowers were of a deeper hue. Higher up on the scree was another species with delicate china blue flowers, enveloped in Ferny foliage—it recalled the charming *G. heptaphylla*.

We spent three days at the pass, amongst the "woolly cows." It rained nearly all the time, but I consoled myself with the reflection that Mu-li is accounted a "dry" place. Anyhow, we collected some seeds—*Primula sinoplataginea* and a dwarf *Meconopsis* were the chief.

* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 23, August 20, September 3, October 8, October 29, 1921; January 7, January 21, March 11, March 25, April 8, April 22, May 6, May 20, June 3, June 17, July 1, July 15, July 22, August 5, August 26, and September 9, 1922.

On the 15th we moved up the old glaciated valley, and settled down at Glacier Lake Camp for the third time; and then followed three fine days—almost the only fine weather experienced in the course of five weeks.

We concentrated our efforts on collecting *Primula* seed—there was little else ripe, except *Meconopsis*, which we also garnered. The capsules of the sky blue *Aculeate Poppy* were full of grubs, eating the seeds, but those of the two dwarf *Primulinas* were apparently immune. The former is by far the commonest species met with. Is this a case of mutual co-operation? Does the Poppy support the grubs in the autumn and winter in order that the perfect insect may pollinate the flowers in the following summer? For it is to be noted that the blue Poppies, in spite of their bright attractive colours, are visited chiefly by small flies. Bees and butterflies do not waste time over honeyless flowers.

One must collect seeds on a mountain to realise the vast wastage there is. Very few plants but furnish food in their swelling capsules to hungry larvae. Even the stout *Rhododendron* capsules are not proof against these depredations; but the fact is, they are pierced while yet succulent, and the egg deposited inside. Not till the wooden capsule opens, disclosing the full-grown caterpillar with all the seeds inside him, is the damage revealed. The *Saxifrages*, as a whole, come well out of the ordeal; so do many of the *Primulas*, especially in the section *Muscarioides*. The *Gentians*, however, are often fair game—but one could continue this theme indefinitely. It is an interesting subject, and for the present we will leave it at that.

On the night of the 18th the storm began. The wind blew from the south, and heavy rain fell in the valley. Next morning the peaks all round were white with snow.

For the next ten days we were treated to every variety of vile weather—rain and snow, clammy mist, and a gnawing wind which chilled us through and through. It did not freeze in the valley at night—rarely did the temperature fall below 39° F., but on the contrary, in the daytime it did not rise much above that. Little seed-collecting could we do under such conditions; indeed, for three days we were confined to our tents, so utterly hopeless was the weather.

The last day of the month, however, was more promising, and we seized the opportunity to cross the range to our other camp, opposite the snow peaks. My chief aim was to collect seed of a charming little *Primula* which is confined to the limestone. However, when we reached the sill which runs across the head of the valley, we found that nearly all the fruits of this species had perished—aborted apparently, from lack of pollination. This was a blow; however, we had a reserve cliff where the species might have been more successful in setting seed.

After one moderately fine day in our new camp, the storm resumed its attentions, and now it snowed day and night with scarcely a break. So thick was the mist we could not see the nearest peaks, and so deep the snow we could not find our plants. Matters began to look serious for harvesting seeds. Moreover, we were cut off for two days, the transport being unable to cross the pass and take us back. At last, on October 8, we were treated to a really fine day, which was spent returning to Glacier Lake Camp. Unfortunately, the sunshine made the snow very soft; it lay a foot deep on the precipitous slope, and the ponies had a rough time.

No sooner were we safely back at our old camp than the snowstorm came on again with renewed vigour. For three days and nights it snowed without stopping, till the entire valley was mantled. Nothing was visible but a mist of whirling flakes through which the white mountains loomed dimly. However, we managed to hire a few yak and ponies on the 13th and get down to Mu-li, marching ten hours. We had been in camp for five weeks, and despite the conditions, had secured seed of over fifty species, including seventeen *Primulas* and three blue Poppies. *F. Kingdon Ward*.

THE ALPINE GARDEN.

GENTIANA PURDOMII.

Or all the *Gentians* sent home by the late Mr. Purdom when he was collecting for Messrs. Jas. Veitch and Sons, of Chelsea, *Gentiana Purdomii* (see Fig. 71) is one of the best. It is perfectly hardy, and will grow in a situation where many other *Gentians* would fail. The growth is strong and of good habit, but not in

than in ordinary *P. capitata*. According to Farrer, in *The English Rock Garden*, *P. Mooreana* is, indeed, only a form of *P. capitata*, but the floriferous nature of the plant and its extremely handsome heads of violet-purple flowers stamps it as a first rate garden plant and one worthy of the award it received. Farrer states that *P. capitata* is a garden name embracing a whole number of allied but quite definite species, of which several are in cultivation. *P. Mooreana* is by far the finest of the



FIG. 72.—*PRIMULA MOOREANA IMPROVED*.

any way coarse. The plant flowers very profusely in July and August on prostrate stems of about twelve to eighteen inches in length; the colour is of a lovely *Gentiana verna* blue, and the individual bloom is very similar to that *Gentian*, only of far larger size. It needs a compost of turfy loam and leaf-mould, with a liberal addition of silver sand, and should be planted in full sun.

The plant illustrated was exhibited at the R.H.S. meeting on August 22 by Mr. Allgrove, Middle Green Nurseries, Langley, and was first exhibited by him in 1919, when it received a Award of Merit. *H. C.*

PRIMULA MOOREANA IMPROVED.

At the meeting of the Royal Horticultural Society on September 5 a very handsome *Primula* with violet purple flowers received an Award of Merit under the name of *Primula Mooreana Improved* (see Fig. 72). No one appeared to know whether *Mooreana* was a species, but its obvious similarity to *P. capitata* was freely commented on, although everyone recognised that the flowers were much more beautiful

set; "long lived and stout, with stalwart white-powdered stems contrasting beautifully with the round head of Tyrian violet flowers." He describes it as "a first-class treasure for any rich, cool, well-drained position, and the one 'capitata' that deserves diligently ensuing."

PRATIA ANGULATA.

Of the few *Pratias* in cultivation the most pleasing and most satisfactory in our gardens appears to be *P. angulata*, a native of New Zealand, which has been in cultivation for a good number of years. It is an exquisite little plant, and in the rock garden forms a close carpet of small, oval, coarsely toothed, fleshy leaves, and is spangled in July and August and frequently later with numerous, prettily formed, white flowers, like those of a small *Lobelia*.

Where its conditions are congenial the plant will grow a few feet across, but it is not always so free, and many lose their plants in winter unless protected in some way. It is one of the rock plants which seem to delight in moisture in summer but resent it in winter. *N.*

BATTY LANGLEY. WANTED A TITLE.

PERHAPS some literary reader of *The Gardeners' Chronicle* can help me out of a difficulty. I am the possessor of a series of eight large folio plates of flowers—they are 20 by 16 inches, unnumbered, and there is nothing to indicate whether the set is a complete one or not. They are bound up in a volume with Robert Furber's collections of Flowers and Fruit for January to December, 1730 and 1732.

It is reasonable to suppose from certain indications on the plates that they were designed for the purpose of illustrating some gardening work by Batty Langley, although a second-hand bookseller informs me "they were not incorporated in any book of his, but were sold as plates," possibly as Furber's were.

Reference to every accessible bibliography and catalogue reveals no solution of my query—for what purpose or what book were these plates intended?

On some of the plates attached to the figures of the various flowers are their names, botanical explanations, cultural remarks, etc., and most of the figures are numbered. This fact leads me to suppose that it was intended for the purpose of reference to some text, elsewhere than that on the plates.

The flowers depicted are life-size and are all hand-coloured.

At the bottom left-hand corner of some of the plates are the words, "Batty Langley Invent, etc." One or two have in addition the year 1741. On the right-hand bottom corner of some we read, "Published pursuant to VIII George II., by Thomas Langley, 1741." In one case his address is given as of "Meard's Court, Dean Street, Soho." Three out of the eight have engraved at the bottom and inside the plate-mark, "Printed, colour'd, and sold by H. Overton, at the White Horse, without Newgate, 1743." The plate-mark inside measurement is 16½ by 13½ inches or thereabouts, some being a little more or less.

These plates are evidently but little known. I understand that in the library of the botanical department of the Natural History Museum, South Kensington, there is one only of the series, which is catalogued under the name of Batty Langley and numbered 12.

It may be useful to place on record here short particulars of the subjects illustrated in these plates. Such particulars may be useful for identification. I give them in the order in which the plates are arranged in my volume. The title of each plate is engraved in large capitals in the middle top end of the plate.

1. "Polyanthos's. In February and March." Eight figures.

2. "Anemone's. In March and April." There are thirteen figures in this plate, inclusive of a *Fraxinella* marked "B in June."

3. "Turkey and Persian Ranunculus's. In April and May." Seventeen figures.

4. "Rose's. In May and June." Fourteen figures of different varieties. A most instructive sheet. The velvet Rose and the Province Moss are easily seen to be distinct varieties. The others are the single yellow, the great Royal, the Austrian, the Damask, the Monthly, the cinamon (*sic*), the red, the York and Lancaster, the Province, the Belgick, the Mundi, the Eglantine.

5. "Garden Poppy, Lilly's, etc. In June." Seven figures, including *Pisum Odoratorium*, Sweet-smelling Pea.

6. "Carnation's and Pink's. In July." Twenty figures, the largest of which are Topham's King George, *Enicurus*, Count Serge.

7. "Amaranthus Coxcomb, Annual Sunflower, etc. In August and September." Nine figures.

8. This is the one in the library of the Natural History Museum, No. 12. "In October, the Guernsey Lilly, French Marigold, Perennial Sunflower, etc." Eight figures.

Any information or suggested means of discovering more about these plates will be very acceptable. C. Harman Payne.

THE BULB GARDEN.

GLADIOLUS RARITY.

THIS variety (see Fig. 73) was shown by Messrs. Lowe and Gibson at the R.H.S. meeting on August 22 last. It was raised by Mr. Kunderd and introduced to cultivation last year. The flowers are not so well placed as on most of the raiser's varieties. Apart from this, it is a very pleasing flower. The colour is a bright lavender, with a deep line on the lower petals and touched lavender white at the sides. The flower measures over three inches. *Smilax*.



FIG. 73.—GLADIOLUS RARITY.

THE DOUBLE WHITE LILY.

FOR many years past I have noted at intervals what passes for a double form of the *Lilium candidum* (the White Lily or Madonna Lily). A few days ago I had a specimen of it from the north of England. The grower of it had been patiently waiting for the blossoms to open for the past two months. The fact is it has been in bloom all that time, for it is very durable. The specimen consisted of what should have been eight blooms in the normal form, the stalks of which were united at the base like a bundle of crow-quills, held together by a narrow strip along the contiguous sides. There the peduncle is free for two to four inches, on the top of which is the bloom, 1.4 inches long, without an ovary, but in place of it a continuation of the floral axis, thickly clothed with perianth segments, sometimes crowded at the base or somewhat whorled, and

then mostly all alternate, or with an occasional whorl of three. In some cases the bloom opens in a scattered way from the first. All these segments are grey and as thin as tissue paper, while the terminal long bud is whiter, and gives promise of expanding ultimately; but it seems to consist of dozens of the same kind of thin segments that continue to open till the plant gets exhausted and the stem dies. There is no beauty in this form whatever. J. F.

ORCHID NOTES AND GLEANINGS.

BRIGHTLY COLOURED DENDROBIUMS.

IN reviewing the genus *Dendrobium*, the numbers of pretty species of distinct habit or unusually rich colour, which have been represented in gardens, but which have not been seen at exhibitions for some years, present themselves, and some reminder of their beauty and the necessity for taking special care of occasional plants which may yet be in gardens, and of arranging for the reintroduction of such as have been lost, may not be out of place. Distinct and showy colours are specially desirable, not only for their beauty as species, but for the opportunities they give to the hybridist to vary the range of colour in the genus. Nor is the size of the flower of the first importance in colour production by hybridisation, if we consider that the finest results in other genera have come through the smaller species with the one quality of desirable colour—for example, *Laelia flava*, *Sophranitis grandiflora*, and *Cochlidia Noecliana*. Although a very large genus, not much more than a score of species has been used by the hybridist, and only about half of them to any extent, the great bulk of hybrid *Dendrobiums* being with garden-raised crosses, and new introductions of colour and habit would be worth trying, although in sections widely separated it does not follow that crosses will be readily accomplished in some cases.

DENDROBIUM ARACHNITES, RCHB. (*Gard. Chron.*, Sept. 19, 1874, p. 354).—This a dwarf, tufted plant of the section *fasciculatae*, and was collected by Boxall in Moulmein for Messrs. Low. A few plants being received alive. One of these flowered, with the late Sir Trevor Lawrence, and another with Mr. Wm. Lee, at Downside, Leatherhead. The flowers, which are about two inches across, are bright red, the lip veined with purple and freely produced in fascicles of two or three from the nodes at the upper parts of the leafy stems.

D. JERDONIANUM is a charming little species, first known to gardens through a small specimen which gained a Botanical Certificate when shown by Messrs. J. Veitch and Sons on May 22, 1869. The plant is dwarf, densely tufted, and bears short sprays of bright orange-coloured flowers with nearly equal segments. The late Sir Trevor Lawrence obtained a Botanical Certificate for a fine, bushy specimen with many flowers on February 27, 1900, the plant being received by him from a correspondent in the Travancore Hills, India, who sent it by parcels post—a method which might be imitated with advantage, and many rare species thus obtained.

D. SANGUINEUM, ROLFE.—This species was introduced from North Borneo by Messrs. Low, who first flowered it in 1895, and for several years after it frequently appeared, the late Sir Trevor Lawrence obtaining an Award of Merit for it on September 8, 1893. It belongs to the *D. crumenatum* section, its 2-ft. to 3-ft. stems being slender, but thickened and grooved at the base. The flowers, which are nearly as large as those of *D. Phalaenopsis*, are produced singly from the upper part of the stems, and are bright crimson in colour. As with those of most members of the section, the individual flowers do not last for many days, but a succession is maintained if the plant is given suitable treatment in a warm, moist house.

D. SUBCLAUSUM, ROLFE (*Gard. Chron.*, Dec. 1, 1894, p. 656).—This is a very remarkable species, and was introduced from the Moluccas by Messrs. J. Veitch and Sons. The stems are a

foot to eighteen inches in height, and the flowers brilliant cinnabar-orange, a singular feature being the crimped and infolded labelum. One of the original specimens flowered by Messrs. J. Veitch and Sons at Chelsea had over a hundred flowers open at the same time, and was much admired.

D. VICTORIAE REGINAE LOHER.—This species is unique in colour, and good specimens are still to be found in gardens, a probable reason being that in consequence of its collector's remark in his description that the plant was not found at a lower altitude in its Manila habitat than about 6,000 ft., successful growers treated it as a cool or temperate house plant. Its pendulous habit well adapts it for growing in baskets or in a suspended pan. Its waxlike, violet-blue flowers, with white bases to the segments, are always attractive. To get the colour into other sections of *Dendrobium* would be a great event.

D. STRIATUM, from the same region as the Blue Dendrobe, is a remarkable and little-known species, with curved stems, bearing in pairs pretty cream-white flowers, tinged with rose and having regularly arranged purple lines on the segments. *J. O'B.*

INDOOR PLANTS.

SCHIZANTHUS RETUSUS.

SCHIZANTHUS RETUSUS is a very profitable plant for house decoration and the conservatory in the spring, for it is dwarfer and harder than many of the other varieties, and may be grown with great success in small pots. If the white variety and the deep rose-coloured form are sown now the plants will bloom in March and April in a cold house, from which frost is excluded. These two varieties make a charming group when used in the conservatory, and are equally of value for vases in the dwelling house.

Raise the plants in a fairly light soil, pans being the best receptacles at this period, and place them in a cold frame. As soon as the seed germinates the seedlings should be watched for any tendency to damping; in fact, the safest way is to prick the seedlings off as soon as ever they can be handled. Admit plenty of air and light, and as soon as the plants have made four or five leaves transfer them to three-inch pots. For this potting use a mixture of four parts yellow, fibrous loam, one of leaf mould, a liberal addition of sharp sand, and a little spent Mushroom manure. Place the plants in a close house for a few days until root action commences, after which there is no better place to grow them than on a shelf near the roof-glass.

During the winter keep the plants on the dry side, as over-watering is fatal. Watch for any signs of aphid and spray the plants with an insecticide on the first suspicion of this pest; guard also against damage by slugs.

About February the plants may be given their final shift, and though it is a matter for the individual, I suggest that 4½-in. pots are suitable, leaving a few plants in the smaller-sized pots to make specimens for decorating work. Similar mixture as recommended for the previous potting will be suitable, adding a sprinkling of fertiliser if thought necessary.

When growth commences the top of the leading shoot may be pinched out, though very elegant plants are obtained by growing them naturally.

Water with weak liquid manure when the roots are growing actively, about twice a week, and if the weather is dull and mildew sets in spray the plants with a weak solution of potassium sulphide.

EARLY ANNUAL CARNATIONS.

MAKE a sowing of a good strain of annual Carnations during early October. Give the seedlings very cool treatment and transfer them as soon as possible into very small pots. Grow them on an airy shelf until early spring. Shift the plants into larger receptacles as needed, using a loamy mixture. The plants will give an excellent display of bloom by June, whereas the spring-sown ones will not bloom until August. The time thus gained is worth the little trouble involved. *J. S. D.*

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(Continued from page 168.)

ENGLAND, S. (continued).

DORSETSHIRE.—There was profuse bloom on all fruit trees. Apples are a very good crop. The high winds have done a certain amount of damage, but still there are plenty of fruits left. We have the best crop of Pears for several seasons past. Plums of most sorts are a very heavy crop, and we have excellent crops of Damsons and Bullaces. Gooseberries were very plentiful, but the fruits were on the small side, owing to the spring drought. The rains did not come soon enough for them, but they fell in time to save the Raspberries, which were a heavy crop. Strawberries were a very light crop. The drought spoilt what the late frosts left. Figs promise to be a full crop, and we have plenty of Filberts. *Thos. Denny, Down House Garden, Blandford.*

—The Apple crop is a good average one in quantity and quality. Trees of all early varieties have full crops, but Bramley's Seedling and Cox's Orange Pippin are very light. King of the Pippins failed to flower and is the only failure. Standard Plums are good, but the crop on wall trees is very thin. Peach trees suffered last year so much that the crop of this fruit is a failure. Strawberries promised well, but the berries dried out, though late ones were saved by rain. With only 1.62 inch of rain in May and June, fruit fell freely and nothing grew. On both clay and chalk the crops were more distressed than at the same time last year. In July, however, we had 4.66 inches of rain, and it made all the difference. *W. E. Axford, St. Giles' Garden.*

HAMPSHIRE.—The remarkable absence of all insect pests among the various fruits, both tree and bush, will long be remembered, so clean, vigorous, and healthy are all growths, which portends a fruitful year for 1923. The welcome rains which came in mid-June were very beneficial to all fruits, and particularly to late Strawberries and Raspberries. The latter crop was very good. Black Currant bushes were clean, and the crop was very good, though Plums are under the average yield generally. The various Damsons and Michaelmas Plums are abundant. Our soil generally is a stony, clayey loam over chalk, and 400 feet above sea level. *George Ellwood, Swanmore Park Gardens, Bishops Waltham.*

KENT.—Every kind of fruit tree, also bush fruits, flowered abundantly, promising a glut of fruit of all kinds, although we could scarcely hope for a heavy crop of Apples after last year's bounteous supply. Pears appear to be fairly plentiful on some trees that cropped well last season. I am of opinion that next year will give us abundant blossom, the effect of the tropical heat experienced in 1921, and, provided weather conditions are good, we should expect heavy crops in 1923. Crops vary considerably within a five-mile radius, some trees carrying plenty of fruits, others with very few, doubtless owing to the last frost that occurred during the time the Apple trees were in full bloom. The best crops are noted where the soil is of a tenacious character, although intermingled with plenty of stones. *James Mayor, 32, Wigtown Road, Eltham, S.E.*

—Apples vary very much from place to place. There was a fine show of bloom, but the weather was too dry for some soils, although the crops look well after the recent rains. Pears are a more equal crop, and were greatly benefited by the rain. Plums also are a heavy crop in most places. All but early varieties are thin. Cherries were a heavy crop, but spoilt by the weather. Small fruits were of extra good quality on young bushes. The dry weather last year and this spring spoiled the Strawberry crop. The soil was very dry early in the season, and the differ-

ence between the bulk and quality of the fruit on gravelly or light soils and the heavier soils is very pronounced, being much inferior on the gravelly soils. *J. D. Colledge, Cobham Hall Gardens, Cobham.*

—Apples show, as usual, a large crop of late varieties, which means little or none next year. This does not hold with early varieties, owing to the fact that the tree has time to recover after the fruit is gathered. Pears and Nuts are the crops of the year with me, Plums of all sorts being very poor, but the varieties Czar and Dawson's are good. *E. A. Bungard, Maidstone.*

—The apple crop is the worst for 50 years. Curiously, some isolated trees have full crops, while all around is scarcely an Apple, although the trees are growing in the same soil and aspect. Strawberries British Queen and Givon's Late Prolific gave the best crops. St. Hilaire was also good, but the rest were very poor. Raspberries were a big crop. *Charles E. Shea, The Elms, Foots Cray.*

—It seems to me to be a very difficult matter to assign any sure reason for the short crop of Apples in this district. All varieties, without exception, flowered well, but from some cause or other many of our trees are bare of fruit. Hitherto we have attributed the failure to frost and cold winds, but I begin to wonder if there is some other subtle cause or causes to bring about this failure in the Apple. Take, for example, Peaches. These were in bloom at the time we were experiencing frosts, rain, and cold winds, and I often remarked, "If we get a good set of fruit under such circumstances, I shall never despair of them in the future." I well remember the time past, when, from my own point of view, the spring had been most suitable for a good set, yet partial failure was the result. In some districts a few miles away I hear of good crops of Apples, but on the whole they are patchy. It is remarkable that aphid has given very little trouble. As for red spider, it seems to be non-existent up to the present. Raspberries were a splendid crop on the farm. Scores of women and children were busy all day long gathering them to be despatched to London by motor by the ton to the jam makers. *J. George Woodward, Barham Court, Teston, Maidstone.*

—The fruit crops are under the average. Cherries were good, but Apples are only half a crop, and trees that have a fair crop are those that had very few fruits last year. Raspberries, Currants, and Gooseberries were all of good quality, but Strawberries were only very moderate. I think the drought of 1921 had a good deal to do with the failure, for everything was dried up in the latter part of last summer, and we had a dry winter. Pears are a fair crop. Our soil overlies chalk. *J. H. Shann, Betteshanger Park Gardens, Easry.*

—Pears, Plums, Peaches, Nectarines, Apricots and Cherries all gave great promise in these gardens in early spring, but very cold east winds prevailed during the flowering period, thus reducing the setting very considerably. Apples, with the exception of a few old trees, had very little bloom. Strawberries appeared to still be suffering from the drought of last summer, the fruits being rather small and growth restricted. All small fruits were very plentiful and of good quality. Big bud is rather prevalent in our Black Currants. We experienced a gale in the first week of July, which considerably reduced our Plum crop, and almost totally destroyed the few Apples we had. The soil is a good, strong loam over clay. *H. E. Kemp, Holmwood Gardens, nr. Tunbridge Wells.*

—Strawberries appear to have suffered very much from last year's drought, this crop generally being very disappointing, the rain not falling sufficiently early to save the situation. Cherries were a splendid crop and of good quality. Small fruits generally were good also. Apples and, in fact, nearly all fruit trees

bloomed profusely, but in many cases the blooms did not set and Apples are very patchy. Fruit trees of all descriptions have kept remarkably clean this season. Insect pests, so far, have given very little trouble. Pears look very promising. Our soil is a fairly heavy, retentive loam. *J. E. Weston, Eastwell Park Gardens, Ashford.*

MIDDLESEX.—Peaches, Cherries, and Raspberries are very satisfactory. The trees are healthy and the fruit excellent. Plums are not so good, but some trees of Coe's Golden Drop and Victoria are bearing ample fruits. Strawberries, on the whole, were very unsatisfactory. Pears are good, but Apples are patchy. Our best crops of Apples are on trees growing in a grass orchard. Both Black and Red Currants were much below the average yield. The Raspberry crop was the best we have had for some years past. Our soil is light, resting on a very sandy subsoil. *H. Markham, Wrotham Park Gardens, Barnet.*

SURREY.—With the exception of Apples, the fruit crops in this district are very satisfactory. Apples are the lightest crop for very many years. Only one variety, James Grieve, is carrying an average yield in every position. Strawberries were soon over, but other small fruits, and especially Raspberries, were abundant and of excellent quality. *F. Jordan, Ford Manor Gardens, Lingfield.*

(To be continued.)

VEGETABLES.

BEET.

THE large variety of Beets now growing in the gardens of the Royal Horticultural Society at Wisley remind us how small is the use to which this vegetable is put in England compared with its multitudinous uses in America and in Europe. Scarcely anyone is familiar with it on the table, except as a component of a salad or sliced and soaked in vinegar. If these were its only uses, many varieties of Beet would be condemned as soon as they were cut, for intense colour, bright, "beetroot," or purple, carried evenly through the root would be regarded as a *sine qua non*. Yet many Beets sent in for trial do not conform to this requirement, and should not be hastily condemned on that account. Some are wholly yellow, others show alternating zones of red and white. These are usually condemned by the cook, who is so often careful not to break the skin before the Beet is boiled, not because she fears the loss of sugar (which is the chief nutrient in the Beet), but lest the root should bleed and its colour suffer. Other nations have recognised the value of the Beet as a vegetable, and it finds a place on their tables as Salsify, Artichokes, and Parsnips do upon ours. They have learned that fine colour is not always and not necessarily an accompaniment of good flavour. They find, as the committee appointed by the Council to adjudicate upon the trials found, that Beetroots are not all of one flavour. While all considered the very fine stock of Egyptian Turnip-rooted Beet, evenly red all through, sent by Messrs. Carter, to be of excellent flavour when cooked and eaten as a vegetable, others considered the yellow-fleshed Beet surpassed it, and others, again, would place a particular stock of a white-zoned globe Beet before it. It was evident that careful comparisons would soon reveal substantial differences in palatability, just as in Apples, and such knowledge would hasten the time when many would add a most valuable vegetable to their dietary. Speaking generally, the round Beets are better suited for use as a vegetable than either the intermediate or the long type. Most cookery books give recipes for the cooking of Beets in various ways, but probably it would be wise to go to French and American sources, with their long experience, for recipes to start with, unless some of your correspondents, versed in the value of Beets so used, will tell their methods of preparing them. *Fred J. Chittenden, Wisley.*

AMERICAN NOTES.

HISTORY OF THE DAHLIA.

It was a great pleasure to note that my little book, written only to help the struggling beginner on Dahlias, was considered deserving of notice by your magazine.

There were many typographical errors which slipped through in spite of many corrections, repeated during several proof readings. However, a new edition shortly to appear, will, I hope, make these corrections final.

The historical "error" which you criticise concerning the Marquis of Bute you will find on page 8 in *Dahlias*, written by the late George Gordon, V.M.H., then President of your National Dahlia Society, and edited by the late Mr. R. Hooper Pearson, then Managing Editor of the *Gardeners' Chronicle*:

"In the year 1789 the Dahlia was introduced into this country, but unfortunately the plants that were first raised failed to retain their vitality in the conditions to which they were subjected. In the course of that year Vincentes Cervantes, director of the Mexican



FIG. 74.—THE DOUBLE-FLOWERED LOGANBERRY.

Botanic Gardens, sent seeds of the Dahlia to the Abbé Cavanilles, director of the Royal Gardens at Madrid. At that time the Marquis of Bute was the English Ambassador at the Spanish Court, and the Marchioness, who was greatly interested in floricultural matters, obtained some of these seeds and sent them home. From them plants were raised;" etc.

I naturally took a statement made by the President of your Society, and your Editor to be correct. "No one has any right to falsify history." On that point we agree. *H. M. Stout, Charlote, Short Hills, New Jersey.*

COLONIAL CORRESPONDENCE.

A DOUBLE-FLOWERED LOGANBERRY.

HEREWITH I send a photograph of a few flowering sprays from a self-sown seedling Loganberry (Fig. 74) found by Mrs. Kvarno, Uchelet, Vancouver, growing among rocks outside her garden fence. The individual flowers come in bunches of five or so, but only the terminal or central one is double to any extent. These flowers have about sixty petals (mostly petaloid stamens), snow white, two inches across, and they are quite ornamental, but the petals are very fugacious, and fall off on the slightest touch. In the upper division of the Loganberry's system of inflorescence most of the flower stalks rise from about the same level, so that they resemble a modified Umbel; it is, therefore, significant that only the central flowers are double, and this is particularly interesting after reading the article on "The Carrot's Crimson Eye," which appears in *The Gardeners' Chronicle* of July 22! *George Fraser, Uchelet, B.C.*

ANNUALS.

IN *The Gardeners' Chronicle* of August 26 (p. 127), under "Annals at Reading," some account was given of the many beautiful strains of annuals in Messrs. Sutton and Sons' extensive seed grounds there. It is well known that most of the large seed firms have steadily increased their efforts in the same direction, and that since the new strains developed have been what one may call "all British" greater improvement has been shown in all classes than was formerly the case.

It may be stated that with the difficulties experienced in gardening of late the demand for these pretty annuals and biennials which adapt themselves to similar treatment has increased, and in most cottage gardens what are known as common flowers give the most satisfactory results. The term "common garden flower" as applied to these pretty annuals honours them greatly, for it is their great beauty, small cost, and adaptability to produce their charming displays, even under the treatment of those who have little knowledge of gardening generally, which has gained them the title.

On the fine estate developed under the Harrow Council on Garden City lines, and in which the small but conveniently arranged gardens are in their first year, the hundred and fifty gardens, each with its floral display arranged by a different dweller, are gay with the annuals, which have been acquired from many traders. These simple flowers form the greater part of the display this year, and the season seems to have favoured them and prolonged their flowering.

Two of the commonest, the Virginian Stock and Candytuft, each in several colours, and generally sown as edgings, appear in most of the gardens, and it is difficult to imagine anything which would give so good an effect. Antirrhinums are also general favourites, and appear in great variety of colours, either as small beds or mixed with other flowers. Stocks have also done well, and the new ground seems to have increased their vigour, the branching kinds having as many as a dozen flower heads, forming a pretty, bushy tuft. Asters, planted alone and mixed, both single and double and of different habit of growth; Godetias, with Orchid-like colours; Eschscholzia, orange and red-tinted; blue Nigella; Larkspur of various colours; Coreopsis, and in fact most of the flowers obtained annually from seeds which are dignified by the name "common" appear effectively.

In some front gardens where a tree-stump—the last rural remains—is available, it is covered with Tropaeolums, and generally a good show has been secured. Broad bands of fragrant Mignonette seem to like the soil and situation; Lavateras, which are blooming where they were sown; Sweet Peas in clumps where they can be supported; and Nicotianas, chiefly white, are covered with their fragrant flowers, and all give evidence of the utility of the inexpensive seed packet, and collections of seeds, for even in the cheapest sets the purchaser gets the advantage of the greatly improved home-raised strains.

With the Annuals proper, other common plants, which were probably purchased in seed boxes, have a place, but in all cases the annuals and Antirrhinums are especial favourites.

The Shasta Daisy in several forms has given a wealth of clear white flowers, which seem to withstand all weathers. Most of the gardens have a grass plot, with a bed in the middle and borders next the house and inside the light railing, and in many cases much art has been displayed in the development of the spaces to the best advantage.

The highest example is a corner position with two sides, in the centre of each being an oval bed, one filled with Roses and Pentstemons and edged with tufts of white Alyssum maritima and blue Lobelia alternately, and the other with scarlet Pelargoniums, Verbenas, and some annuals, edged with Centaurea. The front border consists of double white Pyrethrums, and at the back are some good

Phloxes, a flower which appears to have done well this season and lasted longer in bloom than usual. But this pretty garden must have been more expensive than most.

At the back or side of many of the houses, vegetables are grown, and at the end of the estate a fine block of allotments gives pleasure and profit to the holders. It is the cottage gardens, and especially in the recently constructed blocks of model tenements developed under the authorities, that the love of gardening and the value of the subjects available to satisfy the possessor of a small garden at a nominal cost are seen at their best. J. O'B.

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Abercrombie's Calendar of Gardening (see page 136).—Mr. Joseph Jacob's remarks are very interesting. I lived at Hendon in the later days of Prebendary Scrivener, who then resided at the vicarage, and was well acquainted with those old gardens. I glanced around my books and found I have a copy of Abercrombie's book, the fourteenth edition, in splendid condition. I should like to know if the book is very rare. I am sure the routine of operations would not do for the gardens of the present time, but at the same time it is very interesting and quaint. W. J. Chillingworth, *Sidestrand Hall Gardens, Crompter*.

—Abercrombie's literary work lies somewhat outside the field of my interest in bibliography, and I do not propose to attempt to answer the Rev. Joseph Jacob's inquiry: "Did both a Mean and a Main enlarge Abercrombie?" But there is no doubt that the Hon. Mrs. Evelyn Cecil is wrong in spelling James Main's name "Maine." This does not imply that she meant James Main or Maine when she refers to "James Mean." James Mean was gardener to Sir Abraham Hume, Bart., of Wormleybury, Hertfordshire, and was probably a much older man than James Main. His employer was a keen lover of horticulture, and in the early days of Chrysanthemum culture Sir Abraham Hume did much to encourage the importation of novelties direct from China. Johnson says (page 293) that James Mean edited in 1816 Abercrombie's two works, *The Practical Gardener* and *The Practical Gardener's Companion*. Between 1798 and 1808 some important additions were made to the then very limited collection of Chrysanthemums in this country by Sir Abraham Hume. His gardener, James Mean, evidently had some literary ability, for in Vol. II. of the *Horticultural Society's Transactions* he was the author of several communications in 1816 and 1817 to that publication. Sabine, in one of his valuable contributions on the Chrysanthemum to the same work, refers to James Mean as having been of service to him in a question of historic interest concerning the first sport. C. H. P.

—*The Gardeners' Chronicle* for 1906 published an article from me which contains much, if not all, of the accumulation, apocryphal and otherwise, that had gathered round the name and history of Abercrombie. The entire title-page of the original edition of *Every Man* is there transcribed. Along with Maine's name as the author "other gardeners" is added as having assisted in its production. The sentence quoted by Mr. Jacob as occurring in the twentieth edition appears also in the first and subsequent ones, and, of course, Abercrombie was dead before the twentieth edition appeared! *The Gardener's Pocket Journal and Annual Register* naturally was republished year by year. There were probably two posthumous works of Abercrombie. One, *The Practical Gardener*, edited by his friend, Don, of Cambridge, in 1813, and revised by James Mean, head gardener to Sir Abraham Hume, Bart. (1816), but my copy is dated 1817. "Some Account of the Author" is prefixed to this work and copied entire by Loudon. In this account it is stated that *The Garden and Seed Register* was in the press. I have a copy of *Every Man*, entitled *The Com-*

plete Gardener (1839), revised and improved, with an appendix on "Forcing," by William Gowans, C.M.H.S. One object of this edition was to accommodate it to the climate of Scotland. J. Main, F.L.S., wrote on agriculture and arboriculture, as well as on gardening. *The Gardener's Daily Assistant*, with plates (1794), is also a calendar written in short paragraphs, the engraved title-page being adorned with a vignette of Abercrombie. I would add that I fail to see what Abercrombie's family had to do with "his anxiety." If his wife had been so prolific as to present him with a family of eighteen by the time he was forty the conclusion would be that the marriage took place when he was extremely young. Such was not the case. But he was so diffident of his power to compose a book when Griffen approached him that he only accepted the proposal on condition that his name should not be disclosed. The Hon. Mrs. Evelyn Cecil's brief note on Abercrombie is an instance of how many mistakes can be included in a few sentences. R. P. Brotherton.

The History of the Moss Rose.—There must be a fatality connected with the history of the Moss Rose, for the chimerical quotation from *L'Ecole du Jardinier Fleuriste* which Mr. Harman Payne refers to on page 124 of *The Gardeners' Chronicle* can be exactly paralleled by a reference to page 57 of *Les Roses*, by Hippolyte Jarmin and Eugène Forney (preface by Ch. Naudin), Paris, 1873. Much the same tale about Mme. de Genlis as that quoted from *Roses and Rosiers* is said to be found in the 1746 edition of *Le Jardinier Fleuriste*. This book began life in 1702. I have the 1742 edition, in which there is no mention even of such a Rose, let alone any record of its history. It is the same in the case of a very much later one. Is it likely, then, that that of 1746 would contain any reference with the above facts to go upon? If I am wrong, perhaps someone who has this edition will correct me. The circumstances are so peculiar in their similitude that this note may not be amiss. That elusive 1746 again!! Joseph Jacob.

Clogs for the Garden.—I consider clogs (see p. 85, August 5) are far better for winter wear than boots, for garden use, and more comfortable. The soles do not bend, and consequently the stiff leather used in the uppers does not hurt the feet, as so frequently happens with heavy boots. W. J. Farmer, *Redruth*.

A Hornets' Nest.—Hornets have been very troublesome here this summer and have destroyed a large number of the earlier Pears. About mid-August a nest was discovered in the centre of the park, and a large wad of cotton-wool soaked in potassium cyanide solution was placed in the entrance. The hornets coming home and those which attempted to leave the nest were killed. On digging out the nest it was found that the remainder were still living, and had to be killed by more direct methods. This is the first time I have known these insects to build in the earth, their favourite place being a hollow tree, and usually at about twenty feet from the ground. On the 8th inst. one was noticed at that height in a hollow Elm some 200 yards from the gardens here, and half an ounce of cyanide of potassium was dissolved, a ladder placed in position, and a large wad of cotton-wool tied firmly to a stick was thoroughly soaked with the liquid and rammed well into the entrance, penetrating the nest. This was done at 3 p.m., and next morning 359 hornets, including four queens, were picked up at the foot of the tree. The majority were dead; some were crawling around, and a few were flying about unhurt. It was thought impossible to extract the nest, so a couple of shots from a sporting gun were fired into it, hoping to destroy any which had not been killed outright. Owing to the fact that the hornets work throughout the summer nights they are difficult to destroy, and for this reason it is safest to kill them in full daylight, the operator wearing a veil and gauntlets, as their sting is very poisonous. I send some queens, a few workers, and a wasp—the latter for comparison. Charles Hodgson, *Acton Place Gardens, Acton, Suffolk*.

The Romance of Our Trees.—Mr. Wilson's love of plants and gardens is at least as great as his passion for roving about the world, searching remote regions for Nature's best. His success as collector and introducer has been proclaimed from the house tops, and the world's horticulture has quickened as a result of his efforts. Before he went collecting he revealed at Kew extraordinary gifts as a cultivator and student, and he still retains that admiration for a beautiful plant, well grown, that distinguishes the real gardener. Although his interests are now American—more's the pity!—British horticulture still fascinates him, and during his recent short stay in England, after a tour in tropical countries beyond Suez, he spent most of his time visiting gardens and nurseries with all the keenness of a novice whose spurs have yet to be won. To hear Wilson talk about plants is to get inspiration, and to read what he finds time to write about them is to be enthused with his spirit. Two books by him have recently been published, and there are others, we believe, in preparation, including one about Eastern Lilies. One of the two issued he calls "Aristocrats of the Garden," and in it tells much that is interesting about the best plants he has met with in his travels. The other, now noticed, is Wilson's effort to tell of the "intimate association of trees and mankind from the earliest times." It isn't so much what he says as his way of putting it that makes the book a delight. Wise men have written about trees and tree lore, but Wilson has struck a different note from theirs, and his chapters, or essays, as he calls them—sermons they might be called—endow trees with life and meaning. Their economic value is the prosaic side of them, but there is also the sentimental side. "They are indeed," he says, "the most vigorous expression of life and its most enduring form this planet boasts, and a nation's trees should be esteemed as national treasure." The particular trees chosen for their romantic associations are the Ginkgo, Cedar of Lebanon, Yew, Horsechestnut, Magnolia, Beech, Poplar and Willow. Our common fruit and nut trees also come into the romance. There are twenty-four illustrations, all worthy of the subject, and the type and paper are good. The book is dedicated to Professor Charles S. Sargent, Founder and Director of the Arnold Arboretum, "who has done more than any other man in America to awaken an interest and promote knowledge in the trees of the Northern Hemisphere." A notice of this book has already appeared (page 63), but I could not refrain from adding a few words. W. W.

Wasps.—Mr. Markham, on page 134, remarks how scarce wasps are this season. They are a plague here. I have taken eleven nests up to date, and they are still far too plentiful. I expected them to be very scarce this summer, as only five queens were seen this spring; usually over a hundred are killed here each spring. The queens were very late in making an appearance this year. The first seen this spring was on May 7, compared with March 5 last year, or ten weeks later. The reason so few were seen is during the time the Gooseberries and Cotoneasters were in flower the weather was very cold, and prevented them venturing out, and they found new pastures from which to get their food. D. H. Dunn, *Aberystwyth*.

Collerette and Collarette.—It is gratifying to find (p. 127) that somebody besides myself objects to the use of the mongrel word "Collarette." There is no such word in the English language, and if it is necessary to translate the French word at all, then the proper English equivalent is "Collaret," meaning a small collar. The persistent use of "Collarette" by certain persons is probably due to the adoption of that form by the National Dahlia Society, in whose schedule it has invariably appeared. We sometimes borrow a foreign word for convenience just as we did "pompon." I protested on numerous occasions against the spelling of this word "pompon," which, for a time, was systematically used by certain persons in the Dahlia world. For such a form there is no justification. C. H. P.

SOCIETIES.

ROYAL HORTICULTURAL.

SEPTEMBER 19.—Despite the cold and wet day there was a goodly attendance of Fellows and visitors at the Royal Horticultural Hall, Westminster, and those who braved the elements were amply rewarded by the large and brilliant exhibition provided for their inspection. Dahlias occupied the major part of the hall, and of these handsome autumn flowers there were two Gold Medal displays. Hardy autumn flowers, Clematis, Begonias, "China" Asters and admirably cropped fruit trees in pots were the other principal subjects of interest. There were very few novelties, other than the twenty-one Dahlias selected for trial at Wisley.

Orchid Committee.

Present: Sir Jeremiah Colman, Bart. (in the chair), Messrs. Jas. O'Brien (Hon. Sec.), Gurney Wilson, Arthur Dye, C. J. Lucas, J. E. Shill, H. T. Pitt, Pantia Ralli, Frederick J. Hanbury, J. Wilson Potter, Stuart H. Low, and Chas. H. Curtis.

FIRST-CLASS CERTIFICATE.

Laelio-Cattleya Pyramus (L.-C. St. Gothard × L.-C. *Thurgoodiana*), from Messrs. CHARLES WORTH AND CO. A grand hybrid, in its main features nearest to L.-C. St. Gothard, but with that improvement to be expected by the second introduction of C. Hardyana, and consequently its parents C. Warscewiczii and C. Dowiana. The finely grown plant bore a strong spike of several perfectly formed flowers, the sepals and petals being clear mauve colour and the broad lip intense ruby-crimson with two yellow patches in the centre characteristic of C. Warscewiczii.

AWARD OF MERIT.

Odontioda Renown (Oda. *Coronation* × Odm. *Victory*), from Messrs. ARMSTRONG AND BROWN. A grand new *Odontioda* shown for the first time, with a very strong spike of twenty-seven flowers and buds, seven of them being fully expanded. The flowers, which are of the largest in *Odontioda* and of a fine shape, are red with a narrow white margin, the lip being white in front and red around the clear yellow crest.

CULTURAL COMMENDATION.

To Mr. J. E. SNILL, gardener to Baron Bruno Schröder, The Dell Park, Englefield Green, for a finely grown specimen of the large chrome yellow *Brasso-Laelio-Cattleya* Amber, the spike bearing three flowers each over eight inches across. A First-Class Certificate has been previously given to the plant.

GROUPS.

A Silver Flora Medal was awarded to Messrs. ARMSTRONG AND BROWN, Orchidhurst, Tunbridge Wells, for a group of specially well-grown plants, amongst which were three noble specimens of varieties of *Cattleya* Iris; their richly coloured *Laelio-Cattleya* Geo. Woodhams, which has played such an important part in hybridising; a new and fine form of L.-C. Henry Greenwood, and other *Laelio-Cattleyas* and *Cattleyas*, the tawny-yellow C. Maronii being well represented. Messrs. CHARLES WORTH, Haywards Heath, were also awarded a Silver Flora Medal for a group of showy hybrids in splendid condition, the best being the new *Laelio-Cattleya* Pyramus, which secured a First-Class Certificate. The collection included *Laelio-Cattleya* St. George, a variety with large and richly coloured flowers, and other *Laelio-Cattleyas*; the clear yellow *Brasso-Cattleya* Sofrano, the charming, delicately tinted B.-C. Caroline (B.-C. *Rutherfordii* × C. *Dowiana aurea*), and a good selection of *Cattleyas* and *Odontoglossums*. Specially interesting were the rare *Cypripedium* J. H. Veitch; and C. Kimballianum, the latter a natural hybrid.

A Silver Banksian Medal was awarded to Messrs. SANDERS, St. Albans, for an interesting group, in which were the new *Cattleya nivea* (Leopoldii alba × Lady Veitch), a promising white flower, well intermediate between the two parents and promising well when mature; C.

Dupreana alba, the pretty and fragrant C. *Kienastiana*; *Laelio-Cattleya* Soulangé and other *Laelio-Cattleyas*, *Odontoglossums* and the perpetual-flowering *Odontonia* *brugensis*, with several sprays of bright mauve flowers.

MESSRS. FLOREY AND BLACK, Slough, showed the handsome *Laelio-Cattleya* *Chimaera* var. *Rosita* (C. *Dowiana* × L.-C. *Hector*), a large cream white flower with entirely deep claret crimson lip; the new *Brasso-Cattleya* *Caduceus* (C. *Caduceus* × B.-C. *Digbyano-Mendelii*), a large, cream white flower with sky-blue front to the lip; a fine form of their handsome B.-C. *Ilene*; and the handsome *Cirrhopetalum* *Rothschildianum*.

MESSRS. STUART LOW AND CO., Jarvisbrook, showed the handsome *Cattleya* *Suavior* var. *picta* (intermedia *Aquinii* × *Mendelii*), a neat, white flower of good substance with purple blotch on the petals and purple front to the lip, and a pretty *Laelio-Cattleya* hybrid of L.-C. *Colmaniana*.

Floral Committee.

Present: Messrs. H. B. May (in the chair), G. Reuthe, Geo. Harrow, John Heal, W. Howe, C. R. Fielder, Donald Allan, Arthur Turner, D. B. Crane, Chas. E. Shea, Chas. E. Pearson, W. P. Thomson, R. W. Wallace, Gerald Loder, Hugh Dickson, A. G. Jackman, W. B. Gingell, E. A. Bowles and Reginald Cory.

AWARDS OF MERIT.

Codonopsis tibetica.—A twining plant with more or less lanceolate, dull green leaves. The flowers are borne singly or three or four together; they are five-petalled, soft blue, with darker blue veins; the stamens almost rest on a round boss-like base in the centre of the flower and the roundish fuzzy stigma is shortly stemmed and of a deep rose-red shade. This is one of the plants collected by Forrest. Shown by Mr. A. K. BULLEY, Ness, Neston, Cheshire.

Aster Queen of Colwall.—An excellent addition to large-flowered Michaelmas Daisies. It is robust and the stems carry a great sheaf of showy semi-double flowers and in many instances the lower branches on a stem carry one flower measuring about 2½ inches in diameter. The colour is a pleasing shade of bright lavender blue. Shown by Mr. BALLARD, Colwall.

Pyrus Malus transitoria.—This handsome variety has deep green leaves, which are often somewhat deeply cut and suggestive of the Hawthorn. The fruits, borne in pendulous, axillary clusters on the stiffly branching growths, are like quite small cherries and of a rich cherry-red colour, almost scarlet, sometimes shaded with yellow. Shown by C. J. LUCAS, Esq., Warnham Court.

Gentiana Kurroo.—An interesting species which sends up dark, shining stems in late summer or autumn, and these carry several rich blue flowers, paler in the interior. According to Mr. Reginald Farrar in *The English Rock Garden*, "these dark and shining stems, although so solid, do not stand erect, but lie along the ground for 4 or 5 inches and then rise up with the grace of a swan's neck, to show off at respectful distances from each other those three or four magnificent great flowers, widely gaping cups of pure rich blue with folded lobes, and flecked with interior pallors, and altogether lovely." Shown by Mr. W. WELLS, junr., Merstham.

(Varieties of Dahlias selected for trial at Wisley will be described in the next issue.)

GROUPS.

The predominance of Dahlias plainly indicated that the National Dahlia Society were unfortunate in the choice of date for their annual show, and had it been a fortnight later a really splendid show would have been the result. The quality at the show a fortnight ago was not surpassed on the present occasion, and it was in the matter of quantity that the exhibits were superior. This, in the circumstances, was inevitable, and due to the general backwardness of the season. Mr. H. J. JONES had a large and imposing display of highly decorative Dahlias, of which the most prominent were such white varieties as Roem van Aalsmeer, White Queen and Triumph, though the large *Paecony-*

flowered section was also well represented, and of these Duchess of Brunswick, Carmen Sylva and Nancy were particularly charming. In other parts of the hall Mr. Jones staged very good herbaceous Phloxes and Montbretias (Gold Medal). Messrs. DOBBIE AND CO. also filled a large space with a first rate collection of Dahlias. Here it was the collerettes that claimed first attention, and a selection would include Scarlet Queen, Glencoe, Linet and Clyde. The Cactus, Star and Single sections were also represented, and in front there were vases of Pompons, including Ideal, Bacchus, Dagmar, Little Beeswing and Regulus (Gold Medal).

Pompon Dahlias were also splendidly shown by Messrs. J. CHEAL AND SONS, but even these were surpassed by the great excellence of their highly decorative Star and Single varieties. Of the latter Mrs. J. Hicks, Betah, Marion, Lady Bountiful and Talma are the names of only a few so well displayed (Silver-Gilt Banksian Medal). In a very attractive collection by Mr. J. T. WEST the Decorative and small *Paecony*-flowered varieties were very delightful. Of the latter several seedlings, Kenneth, Freddie and Lovelight found many admirers, while the very best of the former were The Prince, Nancy, Delightful and Windermere (Silver Flora Medal).

Cactus varieties were prominently displayed by Messrs. CARTER PAGE AND CO.; Pennant, White Queen and Border Yellow were of value. Lady Derby and Canary of the Decorative and Beauty and Oriana of the *Paecony*-flowered section were also of great merit (Silver Flora Medal). In a noteworthy collection by Messrs. BURRELL AND CO. the small *Paecony*-flowered varieties were especially beautiful, and these included Jessie, Oliver, Fusee, and some fine seedlings (Silver Flora Medal). Brilliant colour was provided by such sorts as Freebooter, Red Chief and Nelson's Xarifa in a collection by Mr. J. B. RIDING. Regularity and Diadem amongst the collerettes were also of great merit (Silver Flora Medal).

Messrs. SUTTON AND SONS again set up a very large collection of "China Asters" from their trial grounds. These occupied nearly the whole of the end of the hall and illustrated all the different classes of this popular flower. The most graceful were the large baskets of elegant singles and sinensis varieties in many charming shades of colour. Amongst the great number of double-flowered sorts the deep, rich colour of French Blood Red and Scarlet Mammoth was splendid. The Ostrich Plume varieties were also of much more than ordinary quality (Silver-Gilt Banksian Medal).

General border flowers were very plentiful and in great variety. Mr. F. G. WOOD had a large and highly meritorious collection. Amongst the many Michaelmas Daisies the massed sprays of the dark blue Rev. Chas. Lunn were especially effective. Mr. WOOD also showed various alpine, and miniature rock gardens (Silver-Gilt Banksian Medal). A large collection of Michaelmas Daisies, principally of the older varieties, was arranged by Messrs. W. H. CUTBUSH AND SON (Silver Flora Medal), while in a corner space Mr. ERNEST BALLARD had a very effective display. Anita Ballard, medium blue, Little Boy Blue, a dark blue of sturdy habit, Bee's Pink and Aster cordibellii, a graceful hybrid between A. cordifolia and A. Novibelgii, were all highly decorative (Silver Banksian Medal). Near the annexe Messrs. WATERER, SONS AND CRISP associated Michaelmas Daisies with some excellent Lupins, Gladioli, Delphiniums, and other border flowers (Silver Banksian Medal). Messrs. J. PIPER AND SON also showed various perennial Asters and had Dahlias and Pentstemons of fine quality (Silver Flora Medal).

Besides a good collection of general border flowers, amongst which various herbaceous Phloxes and Lupins were very prominent, Mr. W. WELLS, junr., showed several pots and pans of the interesting *Gentiana Farreri* (Silver Banksian Medal). Mr. J. REUTHE had his usual collection of border flowers and alpine, and a couple of vases of flowering sprays of *Clethra arborea* (Silver Flora Medal). Messrs. ISAAC HOUSE AND SONS showed a quantity of excellent

varieties of *Scabiosa caucasica* (Silver Flora Medal). Messrs. B. LADHAMS, LTD., included many excellent varieties of tall *Lobelias* in their collection of border flowers. Of the many varieties, *L. carmineus*, *D. Ladhams*, Mrs. Humbert and Shirley Beauty were highly decorative (Silver Flora Medal). Messrs. RICH AND CO. had *Phloxes* and *Asters* (Bronze Flora Medal).

A good strain of *Antirrhinum* was staged by the CHALK HILL NURSERY Co. with well-formed *Lupins* and *Pentstemons*, while along the front they had a great many of the large-flowered *Mimulus*, which they grow so finely (Silver Banksian Medal). Messrs. MAXWELL AND BEALE (Silver Banksian Medal); Messrs. G. G. WHITELEGG AND CO. had various *Kniphofias* and *Gladioli* (Silver Banksian Medal); Mr. T. CARLILE showed *Phloxes*, *Lupins* and *Kniphofia corallina* with other hardy flowers (Silver Flora Medal), and the Misses HOPKINS had various interesting border flowers and a small rock garden (Bronze Banksian Medal).

Gladioli, chiefly *Primulinus* hybrids, were set up by Messrs. LOWE AND GIBSON (Bronze Flora Medal). A goodly collection of *Clematis*, flowering in relatively small pots, was included in an exhibit by Messrs. L. R. RUSSELL, LTD. The principal varieties were Nelly Moser, Ville de Lyon, President, Viscountess Northcliffe and Lasurstein (Silver Flora Medal).

Early-flowering *Chrysanthemums* were shown by Messrs. KEITH, LUXFORD AND CO. and Mr. N. YANDALL. The former included good vases of Red Anemone, Mary Mason, J. Bannister and a collection of pretty Pompon varieties (Silver Flora Medal). Mr. YANDALL had various seasonable varieties and also showed a good collection of *Violas* (Silver Flora Medal). Messrs. J. CHEAL AND SONS contributed, in addition to their Dahlias, an interesting group of cut sprays of trees and shrubs. Various fruiting Crabs include the Dartmouth and Transcendent. Flowering shrubs were represented by sprays of *Indigofera* Dosua, shrubby *Veronicas*, *Daboecia polifolia*, and *Buddleia variabilis* var. *magnifica*.

Carnations of great merit were staged by Mr. C. ENGELMANN, Messrs. ALLWOOD BROS. (Silver Flora Medals), and Messrs. STUART LOW AND CO. (Silver Banksian Medal). The chief varieties were Tarzan, Wivelsfield Apricot, Wivelsfield White, Marian Willson, Thor, Delice, Vindictive and Royal Emblem.

In the annexe Mr. G. W. MILLER staged an attractive collection of border flowers. Fresh and fragrant Violets were shown by Mr. J. J. KETTLE and Mr. B. PINNEY.

Fruit and Vegetable Committee.

Present: Messrs. C. G. A. Nix (Chairman), S. T. Rivers, J. Cheal, P. C. M. Veitch, Geo. F. Tinley, S. B. Dicks, J. C. Allgrove, G. P. Berry, E. Neal, A. Bullock, W. Bates, E. A. Bunyard, W. H. Divers, Rev. W. Wilks, and A. W. Metcalfe.

Mr. J. C. ALLGROVE, nurseryman, Middle Green, Langley, showed his beautiful new Apple S. T. Wright, which received an Award of Merit on October 21, 1913, the fruits being submitted on this occasion for the higher award of a First-Class Certificate. This is a remarkably handsome variety; the skin is heavily marked with bright red streaks and is suffused over nearly the whole of the surface with a glowing rose colour. It is more handsome than such highly coloured sorts as Gascoigne's Scarlet and Peasgood's Nonesuch, and promises to be of great value for exhibition purposes in mixed collections of choice fruits. It is stated that the variety is in season until January.

Messrs. T. RIVERS AND SON exhibited a number of pot Plum trees very heavily fruited. The varieties were Coe's Golden Drop, Coe's Violet, President and Late Orange (Silver-Gilt Hogg Medal). A Bronze Hogg Medal was awarded to Messrs. D. PRIOR AND SON, Colchester, for an exhibit of Apples and Pears. It was a representative collection of varieties in season.

Mr. P. C. M. VEITCH showed an old Devon Apple named Sweet Reinette. Mr. Veitch stated that this is a favourite Devon Apple, but he could find no record of it. Mr. Bunyard considered that it most nearly resembled

Fenouillet de Gris. The variety is not mentioned by Hogg in the *Fruit Manual*, but appears in Barron's *British Apples*, and was shown by Sir T. D. Acland, Bt., M.P., Killerton, Exeter, at the National Apple Congress of 1883. Baron describes it as follows:—dessert, small, flat, golden russet, sweet, late and resembles Pitmaston Russett Nonpareil.

The only exhibit of vegetables was shown by the CHURCH ARMY from an allotment on waste ground within a short distance of the Hall.

ROYAL CALEDONIAN HORTICULTURAL.

September 13 and 14.—The autumn show of this Society, which was held in the Waverley Market, Edinburgh, on these dates, was the best which has been held by the Society since pre-war days, and there was also a decided increase in the number of entries, which were just over 1,100, against 950 last year. The exhibits of fruit were very good, although the effect of the want of sufficient sunshine was evident in the hardy fruit section; taken generally, however, the quality was decidedly above the average. The displays of vegetables, and especially of Potatoes, made by the garden allotment holders belonging to the Edinburgh and District Federation, whose exhibition was again held in conjunction with the show, was exceedingly good, and surpassed all their former efforts. The trade exhibits were of great excellence, and on this occasion the President, Mr. David King, introduced a novel feature at these shows in the form of a neatly executed and realistic piece of rock-work. At the formal opening of the show, the Lord Provost of Edinburgh took the chair, and the exhibition was declared open by the Countess of Minto. The weather was favourable, and the takings at the doors exceeded those of last year by about £130.

GARDENERS AND AMATEURS.

Fruit.—There were three entrants in the class for a decorative table, 6 ft. by 4 ft., of twelve dishes of fruit—namely, the EARL OF BALFOUR, K.G., Whittingehame, East Lothian (gr. G. Anierison), JOHN NEILSON, Esq., of Mollance, Castle Douglas (gr. J. M. Stewart), and the MARCHIONESS OF TWEEDALE, Yester, East Lothian (gr. A. McLeod). The first prize of £5 5s., with the Laird and Dickson special prize of silver plate, to be won three times, was awarded to the EARL OF BALFOUR, who obtained 90½ points out of a possible of 114. His fruits were Grapes, Muscat of Alexandria and Appley Towers; Peaches, Dymond and Princess of Wales; Nectarines, Humboldt and Pine Apple; Apricot, Moorpark; Melon, Universal; Apples, Emperor Alexander and Peasgood's Nonesuch; and Pears, Marguerite Marillat. Mr. NEILSON was placed second with 86 points, and the MARCHIONESS OF TWEEDALE third with 78½ points.

In the class for six bunches of Grapes, not fewer than three varieties, and not more than two bunches of any variety, there were also three entrants, and the first prize of £4 and a gold badge, with the Thomson Challenge Trophy for Grapes (to be won three times), was awarded to Mr. NEILSON; second, LADY WATSON, Farnock, Hamilton (gr. D. Halliday); and third, Sir HERBERT E. MAXWELL, Bart., Monreith, Wigtownshire (gr. S. Gordon). The points awarded to Mr. NEILSON's bunches were as follow:—

	Points	Maximum
	awarded.	points.
1. Muscat of Alexandria ...	8	10
2. Muscat of Alexandria ...	7½	10
3. Black Hamburg ...	8½	9
4. Black Hamburg ...	8	9
5. Madresfield Court ...	7½	9
6. Madresfield Court ...	8	9
	47½	56

Lady WATSON's bunches obtained 42 points out of 55, and Sir HERBERT MAXWELL's 41 out of 55. Having now been won three times by the same competitor, the Thomson Trophy becomes his property.

For four bunches of Grapes, distinct varieties, the first prize was awarded to GILBERT F. M.

OGILVY, Esq., Winton Castle, East Lothian (gr. J. M'Fadyen). Mr. NEILSON was placed first for two bunches of Muscat of Alexandria, and in the single-bunch classes for Muscat of Alexandria, and Black Hamburg. Major C. L. GORDON, Threave House, Castle Douglas (gr. J. Duff), excelled for two bunches of Black Hamburg, and in the single-bunch classes; Lady WATSON excelled for Alicante and Madresfield Court, and Mr. OGILVY for Appley Towers and Gros Colman.

Lady WATSON also excelled for one green or white-fleshed Melon, with Emerald Gem, and for one red-fleshed Melon, with Superlative. Mr. R. M'QUEEN, Dalkeith Palace Gardens, Midlothian, was placed first for twelve Figs, with Brown Turkey, and Mr. W. AITCHISON, Thurston Gardens, East Lothian, excelled for six Peaches, with Royal George. D. LANDALE, Esq., Dalswinton, Dumfries (gr. R. A. Grigor) was first for six Nectarines, with Humboldt, and FRANK J. USHER, Esq., Dunglass, East Lothian (gr. J. Notman), was first for twelve Apricots, with Moor Park.

In the Plum classes, for fruits from trees grown out of doors, Lady WATSON excelled for Gages, with Transparent Gage; Mr. J. M'KENZIE, Lochend Gardens, Dunbar, for yellow Plums (excluding Jefferson), with White Magnum Bonum; Major C. L. GORDON, for twelve red Plums, with Pond's Seedling; and the Honourable Mrs. ASKEW ROBERTSON, Ladykirk, Norham (gr. G. Little), for purple Plums, with Kirke's. Sir W. H. MAY, Bughrigg, Coldstream (gr. J. Loan), was first for a collection of dessert Plums, and Mr. USHER for a collection of culinary Plums.

For fruit from trees permanently planted out of doors, W. M. CURZON HERRICK, Esq., Beau Manor, Loughborough (gr. J. J. Steward), excelled for six varieties of Apples, five fruits of each, while for twelve varieties, five fruits of each, grown in Scotland, Major GORDON was placed first. Mr. J. MALCOLM, Dunbar, excelled for two varieties of dessert Apples, fit for the table, grown in Scotland. In the single-dish classes, six fruits of each, restricted to growers in Scotland, Mr. J. P. REID, Aberlady, East Lothian, excelled for Newton Wonder, Ecklinville Seedling, Warner's King, and Bramley's Seedling; Mr. D. FRASER, Saltoun Hall Gardens, East Lothian, for Gascoigne's Scarlet; Sir W. H. MAY, for Irish Peach; Sir H. E. MAXWELL, for James Grieve, and Lord Suffield; Major GORDON, for Worcester Pearmain, Grenadier, Lord Derby, and Lord Grosvenor; J. J. BELL IRVING, Esq., Makerstoun, Kelso (gr. R. Auldjo), for Peasgood's Nonesuch and Stirling Castle; Mrs. BAIRD, Colstoun, East Lothian (gr. J. M'Cartney), for Golden Spire, and Sir R. WALDIE GRIFFITH, Bart., Hendersyde Park, Kelso (gr. G. S. Macdonald), for Lane's Prince Albert.

For six varieties of Pears, four fruits of each, grown in Scotland, Mr. J. MACKENZIE, Dunbar, was placed first, and in the single-dish classes, six fruits of each, also grown in Scotland, Mr. D. FRASER, Saltoun Hall Gardens, excelled for Beurré d'Amanlis; J. B. HOTHAM, Esq., Milne Graden, Coldstream (gr. W. Clayton), for Doyenné du Comice; Mr. J. P. REID, for Durondeau, Mr. J. MACKENZIE, for Jargonelle, Mr. W. AITCHISON, for Louise Bonne of Jersey; the MARCHIONESS OF TWEEDALE, for Pitmaston Duchess and Souvenir du Congrès, and the EARL OF BALFOUR, for Williams' Bon Chrétien.

Plants.—In this section the first prizes were awarded as follows:—Mr. R. KERR, Edinburgh, for nine dwarf hardy Ferns; JOHN TURNER, Esq., Inverlaimond, Midlothian (gr. J. A. Sword), for three single tuberous-rooted Begonias; Mrs. J. CAMPBELL, Dolphinton, Peeblesshire (gr. W. Howieson), for two tuberous-rooted Begonias (single and double); Mrs. E. H. BEVERIDGE, Beechwood, Kirkcaldy (gr. P. Reid), for two Fuchsias, one Fuchsia, three Zonale Pelargoniums, and two Coleus.

Cut Flowers.—The winners of the first prizes in this section were as follow:—Mr. J. RICHARDSON, Polmont, for twelve vases of Phloxes; Mr. D. WHITELAW, Laurencekirk, for twelve *Gladioli*, and six *Gladioli*; Mr. CLAUDE JEN-

KINS, Cambuslang, for six bunches of collerette Dahlias, six bunches of single Dahlias, six vases of early-flowering Chrysanthemums (disbudded and not disbudded), one vase of white early-flowering Chrysanthemum, and one vase of early-flowering yellow Chrysanthemum; Sir W. H. MAX, for twelve bunches of Sweet Peas; CLAUDE ALLAN, Esq., Kilmahew Castle, Cardross (gr. R. Middleton), for six bunches of Sweet Peas; Mr. J. MATTHEWS, Uphall, for twelve Fancy Pansies; Mr. T. LEES, Nempflar, Lanark, for twelve Show Pansies; Mr. J. NELSON, Dalkeith, for twelve bunches of Violas; Mrs. SELLAR, Drylaw House, Midlothian (gr. W. Galloway), for one vase of early-flowering Chrysanthemum (not disbudded); Col. ST. CLAIR OSWALD, of Dunniker, Kirkcaldy (gr. R. Astley), for one vase and other early-flowering Chrysanthemum (not disbudded); Major A. D. FORBES GORDON, Ashiestiel, Selkirkshire (gr. J. Cochrane), for one vase of Michaelmas Daisies; Sir BASIL MONTGOMERY, Kinross House, Kinross (gr. R. Fraser), for three vases of Montbretias, and six bunches of hardy perennials; Col. MORE NISBETT, The Drum, Midlothian (gr. D. Armstrong), for four bunches of Antirrhinums; Mr. P. DONALDSON, Blackford, Perthshire, for twelve French Marigolds; Mr. J. STEVENSON, Melrose, for six vases of annuals; Mrs. REID, Thomanean, Milnathort (gr. J. Pearson), for eighteen vases of cut flowers; FRANK WARRACK, Esq., Kersewell, Thurston, for two vases of perpetual-flowering Carnations.

In the Rose classes, the first prizes were gained by the following:—Mr. LAURENCE BLACK, Kinglassie, Fife, for twenty-four blooms; G. H. MACNEAL, Esq., Dhallingmohr, Kirn (gr. D. Murchison), for twelve H.T. Roses, one vase of a Rambler Rose, and one vase of Roses (four blooms); Mrs. RUSSELL, Newton Mearns, for six of any crimson or Scarlet Rose; for six blooms of any pink Rose, and for six vases of Roses (six varieties); Sir BASIL MONTGOMERY excelled in the class for six white Rose.

OPEN CLASSES.

Cut Flowers.—Messrs. G. MAIR AND SONS, Prestwick, won the first prize for twenty-four spikes of Gladioli, and Messrs. TORRENCE AND HOPKINS, Bushy, won the first prize for six vases of collerette Dahlias. In the Rose section, Messrs. HUGH DICKSON, LTD., Belfast, were placed first in the classes for thirty-six Roses; eighteen H.T. Roses; twelve blooms of any pink Rose; twelve of any white Rose; and twelve vases of roses; Messrs. G. PATON AND SONS, Dundee, for eighteen Tea Roses; and Mr. R. C. FERGUSON, Dunfermline, for twelve blooms of a red or crimson Rose, and twelve vases of garden or decorative Roses. Messrs. T. SMITH AND SONS, Stranraer, were awarded the first prize for a bowl of China Roses.

Vegetables.—For a collection of twelve dishes of vegetables, Mr. J. GRAY, Uddingston, was placed first with 61 points out of 76, the EARL OF BALFOUR being second with 59½ points, and G. F. M. OGILVY, Esq., third, with 58 points. These exhibits were excellent, and the competition was very keen. Mr. GRAY was also first for six varieties of Potatoes, six tubers of each; while D. LANDALES, Esq., excelled for twelve varieties, six tubers of each. In the single-dish classes, the first prizes were awarded as follow:—Major A. D. FORBES GORDON, for kidney Potatoes; Mrs. RUSSELL, Inchdairnie, Fife (gr. P. Bell), for round Potatoes; Major C. L. GORDON, for French Beans, Broad Beans, White Turnips, and Celery; JAMES HOOD, Esq., Lasswade (gr. N. Leyden), for Cucumbers; Mr. R. MASON, Lanark, for Tomatoes and Cauli-flowers; Sir W. H. MAX, for long Carrots, and stump-rooted Carrots; Col. R. AIKMAN, Hamilton (gr. R. Macdonald), for Peas; J. TURNER, Esq., for Cabbages; W. S. DAVIDSON, Esq., Leuchie, North Berwick (gr. J. M. Mason), for Brussels Sprouts; F. NORIE MILLER, Esq., Perth (gr. H. Young), for Savoys; Lord HAWKE, Glasclune, North Berwick (gr. M. Matheson), for Leeks; Mr. T. WATSON, Carluke, for Onions; Mr. C. JENKINS, for Parsnips and Beet; Mr. P. LAWRIE, Kirknewton, for Curled Greens; D. LANDALE, Esq., for yellow Turnips; and Mr. J. WATT, Carnwath, for Lettuce.

(To be concluded.)

MARKETS.

COVENT GARDEN, Tuesday, September 19th, 1922.

Vegetables; Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Beans		Lettuce, Round	1 6-2 0
—Scarlets, per bus.	2 6-3 6	Marrows per tally	3 0-4 0
Beets, per bus.	1 6-2 6	Mushrooms	
Cabbage, per		—per lb. Forced,	3 0-4 6
tally	2 6-3 6	Potatoes, ton	£3-£4 10
Carrots, new,		Sprouts, ½-bushel	4 6-5 0
cwt.	2 6-3 6	Tomatoes,	
Cauliflower, tally	10 0-15 0	—English Pinks	3 6-4 0
Cucumbers		—Pink and white	3 6-4 0
—flats, 3 doz.	8 0-12 0	—Guernsey ..	2 6-3 0
—" 3½ " "	7 0-12 0	—Jersey ..	2 6-3 0
—" 4 " "	6 0-8 0	—Dutch ..	1 3-2 6
Endive	4 0-5 0	Turnips, per cwt.	2 6-3 6
Garlic, per lb.	0 8-0 0		

Fruit: Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Apples,		Melons	
English, per bus.		—Valencian ..	14 0-16 0
—Lord Derby ..	4 0-6 0	—English and	
—Warner's King	4 0-5 6	Guernsey ..	2 0-6 0
—Bramley's		—Cantaloupe ..	2 6-8 0
Seedling ..	5 0-6 0	Nectarines ..	3 0-18 0
—Worcester, half		Nuts—Brazils ..	44 0-46 0
bushel	2 6-3 0	Oranges,	
—bushel cases ..	8 0-12 6	—Australian ..	16 0-22 0
—Duchess ..	2 0-3 0	—S. African Navel	18 0-22 0
—Tyrolcan case	5 0-8 0	—Seedless ..	18 0-20 0
—James Grieve ..	2 0-3 0	Peaches, per doz.	4 0-24 0
—Miller's Seedling	2 0-3 0	Pears, half bus.	
Bananas, singles	10 0-15 0	—Williams ..	
—doubles ..	17 6-20 0	—Bon Chretien	3 6-7 0
Blackberries 12lbs.	1 6-2 6	—Clapp's Favourite	3 0-6 0
Figs, per doz.	3 0-8 0	—Sourvenir du	
South African		Congres ..	4 0-6 0
Grape-Fruit ..	18 0-20 0	—Hesse per bus.	3 0-5 0
Grapes		Pineapples ..	2 0-5 0
—Alicant ..	0 10-2 0	Plums,	
—Black Hamburg	0 9-1 6	—Monarch ..	4 0-7 0
—Cannon Hall ..	1 6-6 0	—Pond's Seedling	0 7-0
—Muscat ..	1 6-6 0	—Victoria ..	3 0-5 0
Lemons		—Bush ..	3 0-4 0
—Messina, 300's	10 0-12 0	—Damsons ..	3 0-4 0
—Murcia ..	10 0-14 0		

REMARKS.—Trade generally has shown some improvement during the past week. With fewer Plums available, values in some sections tended to improve, but generally speaking, up to time of writing, any advance in prices is duly checked by sales. Choice fruits, such as Grapes, Peaches, Nectarines and Figs, are plentiful, and moderately cheap, the fairly heavy supplies of Grapes from Belgium and Guernsey being adverse factors. A good demand exists for well coloured dessert Apples, but prices keep low, and many growers are holding stocks of Worcester Pearmain for improvement in values. Large cookers are in request, and supplies go out freely. Apples are arriving from America and Nova Scotia, as well as from the Continent, and these imported fruits are doubtless influencing adversely the prices of home grown Apples. Plums are much better trade, supplies mainly consisting of Monarch and a Pond's Seedling. Damsons and Prunes are fairly plentiful, and quotations keep steady. Pears are a good market, particularly Williams's Bon Chretien. The variety Calabasse is also inquired for. Increased quantities of Oranges from South Africa have caused a fall in prices, for this fruit. Home grown Tomatoes are firmer in price, due to shorter supplies and fewer Tomatoes from Dutch and Jersey growers. Cucumbers are quoted slightly firmer. Kent Cob Nuts are in fairly heavy supply, and although very low in price, are not selling very freely. Vegetables are still very plentiful and cheap, and at the moment there is but slight prospect of an improvement in their value. Potato stocks are in excess of the demand.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d. s. d.		s. d. s. d.
Adiantum		Erica gracilis	
cuneatum,		48's per doz.	24 0-36 0
per doz. ..	10 0-18 0	60's " "	9 0-15 0
—elegans ..	10 0-12 0	72's " "	6 0-8 0
Aralia Sieboldii	10 0-12 0	—nivalis	
Araucarias ..	30 0-48 0	48's per doz.	21 0-36 0
Asparagus plu-		60's " "	10 0-15 0
mosus ..	12 0-15 0	72's " "	6 0-8 0
—Sprengeri ..	12 0-18 0	Marguerites,	
Aspidistra, green	48 0-72 0	per doz.	12 0-15 0
Asplenium,		Nephrolepis, in	
per doz. ..	12 0-18 0	variety ..	12 0-18 0
—32's ..	21 0-30 0	—32's ..	24 0-36 0
—nidus ..	12 0-15 0	Palms, Kentia ..	24 0-30 0
Cacti, per tray,		—60's ..	15 0-18 0
12's, 15's ..	5 0-6 0	—Cocos ..	24 0-36 0
Chrysanthemum		Polyanthus Roses	
—white per doz.	10 0-18 0	48 per doz.	12 0-18 0
—coloured ..	9 0-15 0	Pteris, in variety	12 0-21 0
Crotons per doz.	30 0-42 0	—large 60's ..	5 0-6 0
Cytisium ..	10 0-15 0	—small ..	4 0-4 6
		—72's, per tray	
		of 15's ..	3 6-4 0

REMARKS.—Eriods are the newest and most attractive subjects, consisting of E. gracilis and E. nivalis. These are on sale in forty-eight's and sixty-sized pots. Chrysanthemums in pots include well grown plants. A few Solanums are on offer, but there is only a small demand for them. Trade generally is quiet.

ANSWERS TO CORRESPONDENTS.

CANKER ON ROSE TREES: E. S. The trouble is due to the presence of a fungus named *Coniothyrium Fuckelii*, which often causes cankers on the stems of Roses. Cut off and burn the affected parts.

IDENTIFICATION OF FRUITS: D. B. R. For the purpose of identifying Apples and Pears you will find Mr. E. A. Bunyard's *Handbook of Hardy Fruits* a most useful work, while for the cultivation of fruits in general we recommend *Fruit and its Cultivation*, by T. W. Sander. These works may be obtained from our publishing department, price 8s. 3d. post free, each.

MELON PLANTS DISEASED: J. B. The plants are affected with both a fungus (*Verticillium*) on the roots and a bacterium in the stem-tissues. All affected plants should be destroyed and fresh soil used.

NAMES OF FRUITS: F. H. 4, Apple Ribston Pippin; 5, Cox's Orange Pippin; 10, Pear William's Bon Chretien; 11, Marechal de la Cour; 13, Apple Washington Goff.—E. J. B. and Sons. Early Harvest. G. H. S. 1, Bramley's Seedling; 2, Echlinville Seedling; 3, Dumelow's Seedling (syn. Wellington); 4, Jolly Beggar; 5, New Hawthornden; 6, Wadhurst Pippin; 7, Duchesse d'Angoulême.—C. C. 1, Beurre d'Amanlis; 2, 3, 4, and 5, Durondeau; 6, Conference; 7, Marguerite Marillat; 8, Beurre Bachelier; 9, Bonne d'Ezée (syn. Brockworth Park).—J. J. A. 1, Charles Ross; 2, Lord Derby; 3, Yorkshire Beauty; 4, Stirling Castle; 5, Cellini; 6, not recognised.—R. G. 1, Northern Greening; 2, Stirling Castle; 3, not recognised; 4, Early Nonpareil; 5, Broad End; 6, Cockle Pippin.—J. W. D. Pyrus Niedzwetzkyana (Crab Apple).

NAMES OF PLANTS: J. L. W. *Fagopyrum esculentum*, Buckwheat.—P. M. B. 1, *Alyssum maritimum*; 2, *Cerastium Biebersteinii*; 3, *Saxifraga trifurcata* (?); 4, *S. ligulata*; 5, *Lysimachia vulgaris*.

ST. BRIGID ANEMONES: P. M. B. St. Brigid Anemones are quite hardy. In heavy soils the tubers should be dug up after the plants have flowered and died down. Keep them in a cool place to ripen thoroughly and plant them again in autumn.

TOMATOES WITH HARD GREEN PATCHES: M. Q. and J. M. The hard green patches at the base of your Tomato fruits are not due to an attack by a fungus, but are generally ascribed to a lack of potash in the soil. In future use plenty of wood ash with the compost for Tomatoes.

TREATMENT OF DECAY IN PLANE TREE: F. J. F. This work calls for expert treatment, because unless properly done the mischief is aggravated. The method employed depends on local considerations, but one often used is to thoroughly remove all decayed matter, dress the wound with Stockholm tar, and crown-fill with a wet mixture of one part cement, two parts sand and four parts gravel. It is most important that a perfect union is formed with the sides of the hole in the tree and that the filling does not crack.

WEED IN A LAKE: J. V. The water plant is *Elodea canadensis*, which is known as the Canadian Pond weed. This is a very difficult weed to eradicate from ornamental waters once it has become established, as every part of the plant will develop into a fresh specimen. The green scum on the water is probably one of the Algae, and this could be destroyed by copper sulphate. This should be placed in a sack and dragged through the water behind a boat. With regard to the Canadian Pond Weed, we can suggest no other means for its eradication than those you have adopted. The smaller weeds may be killed by copper sulphate.

Communications Received.—W. A. T.—A. J. P.—M. Q.—W. G. W.—J. T. W.—H. M. A.—M.—T. G.—W. C. S.—R. C. J.—H. T. J. H.—W. A. A. M.—Mrs. H.—H. E. G.—H. J.—T. A.—M. V. B.—F. G.—S. C.—V. G. B. J.

THE

Gardeners' Chronicle

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 54.9.

ACTUAL TEMPERATURE.—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London. Wednesday, September 27, 10 a.m. Bar, 29.7, temp. 60°. Weather—Fine.

Few horticultural problems have given rise to more discussion than the subject of degeneration in Potatoes. To many people, of course, the evidence for degeneration seems so clear and convincing that discussion is unnecessary. Certain varieties only too evidently deteriorate—in certain districts at all events—and in the course of a few years from bearing heavy crops come to produce scarcely any crop at all. It is but natural that cultivators who have observed examples of deterioration of this kind should have invented hypotheses to account for the phenomena. Of such hypotheses that of "degeneration" has been put forward frequently and often with high authority, and yet it may be said, with confidence, that this hypothesis is not supported by unchallengeable evidence, nor does it take into account all the known facts. Briefly stated, the hypothesis of degeneration claims that a Potato with a consistently falling yield is worn out—has become a victim of senile decay, and hence lacks the vigour necessary for the production of a crop of tubers. In support of this hypothesis, it is plausibly suggested that continued vegetative propagation necessarily weakens a plant's constitution, and those who support the degeneration hypothesis point to the unhealthy look of the degenerate plants, their curled leaves and poor stature, in support of the view that they have lost constitutional vigour. Recent discoveries, however, throw considerable doubt on the validity of this hypothesis, and many of the most experienced investigators of Potato problems are already inclined to

discard it. They will be encouraged in their inclination by a perusal of the extremely interesting paper read by Dr. Redcliffe N. Salaman at the International Potato Conference of last year.* Dr. Salaman devotes the first part of his paper to a review of the arguments brought forward by observers of degeneration since the year 1795. Apparently Parmentier (1796) and Andrew Knight (1818) are responsible for the earliest formulations of the degeneration hypothesis, Knight maintaining that an individual can only live to a certain age, and that whether it is grown as a whole or divided into different individuals by budding and grafting, its span of life is limited. Yet, although we may admit the mortality of the undivided individual, there is strong evidence against the view that a plant propagated vegetatively necessarily becomes weaker with age and ultimately dies of senility. Vast numbers of plants of certain of the lower divisions of the vegetable kingdom reproduce themselves exclusively by vegetative division, and yet continue to flourish. Among the higher plants, as Dr. Salaman points out, the Banana is seedless and has never been known except as an asexually reproduced plant. Ancient varieties of the Vine still flourish, and many existing varieties of Apple and Pear date back to the time of the introduction of the Potato. The Jerusalem Artichoke, introduced about the same time as the Potato, is still irrepressibly vigorous and yet is propagated by tubers. Taking all the known facts into consideration, it would seem that the proper conclusion to draw is that continued vegetative propagation does not necessarily lead to loss of vigour, and that, provided the plant is of a constitution sufficiently strong to enable it to resist the attack of enemies and adverse meteorological conditions, it can maintain itself indefinitely by means of vegetative propagation. The difference between such a plant and one propagated by seed would appear to be that, whereas the latter may produce offsprings, some of which are of stronger constitution and it may be different in other respects from the parents, the successive generations of the asexually produced plant are, with the rare exceptions of bud sports, of the same constitution as, and similar in all other respects to, the original parent which begat them. If the degeneration hypothesis were true then it would be expected that all the plants of a given variety would show degeneration at the same time. That this is not the case is illustrated by such facts as those cited by Dr. Salaman with respect to the once popular variety Magnum Bonum. In England, this variety has passed out of cultivation because English stocks deteriorated, yet at the present day this variety is the one most grown in Sweden, where it has been in cultivation for the past fifty years. Again, if there were a natural term of years to the life of a vegetatively produced plant it would be expected that all varieties of Potato would, after a definite period of years, show degeneration. This, however, is not the case. Some show signs of deterioration very early, others after a few years of cultivation, and others, if at all, only after very long periods. There is, however, a method of putting this controversy to the crucial test of experiment. Degeneration, if it means anything at all, means that the cells and tissues of the degenerate plant have suffered deterioration. Among these deteriorated cells the reproductive cells are included. Therefore the sexually produced offspring of a degenerate

variety should also show degeneration. This test Dr. Salaman has applied, and the results of his experiments, fully described in his paper, show that the sexually-produced offspring of plants which have undergone progressive deterioration exhibit the cropping power of the parents in the heyday of their existence before signs of deterioration began to appear. It is, therefore, to be concluded that deterioration is a sign not of an inevitable degeneration or senility, but of constitution. Like all plants, the Potato is beset with enemies. Whether it is to fall a victim to, or to resist their attack, depends on constitution. A variety of weakly constitution succumbs, a variety of stronger constitution puts up a stronger resistance, but may ultimately fall a victim to successive attack, and a variety of yet stronger constitution may resist indefinitely. All recent discoveries with respect to the diseases of the Potato support this view. Among these diseases are several of a peculiarly insidious nature. Chief of these are Leaf Curl, and it is significant that in deterioration of yield the mark of degeneration is accompanied by the same signs—crinkling of leaf, loss of stature, brittleness of haulm—as those evoked by the obscure but undoubtedly infectious disease known as Leaf Curl. The conclusions to be drawn from these observations are, that varieties of Potato, all of which originated as seedlings, differ from one another in power of resisting diseases, that power of resistance varies also with locality—a district which is an ideal one for Potatoes being naturally one in which soil and meteorological conditions favour the Potato and aid it in its resistance to attack of disease; that in less favoured districts the balance of power is transferred to the attacker, and as a result, the variety becomes diseased and shows its unhealthy condition in the poorness of its crop. The discussion is not of merely academic importance; it has important practical issues. If degeneration means disease, then the problem is open to experimental solution. The plant-breeder has the power to abolish or at least mitigate degeneration by breeding varieties which are resistant to such diseases as Leaf Curl and Leaf Roll. This is the conclusion reached by Dr. Salaman, and we think that those who study the argument, which is set forth in his paper, will agree that it is sound.

Royal Horticultural Society's Great Autumn Show.—The exhibition arranged by the Royal Horticultural Society to be held in Holland Park Skating Rink on Tuesday, Wednesday, Thursday, and Friday, October 5, 4, 5, and 6, promises to be a great success. The Skating Rink is nearly four times the size of the Royal Horticultural Hall, and we understand that every inch of space will be fully occupied by exhibits. The schedule provides thirty-eight classes for vegetables and one hundred and five classes for fruits, Chrysanthemums and other autumn flowers, Orchids, Roses, and ornamental trees and shrubs will be exhibited extensively, in addition to many other interesting contributions. Thus it will be seen that the show is a combination of the Vegetable and Fruit Shows previously held on separate occasions, with the additions already mentioned. On this occasion the Coronation Cup will be offered for the most meritorious group; the Gordon-Lennox Cup for the best exhibit of fruit from an amateur; the Sutton Cup for the best collection of vegetables; the R.H.S. Cup for the competitor who secures the greatest number of first prize points for vegetables; the Wigan Cup for Roses; the George Monro Memorial Cup for the best exhibit of Grapes grown by an amateur; the National Chrysanthemum Society's Cup for the best exhibit of Chry-

* *Degeneration of Potatoes*, by Redcliffe N. Salaman, M.D., p. 79. *Report of the International Potato Conference*. Edited by W. R. Dykes, M.A. Printed for the R.H.S. Price 3s., post free 3s. 4d.

santhemums; the Bunyard Cup for the most promising seedling Apple not previously exhibited at a meeting of the Society; Messrs. Allwood Bros.' Bowl for the best group of Carnations exhibited by an amateur; and the Affiliated Societies' Cup for fruits exhibited by an Affiliated Society. Judging will commence at 9 a.m. on October 3, and the exhibition will be opened to the holders of Fellows' tickets at 12 noon and to the public at 2 o'clock on payment of 10s. The exhibition will remain open until 9 p.m. on the first day and from 10 a.m. to 9 p.m. on the Wednesday and Thursday, and from 10 a.m. to 7 p.m. on Friday.

Sir Lawrence Weaver's New Appointment.—Sir Lawrence Weaver, K.B.E., will shortly relinquish the post of Second Secretary and Director-General of Land Settlement at the Ministry of Agriculture in order to take up the appointment of director of the art section and the agriculture section of the British Empire Exhibition, 1924. In view of the approaching completion of the Land Settlement scheme and of the reduction in the work of the Ministry owing to the repeal of Part II. of the Agriculture Act, it has been decided that the vacancy created by Sir Lawrence Weaver's retirement shall not be filled. In making this announcement, Sir Arthur Griffith-Boscawen, Minister of Agriculture, expresses his warm appreciation of the conspicuous energy and administrative ability which Sir Lawrence Weaver has devoted to the work of the Ministry and his regret at the loss of his services.

French Chrysanthemum Society.—The annual congress of this society will be held on October 27, in conjunction with the International Autumn Exhibition of the National Horticultural Society of France. The Congress Committee, quite independent of the committees dealing with the show, is composed of the president of the French Chrysanthemum Society, M. Blot, vice-president, M. Ph. Rivoire; secretary, M. G. Clement, together with the president and secretary of the Chrysanthemum section of the National Horticultural Society of France. The agenda contains six items. Papers will be read and discussion ensue on late flowering varieties, market plants, the crown bud, improvement of new varieties, sports, remedies for diseases and insect pests. Medals will be awarded to the best papers read at the meeting. The programme is as follows: Friday, October 27, 8.30 a.m., the Floral Committee will judge the novelties; 12.30, judges' luncheon. The afternoon will be devoted to a visit to the show; 4 p.m., meeting of the General Committee. Saturday, October 28, 9 a.m., meeting of the congress in the hall of the National Horticultural Society; mid-day, luncheon at the Brasserie Dumesnil; 2.30 p.m., the party will visit the establishment of Messrs. Vilmorin, Andrieux and Co.; 7.30, official banquet at the Hotel du P.L.M. Sunday, October 29, 9 a.m., at the Montmartre Cemetery there will be a demonstration of sympathy by the graveside of the late M. René Momméja, the society's new president, who died suddenly a few weeks ago.

Meteorological Station for Greenland.—At a meeting of members of the International Meteorological Committee, held in London in July, 1919, the importance of obtaining meteorological information from Greenland for use in daily weather forecasting was emphasised, and it was agreed that the views of the members should be communicated to the Danish Government. We learn from the *Meteorological Magazine* for the current month that at subsequent meetings of the Commission for Weather Telegraphy, the importance was urged of establishing a wireless station in the South of Greenland, even if it were only powerful enough to communicate with Ireland and not direct with the Continent of Europe. It is now understood that an expert, sent by the Danish Government, left for Greenland early in August in order to study the local conditions, so that the Government may be in a position to come to a definite decision on the question of establishing a meteorological and wireless station in Southern Greenland.

Mr. George P. Berry.—Horticulturists owe a debt to Mr. George P. Berry for his efforts in promoting and maintaining their interests at the Ministry of Agriculture, of which he is Senior Instructor in the Horticultural Division. His appointment in 1913 was an event of horticultural importance, so far as the Ministry of Agriculture was concerned, for he was the first professional horticulturist on the Ministry's staff, and his good work during the time he has held that important position is well known to most of our readers. During the war years he was Technical Adviser in Horticulture at the Food Production Department, and to such men as Mr. Berry the country owes a great debt for the valuable work they did in helping to increase our home supplies at that critical period in our history. Mr. Berry comes of a gardening stock, for his father was for twenty-three years head gardener at Dalvey, near Forres, the seat of the late Norman McLeod, Esq. Mr. Berry, jun., was born at Dalvey, but, when a boy, his family removed to Cullen House, Banffshire, where Mr. Berry, sen., had a new appointment as gardener, owing to the death of his former employer. It was at Cullen House that Mr. George Berry commenced his gardening career. Later he entered the services of



MR. GEORGE P. BERRY.

Messrs. Methven and Sons, of Edinburgh, and subsequently obtained an appointment in the gardens at Coltness House, near Wishaw, which were accounted among the finest in the West of Scotland. After two years at Coltness he joined the staff of the Royal Botanic Gardens at Edinburgh, rising to be foreman of the glass department. His next change was to take charge of the horticultural and forestry departments of the experimental station of the Northumberland County Council at Cockle Park, Morpeth, where he remained until he was appointed lecturer in horticulture at the Armstrong College, Newcastle. During his eight years' residence at Newcastle he gained a high reputation as an exponent of horticultural practice, and, when the governors of the Edinburgh and East of Scotland College of Agriculture appointed their first horticultural lecturer, they selected Mr. Berry. The good work he did throughout the Eastern Counties of Scotland brought him into considerable prominence, and, when his appointment at the Ministry of Agriculture was announced, it was received with general approbation in the horticultural world. In addition to high professional abilities, Mr. Berry has a pleasing personality which has endeared to him a wide circle of friends throughout the whole of England and Scotland.

Royal English Arboricultural Society's Summer Meeting.—The summer meeting of this Society, which was held this year at Monmouth from September 4 to 8, under the presidency of the Earl of Selborne, was in every way successful and enjoyable. On Tuesday morning, the 5th inst., a visit was made by motor coach to the Forest of Dean. On Wednesday, Highmeadow Woods were visited, a compact block to the west of the Forest of Dean, intersected by the River Wye, and extending to between three and four thousand acres. In the evening the Annual General Meeting was held, with the Earl of Selborne in the chair. Mr. Edward Davidson, the Secretary, read the annual report, and the Treasurer presented a satisfactory balance-sheet. A resolution was moved by Lord Selborne and seconded by the Earl of Plymouth, asking the Government to renew the grant for the purpose of utilising unemployed labour for forestry work, which was carried unanimously. The Earl of Plymouth was then elected President of the Society in succession to Lord Selborne, who had occupied the position for two years. On Thursday a visit was made to Tintern Woods, which extend over nearly four thousand acres. They were for the most part bought by the Crown in 1901-1902 from the Duke of Beaufort. The annual dinner was held at the Beaufort Arms, Monmouth, in the evening, at which the Earl of Plymouth, as the newly appointed President of the Society, occupied the chair. The meeting was brought to a close on Friday by a visit to Eastnor Castle, Ledbury, and to Huntley Manor, Gloucester.

National Chrysanthemum Society's Floral Committee Meeting at Holland Park.—The next meeting of the Floral Committee of the National Chrysanthemum Society will be held on Monday, October 2, at 3.15 p.m., at Holland Park Rink, Notting Hill, and not on Tuesday, October 3, as previously announced. The National Chrysanthemum Society is offering a twenty-guinea cup, to be awarded to the best exhibit of Chrysanthemums at the Holland Park Rink show.

Chrysanthemum Lecture at Catford.—Those of our readers who reside in the south-eastern district of London may be interested to know that Mr. C. Harman Payne will give his lantern lecture on "The Golden Flower (Chrysanthemum); its Poetical, Mythical and Romantic Associations," in the Parish Hall, St. Andrew's, Catford, S.E., at a meeting of the newly-formed Men's Association, to be held on Friday evening, the 20th prox., at 8 p.m.

Gift of Allotment Produce to London Hospitals.—The scheme instituted by the National Union of Allotment Holders to obtain produce of a non-perishable nature for hospitals met with great success. The contribution was made on Saturday, the 23rd inst., which was known as the Greater London Allotment Holders' Gift Day. About two hundred and fifty societies contributed to the scheme and hundreds of tons of Potatoes and other storable vegetables were contributed on behalf of some fifty hospitals. In some cases a single group of allotment holders contributed as much as three and four tons of vegetables while gifts of half-hundredweights of vegetables from individual plot holders were quite common. It is stated that London's example will be followed by allotment holders in other cities, and it is likely that next year there will be a great national thanksgiving day by allotment holders throughout the country.

R.H.S. and Kindred Societies.—For some time past somewhat strained relations have existed between the Royal Horticultural Society and the several floricultural societies which hold exhibitions at the Royal Horticultural Hall. We are glad, however, to learn that, as a result of the conference held at the Horticultural Hall, on the 18th inst., an amicable agreement has been arrived at. At this conference, Mr. W. Cuthbertson presided, and with him were Mr. Musgrave, Treasurer, and Mr. W. R. Dykes, Secretary, representing the Royal Horticultural

Society, while the kindred societies were represented by Mr. Courtney Page (National Rose Society), Mr. Charles H. Curtis (National Chrysanthemum Society), Mr. H. D. Tigwell (National Sweet Pea Society), Mr. J. S. Brunton (British Carnation Society), and Mr. J. Green (National Dahlia Society). The conditions of letting the hall to kindred societies, agreed upon at the conference, have been approved by the Council of the R.H.S. and are as follow:—

(1) For a one-day show on the day following one of the R.H.S. shows; five guineas inclusive. (2) For a one-day show with one day intervening between an R.H.S. show, which the kindred society shall be allowed for preparation and staging; ten guineas inclusive. (3) For a two-day show, on a Thursday and Friday, which is only possible at present between July 1 and Feb. 25; fifteen guineas inclusive, the Wednesday in this case to be allowed for preparation and staging. (4) For a two-day show in a week when the R.H.S. has no show, twenty-five guineas, made up of ten guineas for each day and five guineas for the day previous, for preparation. (5) For a one-day show in a similar week it was suggested that the charge be sixteen guineas (*i.e.*, one day for the show and one for preparation). "Inclusive" means that the R.H.S. will give a hall service free, similar to the service provided for its own shows. All exhibits must be removed by 10 p.m. on the evening on which the show closes. R.H.S. Fellows' tickets to admit free to all kindred societies' shows held under these arrangements. Dates cannot be guaranteed unless booked at least twelve months in advance.

Appointments for the Ensuing Week.—Monday, October 2.—National Chrysanthemum Society's meeting at Holland Park Rink. Tuesday, October 3.—Royal Horticultural Society's committee meetings at Holland Park Rink (four days); Royal Caledonian Horticultural Society's meeting; Bournemouth Gardeners' Association's meeting. Wednesday, October 4.—United Horticultural Benefit and Provident Society's dinner at the Imperial Hotel, Russell Square; Royal Agricultural Society's Council meeting; Helensburgh and Gareloch Horticultural Society's annual meeting; National Viola and Pansy Society's meeting; Glasgow and West of Scotland Horticultural Society's lecture on "The Culture and Training of Hardy Fruit," by Mr. D. Grant M'Iver. Thursday, October 5.—Manchester and North of England Orchid Society's meeting. Saturday, October 7.—British Mycological Society's autumn foray for London students; Locherbie Flower Show.

"Gardeners' Chronicle" Seventy-Five Years Ago.—*Edgeworthia chrysantha*. This shrub was sent by Mr. Fortune to the Horticultural Society in April, 1845. It flowered for the first time in February, 1847, in a greenhouse. In the Society's *Journal* it is described as "A dwarf soft-wooded plant, throwing up reed-like dull green stems from its base, and bearing the leaves exclusively near their ends. The leaves are about eight or nine inches long, very dull green, and covered with fine hairs. The flowers have not yet been produced in England; but Mr. Fortune's Chinese drawings and specimens show them to be bright golden yellow, something less than an inch long, covered with exceedingly thick hairs on the outside, and collected into balls about two inches in diameter at the ends of the shoots. He adds that they are sweet-scented, and appear in Chusan in July. The species is allied to *Edgeworthia* (or *Daphne*) *Gardneri*, a Nepal plant with a similar habit. It grows freely in a compost of three parts sandy-loam, and one of turfy-peat. A free drainage is necessary; for although it requires an ample supply of water during the summer months, it is liable to damp off if this point is not properly attended to. For a few weeks in winter very little water is required. It will probably be multiplied without difficulty from cuttings of young wood. In order to induce it to flower, the Chinese bind the stems so as to form a loop; and this practice has been followed with success in the garden of the Horticultural Society, where it has now flowered in the month of May.—*Botanical Register, Gard. Chron., Oct. 2, 1847.*

TREES AND SHRUBS.

POTENTILLA FRUTICOSA PROSTRATA.

For duration in flowering and general attractiveness throughout the late summer and autumn this shrubby Cinquefoil stands pre-eminent to keep our borders and rockeries gay and cheerful. The type is well known for its freedom of flowering, erect habit, and general attractive appearance. The variety *prostrata* is, as its name implies, of trailing or prostrate habit, and densely bushy. As a rockery subject it is most useful. The prostrate, woody stems and acute, pinnate, warm green leaves, covered with fine silky hairs, and almost silvery under surface, are most charming. On the russet-coloured, woody stems are irregular, short branches with bunches of terminal golden yellow flowers, much larger

was first published in 1838, and the second edition, from which I quoted, in 1844. It contains practically everything that had then been published about the introduction of the Larch, including all the facts given by Grigor in his *Arboreiculture* (which was not published until 1868, nearly thirty years after Loudon's death), Headrick's statement about the Lee Larches, which is not given by the author of the report as anything more than a legend, and the views of Dr. Walker, Sir T. Dick Lauder, and others. It is quite possible that Grigor was right in his surmise that the Dunkeld Larches were raised from seed produced in England, and if they were really introduced in 1738 I think this is extremely likely, as Larch plants four and five feet high were being sold by a nurseryman in Midlothian in February of that year (see *Gard. Chron.*, May 20, p. 258); but in view



FIG. 75.—ASTER QUEEN OF COLWALL. R.H.S. AWARD OF MERIT, SEPTEMBER 19. (SEE P. 184.)

than in the type; indeed, many flowers are larger than a half-a-crown piece. The plant continues in bloom over a very long period; indeed, it is one of the most persistent flowering shrubs we have. It is not fastidious as regards soil, but the latter should be well drained; it should be planted in full exposure to the sun. W. L.

THE DUNKELD LARCHES.

The statement Mr. Mark Mills makes at page 141 that I passed over Grigor "with contempt" is untrue. I passed over no authority in this way. Further, I fear I shall have to disappoint Mr. Mills if he expects me to attempt to demolish the Rev. Mr. Headrick's statement about the Lee Larches, or to defend Loudon against his rather pointless criticism. Loudon's *Arboretum et Fruticetum Britannicum*

of the statement by Dr. Walker, who paid much attention to the history of the introduction of exotic trees into Scotland, that the "first Larches were planted at Dunkeld in 1727" (*Arboretum et Fruticetum Britannicum*, Vol. IV., p. 2359), the 1738 date must be accepted with considerable doubt, even although the statement in the *Transactions of the Highland Society* was published under the authority of the Duke of Athol's trustees.

With reference to Mr. Clinton Baker's statement of the girth of the Dunkeld Larch (see *Gard. Chron.*, June 24, p. 337), I find that Strutt (*Sylva Britannica*, p. 146) gives the girth of the larger of the parent Larches as 13 feet at three feet from the ground in 1825, which seems to corroborate both Dr. Blackadder's measurement and that given by Hunter. A. D. Richardson, Edinburgh.

The Week's Work.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER CLAY, M.P., Ferd Manor, Lingfield, Surrey.

New Borders.—Where planting is contemplated this autumn advantage should be taken of fine, dry weather for moving soil, especially if it be of a heavy nature. Preparations for planting often entail a good deal of wheeling. Early preparation allows for the settling of the soil, which is now some degrees warmer than it will be in November. Opinions differ as to the proper depth for fruit tree borders, for soils, subsoils and situations vary; it is best to err on the safe side by adopting the shallow border of, say, 20 inches or an intermediate standard of 30 inches. On light soils, through which water passes quickly, a fairly deep, sustaining border is needed.

Pot Vines.—Vines in pots intended for starting into growth in November or early December may be shortened to a suitable length, washed and placed in a position where they can be kept quite cool and sheltered from heavy rains. All loose surfacing material should be removed, and, when the soil has been made suitably moist, top-dress the border with rich turfy loam to which a good sprinkling of bone-meal has been added.

Plums.—Early and mid-season Plums cannot be kept too cool, and certainly no quarter must be given to insect pests, as green fly and black aphid often put in an appearance after a warm, dry time. Where a house is devoted to Coe's Golden Drop, the fruits will now be in perfection, and worthy of the greatest care. A free circulation of dry air being imperative, the ventilators and doors should be constantly kept open. As the Plums improve in quality after they are ripe, the roots of the trees should be kept moderately moist and well-covered to prevent them from drying out.

THE FLOWER GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

Autumn Tints.—The fading of green foliage to tints of yellow, red, purple and brown is one of the most lovely sights during autumn, and amongst the most beautiful subjects are the various Maples, Amelanchiers, Caryas, American Thorns, Ginkgo biloba, Liquidambar, Parrotia persica, various species of Pyrus and Oaks amongst trees, whilst among the shrubs and creepers may be mentioned Barberries, such as Berberis Thunbergii, B. coccinea, B. Wilsonae and B. vulgaris; Cornus sanguinea, Euonymus alatus, Rhus of sorts, Spiraea Thunbergii, and the different members of the Vitis group.

Phytolacca.—There is a handsome group of plants that may be included in large herbaceous borders for the sake of their fruit at the present season. I advisedly use the term large borders, inasmuch as the plants are of very robust growth in height and spread. I refer to the Phytolaccas or "Pokeweeds," the members of which are natives of such diverse regions as Japan, India, and Florida. They carry remarkable spikes, generally over a foot long, of purple-black fruits. Always a matter of great interest to visitors, they are apparently but little known, although so handsome, and though greatly similar in appearance, such species as P. acinosa, P. decandra and P. octandra are well worth growing, whilst there has been a new species introduced in recent years by Mr. G. Forrest, and known as P. clavigera. All these are raised easily from seed—in fact, they will spring up from natural-sown seed provided the spikes are not gathered before the seed scatters.

Roses from Cuttings.—The wood of Wichuriana and other Roses that it is desirable to in-

crease from cuttings is now ripe, and the shoots may be inserted. The wood should be of this season's growth in well ripened condition. Make the cutting about nine inches in length, and cut just below an eye, removing the foliage other than that at the top, and inserting the cutting in good, sandy compost to within about two inches of the top. They will strike best in a cold frame, though they will root in open ground, but measures should be taken to protect the cuttings from frost during inclement weather.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir C. HALL-CALIN, Bart., The Node, Codicote, Welwyn, Hertfordshire.

Ixora.—As plants of Ixora pass out of flower select some of the stronger shoots for use as cuttings. If rooted quickly the cuttings will make good plants and produce two or three trusses of flowers next spring. By careful treatment these young plants will make useful specimens by the autumn. Ixoras are not grown so extensively as in former days, owing probably to the high temperature required to grow them successfully. Ixoras require a minimum temperature of 65 deg. to 70 deg., and the roots should be kept in a uniform state of moisture; never allowed to become dust dry, but not overwatered.

Begonias.—Autumn and winter flowering Begonias are growing freely, and the main shoots of the Optima varieties require to be kept neatly staked to prevent them from bending over with the weight of the flowers. These Begonias may be had in flower over a long season by allowing the earliest plants to develop their blooms after this date, but continue to pinch out all blossom buds of the later plants for another four or five weeks. Encourage these latter plants to make healthy growth, when they may be allowed to flower and form a succession to those allowed to bloom earlier. The same treatment may also be extended to Begonias of the Gloire de Lorraine type. Well rooted examples of these Begonias should be assisted by feeding them with weak liquid manure and soot water on alternate occasions with clear water. Allow the plants sufficient space so that each may form a fine specimen. An average night temperature of 55° should be maintained in the house in which they are growing.

Caladium.—These plants have practically finished their growth and water should be withheld from the roots gradually. It is not advisable to dry these plants off too suddenly or the tubers will fail to develop and not mature properly. Much of next season's success will depend on the treatment of the tubers during the time that they are ripening. When the foliage is completely died down the plants should be stood under the stage of a moderately warm house where a night temperature of 50° is maintained during the winter. They will be found to keep best in the pots in which they have been grown, the soil giving sufficient moisture to prevent shrivelling.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the DUKE OF MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Oncidium.—The members of this genus are usually represented by plants in flower, no matter what the time of year. One very pretty and useful species now in flower is O. obryzatum, its long and much-branched spikes carrying large quantities of pretty golden yellow flowers that are spotted with light brown, and these at a season when Orchid flowers are not over plentiful in most collections, are doubly valuable. The plants belonging to the O. crispum section, namely, O. Forbesii, O. curtum, O. Gardneri, O. Marshallianum, and O. crispum itself, although not flattering to present-day Orchid growers, are most useful subjects, even if they cannot be kept in a robust condition over a series of

years. O. Marshallianum produces its flowers during the late spring and early summer, whilst the others display their beautiful flowering sprays during late summer and autumn. O. varicosum is one of the most beautiful and free flowering Orchids in cultivation, and those plants that are at the present time producing flower spikes should be placed well up to the light, the spikes, as they become long enough, being neatly staked to prevent accidents. O. ornithorhynchum and its beautiful variety album, with others that have been growing during the summer months in the cool house, will be better placed in a cool position in a cool intermediate house for the winter. There are other Oncidiums, all of which should be grown in quantity where cut flowers are in great demand, as their flowers adapt themselves to all kinds of decorative work, but unfortunately at the present time there is some difficulty in obtaining them. After flowering they should be rested, as these plants delight in a long, decided rest, no matter if they are species which require much fire heat, or a moderate temperature, but in no case should they be allowed to shrivel.

Repotting.—The cultivator often has to decide between two evils, namely, repotting a plant at an unsuitable time or allowing it to remain in half decomposed material. My advice in such cases is to repot, as decomposed material at the roots is the cause of many plants declining in health and vigour. Some little discretion is necessary in the application of water to the roots of any plant repotted out of its normal season.

THE KITCHEN GARDEN.

By JAMES E. HATHAWAY, Gardener to JOHN BRENNAND, Esq., Baldersby Park, Thirsk, Yorkshire.

Wintering Crops in Frames.—Frames should be got in readiness for pricking out Cauliflowers, Lettuces, Endives and Parsleys. The old soil should be removed and a mixture of old potting soil, leaf-soil and wood ash substituted. Do not overcrowd the plants, and avoid coddling them, placing the lights in position only when protection is absolutely necessary.

Cucumbers.—A bed should be made for planting the winter crop of Cucumbers in a light house. Warmth should be provided by the use of fermenting materials, in addition to plenty of hot water piping. Place on the bed a light mixture of two parts loam and two parts leaf-mould, with coarse sand, and small pieces of charcoal added. Keep the plants well thinned and do not crop them heavily. Any sign of aphid or thrip should be dealt with at once by fumigating the house with XL-All insecticide. Keep the glass of the house well washed to admit all the light possible.

General Remarks.—The recent wet weather has caused weeds to get out of hand, and advantage should be taken of any fine days to hoe them up, rake them off the ground, and burn them. Birds are very troublesome to late Peas, which should be protected with nets. All stumps of vegetable plants should be removed as soon as the crop is cut.

HARDY FRUIT GARDEN.

By H. MARKHAM, Gardener to the EARL OF STRAFFORD, Wrotham Park, Barnet.

Peaches and Nectarines.—Those intending to plant young Peach and Nectarine trees this autumn should prepare the borders and stations forthwith. Peaches and all stone fruits require plenty of lime and sweet, fertile loam of medium texture. Manure is not greatly needed if the soil is of good quality, with plenty of fibrous matter present in it, but if it is somewhat poor, with only a little fibre present in it, decayed manure should be thoroughly mixed with the compost. The trees will then grow freely and produce wood of firm, medium texture. The borders at the foot of newly erected walls should be thoroughly trenched from one end to the other, and ample drainage mate-

rial employed. Place turves grass-side downwards over the drainage, and then fill the trench with the specially prepared compost. Make the latter rather firm previous to planting the trees. Peaches do best in a firm, sweet root run, resting on good drainage. If the walls are high, plant standards and dwarfs alternately and varieties that will keep up a long supply of good fruits. There are many good varieties to select from; the following, I find, from many years' experience, all dependable sorts—Peaches: Hales' Early, Rivers' Early York, Peregrine, Dymond, Stirling Castle, Royal George, Bellegarde, Crimson Galande, Barrington and Sea Eagle. Nectarines: Early Rivers', Lord Napier, Dryden, Pine Apple, and Humboldt.

HARDY FLOWER BORDER.

ROMNEYA TRICHOCALYX.

DWARFER, and less imposing in consequence, than *Romneya Coulteri*, *R. trichocalyx* (Fig. 76) promises to take a place in gardens denied to its congener, which was introduced much earlier. It appears to be hardier than the older species and also much freer in flowering; plants I have seen this year have improved considerably over their records of former seasons. This is a most beautiful Californian Tree Poppy. Its foliage is not only graceful in form, but is of delightful glaucous colour, and the flowers, held erect, are of the highest charm, with their

vation that the differences were recognised. The plant is illustrated in *Bot. Mag.*, tab. 8002, and the accompanying text states that it first flowered in this country in 1902.

Just before writing this note I had the pleasure of seeing two small beds filled with this fine *Romneya* in the garden of the Rev. Father Douglas-Dick, St. Mary's, Newabbey, a place of which I wrote last year. In these small beds the plants of *R. trichocalyx* were exceedingly beautiful, with their charming foliage and delightful, large flowers, enhanced in beauty by the surrounding admirably kept grass. At St. Mary's this *Romneya* is hardy, and seems to have greatly increased in beauty since it was first planted. *S. Arnott.*



FIG. 76.—ROMNEYA TRICHOCALYX.

Black Currants.—If Black Currant bushes are much crowded with useless wood the present is a suitable time to remove several of the shoots and branches. The removal of these branches will allow both light and air to circulate freely amongst those that are left for bearing fruit next year. Do not shorten the young, fruiting shoots, simply open out the heads and reduce the number of growths springing up from the base if they are too numerous. Black Currants thrive best in a somewhat cool, moist soil that is well drained. Shallow land resting on gravel should be liberally mixed with rich, decayed manure and heavily mulched during the summer. The hot summer of last year proved very disastrous to Black Currants in many gardens, thus proving their evident need of plenty of moisture.

pure white petals and golden filaments. The blooms also appear to have more substance than those of *R. Coulteri*, and a good plant gives a prolonged succession of flowers, which generally begin in July and continue until September. Its height is stated to be about two feet, but it is taller in most places where I have seen it. The plant seems to need a rather dry, well-drained, but not too poor soil, and should have plenty of sun. In very cold districts it may require a little protection, but this does not usually appear to be necessary, judging from the reports I have had from different parts of the United Kingdom.

The two species were at one time confused and it was not until Miss A. Eastwood, of the Herbarium of the Californian Academy, pointed out that two distinct species were in culti-

HELIANTHUS MULTIFLORUS LONDON GOLD.

This beautiful Sunflower is a fine plant for the shrubbery and herbaceous border, being of average height and bushy habit. It may be interplanted with low-growing shrubs and is suitable for the back row of the herbaceous border. It grows from 3 feet to 4 feet tall, producing stout, erect stems, that are crowned at this season with numerous, double flowers of stout texture. The variety London Gold is best described as a gigantic form of *H. m. plenus*, the flowers being much larger, with a more double crown or disc, and with broader and more uniform golden ray florets. It received an Award of Merit at the R.H.S. meeting on August 28, when exhibited by Mr. T. Carlile, of Twyford. *W. L.*

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 5, Tavistock Street, Covent Garden, W.C.2.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 5, Tavistock Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.

A VIEW OF WESTERN ORCHARDS.

As we travel westward from London it always seems that the fields take on a richer green, and the bricks a deeper red, and as we approach Bristol orchards of veteran Cider trees announce the fact that we have reached the "West Country."

Appropriately enough, the Cider Institute at Long Ashton was the object of our first visit, and it is pleasant to record that the ravages of war have now been effaced and the general aspect of the station is more interesting than ever. The recent expansion of the station has enabled experiments to be extended, and many now in progress show already some points of interest and suggestiveness. Pot experiments with fruit trees indicate that Leaf Scorch may be due in some cases to lack of potash, and those who have trees in this state would find it interesting to dress a few trees with a potash manure, and also with lime, the latter releasing potash in the soil if present.

A plot of Apples whose roots have been treated by various mutilations do not show the harmful effects of removing fibre which some would expect, and seem to be tending to confirm the Woburn results on this point. Near by are the Paradise Apples on the stocks which have been selected at Malling, and it is interesting to note that they do not show such early fruiting characters as at Malling. This is very probably due to the heavier soil and greater rainfall at Long Ashton.

A large assortment of Raspberries has been collected for trial, and it is hoped that the combined efforts of Wisley, Malling and Long Ashton will bring some order into the disordered nomenclature of this fruit. Of the many other aspects of Long Ashton, chemical, entomological, etc., we cannot now write, but it is evident that the enlarged resources of the station are being put to good use, and will in due season bear valuable fruit.

It was a grey and moist day that saw us starting from Worcester for a tour of the Severn Valley, under the guidance of Mr. Hollingworth, agricultural organiser for the country. The fertile soil each side of the river has as yet been but little devoted to fruit, but that it is well suited many isolated orchards prove. This is the country of the Blaisden Red Plum, a variety resembling closely the Purple Egg Plum in fruit, but distinct in growth. It is raised from suckers, and makes a medium-sized tree of dense habit. We visited an isolated orchard entirely of this variety, cropping marvelously, so it is presumably quite self-fertile. The fruit is sold in the local "pot" and by weight, and with such a heavy fruit as this, the baskets are often only three-parts full. This seems a great waste of space, and we wondered that some effort had not been made to sell by total weight of basket when filled. One great merit of the Blaisden Plum is its firmness, so that a full basket of this variety should not, we imagine, be unattainable. In all the orchards we visited this Plum predominated, and the only other varieties we noted were the Yellow Egg and a few Cox's Emperor, a variety we were rather surprised to find still grown commercially.

Most of the fruit in this district is grown on grass; but we visited a farm, famous in the district, and not unknown beyond it, where Apples are grown as bushes on cultivated land. Here we saw the largest area of King Edward

Apple we have yet found, and many other sorts, such as Gascoyne's Scarlet and Lord Grosvenor, errors of a previous occupant, which will take the present owner some time to live down. The country around is very like the typical Devonshire country, hills and valleys, the deep red earth and wonderful green of the trees and herbage. We were told that the Simar cultivator had successfully negotiated the steepest hills. A plantation of Pears recently added to the farm showed that this fruit will do as well as others in this fertile valley.

Hereford being our next objective, we en-trained at Newport and passed through the fine hilly pastoral country of Monmouth by Aber-gavenny, and so arrived at the city of cattle

dominate so far as we could see, but Rivers' Early and Monarch are often found; but no grower we met seemed very anxious to replant these two varieties. The Prune Damson is found everywhere, and was bearing amazing crops. The trees are nearly all raised from suckers, and it is thought that they bear better than grafted trees, and trees seen on one farm certainly support this opinion. The plantations we visited would not bear comparison with the best in Kent or elsewhere, and it was interesting in one case to see Superlative Raspberry doing well, and to hear on another that Marlboro' (Perfection) was the only possible one; and so do contiguous soils and opinions differ.

No fruit-grower can be in the neighbourhood of Hereford without remembering Thomas Andrew Knight, the great pomologist of last century. The name of his home and of many houses and villages around recall many an old fruit, some forgotten, others still with us, as the Elton Cherry and Ingestre Apple. It was, therefore, with some interest that we turned our car to the steep hill on which stands the lonely little church of Wormsley, where he lies buried. Clouds of soft rain did not entirely hide the wonderful view of distant hills and folded valleys, and finally we pulled up at a farm gate, passed through a field, and suddenly found ourselves before the church. It is a small and unpretentious building, standing almost alone in the fields, neighboured only by a farm and its buildings. The tombs of the Knight family are conspicuous at once, being the largest in the churchyard, and it is a plain, and even severe, memorial that marks the grave of Thomas Andrew Knight.

An oblong stone bears on each side an inscription, one in Latin and the other in English, as follows:—

"Under this stone rests the remains of Thomas Andrew Knight, of Downton Castle and Wormsley Grange, in the county, and late president of the Horticultural Society of London. He possessed a mind capable of investigating the most secret works of Nature, a heart overflowing with charity to all mankind, and a mind which never refused assistance to the deserving or withheld relief and consolation from the poor.

"His family, friends and neighbours will ever mourn their irreparable loss. His widow has caused this monument to be erected in memory of her beloved husband, who died in his LXXXth year, May 11, MDCCCXXXVIII."

It is necessary to add that owing to the nature of the stone this inscription is fast becoming illegible, and it would seem that, failing immediate attention, it will not be long before the last resting place of the great horticulturist will be no longer discoverable. Surely some interested persons, or even the Royal Horticultural Society, should see to it that this should not be.

As we left the tiny churchyard and descended the steep hill in the ceaseless rain it was pleasant to think of him resting, so peacefully and secluded, amongst the orchards that he loved so well. As we turned our faces eastward we carried with us pleasant remembrances of West Country hospitality and an enduring memory of the colloid properties of the old red sandstone.

SOLIDAGO BUCKLEYI.



FIG. 77.—SOLIDAGO BUCKLEYI.

and cider. Here we again found the old and new styles of fruit growing in close juxtaposition. Large orchards of Cider and Perry Pears are found throughout the district, and here and there modern fruit farms, which cannot be bettered in any part of the country. The Cider and Perry varieties are beyond our scope; but the most casual eye could not be other than impressed by the Giant Barlands, Blakeney's and all their race, preserving as they do their individual habits of growth into old age much more than the greater number of our culinary fruits.

Many of the Perry Pears would make fine park trees, and when in flower must present a mass of blossom unequalled by any other flowering tree growing in this country. In the grass orchards we visited Ecklinville Seedling Apple was largely grown, along with Devonshire Quarrenden; but Bramley's and Newton Wonder seem to be invading this district, as they have done elsewhere, there being, perhaps, a preference for the latter in many cases.

In Plums, the Pershore, purple and yellow, Victoria and Belle de Louvain seem to pre-

dominate so far as we could see, but Rivers' Early and Monarch are often found; but no grower we met seemed very anxious to replant these two varieties. The Prune Damson is found everywhere, and was bearing amazing crops. The trees are nearly all raised from suckers, and it is thought that they bear better than grafted trees, and trees seen on one farm certainly support this opinion. The plantations we visited would not bear comparison with the best in Kent or elsewhere, and it was interesting in one case to see Superlative Raspberry doing well, and to hear on another that Marlboro' (Perfection) was the only possible one; and so do contiguous soils and opinions differ.

Among the numerous species of *Solidago* comparatively few are sufficiently dwarf for use in the front line of a flower border, and not many are compact enough for the rock garden. One species which appears to be suitable for either of these positions is *S. Buckleyi*, about 15 inches or 10 inches high. It is early flowering and the individual growths, closely and densely branched, are quite elegant when covered with the small yellow flowers. The accompanying illustration (Fig. 77) shows the style of the individual flowering growth and represents one of several specimens exhibited at the R.H.S. Hall at the end of July by Messrs. Prichard and Sons, Christchurch.

NOTES FROM WISLEY.

THE coming of autumn is announced by nature in the colouring of fruits and foliage; in the garden the berries and bright-foliaged shrubs offer more vivid colouring now than at any other time of the year. Unfortunately, birds have a liking for the fruits of many shrubs, and in a few days will strip bushes which would otherwise have borne berries for months longer.

Experiments are being made at Wisley with a view to keeping the birds away. Netting being too costly, and undesirable for use on an extensive scale, solutions of various chemicals are being sprayed over the shrubs.

A fine specimen of *Eucryphia pinnatifolia*, some 18 feet high, has nearly finished flowering. This shrub, handsome in leaf and habit and deserving of greater popularity, produces a number of large white blossoms, not unlike those of a *Hypericum* in form, though, of course, it belongs to *Rosaceae*. Another useful late-flowering shrub is *Clethra alnifolia*, which seems very happy in its position near the water. The flowers are fragrant, as are those of *Buddleia Forrestii*, now in flower and distinguished by its white stems and under sides of its leaves. There seems to be some variation in the colour of the flower of this *Buddleia*, some plants having flowers of a pale lilac and others of a deeper shade.

Many *Ericas* are flowering in the wild garden, notably *E. tetralix*, *E. cinerea*, *E. vagans*, *E. australis*, and *E. Maweanae*. The beautiful *St. Dabeoc's Heath* (*Daboecia*, or *Menziesia*, *polifolia*) has become naturalised and is increasing rapidly. A white variety is common, and one, also, in which both white and purple flowers occur on the same plant.

The trial of *Carnations* is being continued, and there will soon be a good display of bloom. The majority of the plants are very healthy and stocky for second-year plants. A trial of *Salpiglossis* under glass has been started, while in the open *Beets*, *Leeks*, and *Lettuces* (120 varieties) are being tested.

There is still a good show of *Dahlias*, the continuation of last year's trial. Among the singles, two beautiful varieties are *Clematis*, which has pale, rosy-lavender florets with orange centre; and the scarlet *Amy Barrilii*, which is further remarkable for its dark red stems and foliage. Among the dwarf, *Paeony*-flowered section, *Charlotte*, with brownish apricot flowers of attractive form, has been floriferous, and is very suitable for garden decoration.

In the rock garden the scarlet *Zauschneria californiana* var. *mexicana* makes one of the few bright patches of colour. Less noticeable is *Carlina acaulis*, a beautiful dwarf *Thistle*, which looks its best when the sun is shining on its bright silvery petals. *Convolvulus althaeoides*, with clear pink flowers and light grey foliage, is a desirable plant if kept within bounds. Another less hardy and later-flowering kind is *C. mauritanicus*, with a bluish-lilac corolla, in the centre of which are the white styles and stamens.

The fruit crop has been but moderate. In almost every case the trees which have borne an exceptionally large number of Apples were those which "missed a crop" last year at Wisley. *J. D. G. White*.

GARDEN NOTES FROM S.W. SCOTLAND.

THE genus *Roscoeia*, a family of the *Scitamineae* or *Ginger* Order, contains some ornamental species, introduced in recent years from China. With the Himalayan *R. purpurea* we have long been familiar, but the Chinese species are far more attractive. *R. caulioides*, with sulphur-coloured flowers, and *R. Humeana*, with purple flowers, are at their best in June; but the handsomest of all is *R. capitata*, which bears rich purple blossoms in August and September. This species was introduced by Messrs. Bees, Limited, who also sent out a late-flowering counterpart of *R. caulioides* under the unsatis-

factory name of *August Beauty*. These late-flowering species have this peculiarity in common, that they make no appearance above ground until July is half sped. Therefore, unless their position is marked by permanent metal labels, they are almost certain to be destroyed in the process of hoeing, forking, and weeding. Not only so, but the ground for a considerable space around the plants must not be disturbed, for they spread far by subterranean runners, mostly invisible till they push up leaves, in early autumn. If these are unimpaired, they soon repay the extra care required by making a fine thicket of flowering stems. They also seed freely; cross-fertilisation being secured by a mechanism similar to that of the blue *Salvia patens*, consisting of levers projecting from near the base of the stamens.

object at this season when veiled in a cloud of small yellow blossoms. A native of Sicily, it takes as kindly to our sloppy western shores as it does to the sun-baked slopes of Mount Aetna, furnishing an example of acclimatisation as remarkable as that of the June-flowering Madeira broom—*G. virgata*.

Lilies, on the whole, have fared far better than might have been expected in such a cold, wet season. In our garden, the fell *Botrytis* has appeared here and there, some clumps of *L. candidum* and *L. testaceum* being badly disfigured, while others in similar soil and exposure have been without blemish. One species, however, that usually thrives with peculiar vigour here, namely, *L. Sargentiae*, has shown resentment at the inclement summer. It has grown as strongly as usual and has not suffered from



FIG. 78.—*CODONOPSIS TIBETICA*. R.H.S. AWARD OF MERIT, SEPTEMBER 19 (SEE P. 184.)

which are set in action by any insect attempting to reach the nectary.

If I were restricted to growing four varieties of *Gladiolus*, I should be quite content with the scarlet *Princeps*, the pink *Halley*, the purple *Baron Joseph Hulot*, and the white *l'Immaculée*. The effect of the last named is greatly enhanced

fungoid mischief; but many of the stems were flowerless, while the flower-buds on others were malformed. In common with all other things flowering later than May, Lilies have been from a fortnight to three weeks later this season than the average date, as shown in the following table:—

	1918	1919	1920	1921	1922
<i>Lilium auratum</i> ...	Aug. 18	Aug. 17	Aug. 28	Aug. 17	Sept. 7
<i>Lilium Brownii</i> ...	—	July 23	—	July 15	July 28
<i>Lilium candidum</i> ...	July 18	July 26	July 17	July 13	Aug. 3
<i>Lilium chalcodonicum</i> ...	Aug. 1	Aug. 7	Aug. 5	July 25	Aug. 19
<i>Lilium croceum</i> ...	July 5	July 5	June 26	July 1	July 9
<i>Lilium davuricum</i> ...	—	June 17	June 16	June 4	June 14
<i>Lilium giganteum</i> ...	—	July 4	June 30	July 13	July 13
<i>Lilium Henryi</i> ...	—	Aug. 18	Aug. 22	Aug. 5	Sept. 7
<i>Lilium Martagon album</i> ...	June 14	June 26	June 21	June 20	June 30
<i>Lilium monadelphum</i> ...	June 10	June 17	June 11	June 6	June 22
<i>Lilium pardalinum</i> ...	June 29	July 9	July 2	July 3	July 19
<i>Lilium pyrenaicum</i> ...	June 4	June 9	June 8	June 6	June 16
<i>Lilium pseudo-tigrinum</i> ...	Aug. 8	—	—	July 25	Aug. 19
<i>Lilium regale</i> ...	July 17	July 25	July 21	July 13	Aug. 4
<i>Lilium Sargentiae</i> ...	Aug. 14	Aug. 18	Aug. 20	July 30	Sept. 2
<i>Lilium testaceum</i> ...	July 18	July 21	July 20	July 13	July 26
<i>Lilium tigrinum</i> ...	Aug. 8	Aug. 17	Aug. 14	July 27	Aug. 30
<i>Lilium Willmottiae</i> ...	July 10	—	June 30	July 5	July 7

by the number of flowers which open simultaneously. *Gladiolus primulinus* is a beautiful species, but it should be kept apart from the gaudier florist's hybrids, with which it is a mistake to cause it to compete. Having made that mistake myself, I do a mild form of penance by warning other amateurs against it.

Good autumn-flowering shrubs being none too common, it is a pity that *Genista aethnensis* is not more often seen. Growing to any height between ten and twenty feet, it is a pretty

During five-and-twenty years or more that we have grown and flowered the grotesque *Dragon's Mouth Arum* (*Heliconia* *cinnamomum*) in the open without any protection. I have never known it set seed until this season. A native of sunny Corsica, it is strange that it should have chosen the coldest summer that we have had for sixty years to do so. I suppose the heavy spikes of berries that it is now bearing are the outcome of the heat and drought of 1921. *Herbert Maxwell, Monrovia*.

HYBRID PINKS AND CARNATIONS.

THE communications published from time to time in these pages in favour of *Dianthus Allwoodii* varieties ought to satisfy most people that they may enter on the cultivation of these plants with every expectation of success. At the same time, it must not be assumed that they may be grown just anyhow, as some folk would lead us to expect. They respond to generous treatment quite as certainly as any other plant, and though two-year or three-year-old plants yield enormous crops of bloom, they do not, with me, give so large a succession of bloom as one-year-olds do. I consider they require a particular treatment, and not merely to root the cuttings and plant them without more attention.

We have had an enormous display of flowers of *D. Allwoodii* all the summer from young plants, and at present there are as many coming on in succession, so it is obvious that those who have written about them in a derogatory manner cannot have treated the plants with the degree of care that is their due. Of course, bought-in stock cannot be expected to give equally good results to home-grown material, no matter how satisfactory the former may be—most of us buy for stock purposes.

I have rooted almost all cuttings in the sand propagating bed in which perpetual Carnations are rooted, and find *D. Allwoodii* takes about the same time to root. Stock for next year is already rooted and boxed off, it being essential here, on account of vermin, to winter these and other Carnations under glass. And an important part of the treatment is carried out as soon as the young stuff has got a good grip of the soil. That is, pinching them close down, or to the sixth leaf from the base. This forces several growths, which, by the time the plants can be put out in February, have become strong shoots, with the result that the beds or clumps are fully furnished by the flowering period.

Moreover, I find they like liberal treatment during the summer months quite as much as any other plants. Accordingly, they are mulched with rotted dung or pigeon manure, soot and light dressings of artificial manure. I may add that the flowers are equally valued for cutting with other sections of Carnations. It is possible to increase stock with great rapidity by rooting the tops that are pinched off.

About border Carnations. There is a similarity between modern varieties and *D. Allwoodii* so far as a perpetual habit of flowering obtains. Both, too, are very sweetly scented, though the one possesses the scent of the Pink and the other that of the Clove. Also, the border sorts root from cuttings as freely as perpetuals under the same conditions. However, they do not flower so early as plants from layers, and they differ also from these in not growing so tall. Even the tall growing Grenadier is quite dwarf and stiff-stemmed from autumn-struck cuttings.

Where autumn planting is the rule, the layers should be put out without delay in order to get them established before winter. There should be, then, no upheavals by frost, but it is very important that the soil of the beds or borders be very firmly compressed, not only around the plants but all over as well. Rather shallow planting also conduces to the well-being of the plants. Very strong layers should be steadied by tying them to a short stick inserted at an acute angle to the plant, and the whole may be finished with the application of a thin layer of very rotten manure. Plants not to be set out till spring may be potted, using not less than a four-inch sized pot. Or they do very well in ordinary cutting boxes four inches deep, the roots to be cut about ten days previous to planting. Or where frames stand on a perfectly dry platform, they may be bedded safely therein. Here, also, the compost should be made very firm, and need be not more than three to four inches in depth, and, as in the case of boxed plants, cutting the roots previous to planting in spring. A thin layer of sharp sand spread over the surface of the bed will keep it clean and dry during the darkest part

of winter. From my experience in wintering Carnations in pits, I should not hesitate to keep the sashes on from the end of October till the end of January, but always, except during frosts, with a current of air passing over the plants. They do not mind dryness with cold, nor cold, even intense cold, so long as the soil is not wet. Even perpetual Carnations may be frozen hard for days without much harm. In conclusion, growers will find it best to study the soil they have to do with, so long as general principles are not disregarded. *R. P. Brotherston.*

THE ROSE GARDEN.

THE PASSING OF JULIET.

A DECADE or more ago, the sensation of the Rose year was afforded by the variety Juliet, introduced by Messrs. Wm. Paul and Son. A striking break in colour was here manifested. A new race of bicolors was, in fact, inaugurated. Though double-tinted or parti-coloured Roses were known previously, such as pink Roses with amber hearts, yellow Roses with their petals margined with red, and striped varieties, such as the red *Rosa Mundi*, nothing like the colour contrast as shown by Juliet had been seen before. Here the double chromatic effect is due to a marked difference in coloration between the upper and lower surface of the petal, viz., crimson above and gold beneath. Such a colour contrast arose through the infusion of Austrian Briar (*Rosa lutea*) "blood," which has this century given us the Pernetiana race of garden Roses, characterised by their strong yellows, oranges, and terracottas, as exemplified in Rayon d'Or, Golden Emblem, Lyon, and Mme. Edouard Herriot.

Juliet resulted from a cross between the Rose Capt. Hayward and Soleil d'Or of Austrian Briar origin. Instead of the parental colours blending or one dominating the other in the offspring, they have, as it were, separated out, the upper surface of the petal taking the crimson of the Hybrid Perpetual and the lower the gold of the Austrian parent. Though there may be difference of opinion as to the aesthetic merit of such a colour contrast in a Rose, for the sake of its novel hues Juliet became a necessity and was much planted.

Like most new Rose varieties, it was not long in revealing its faults as well as its virtues. Seemingly a strong grower, it had also the following points to its credit—a highly perfumed flower, undamaged by rain and borne on a stiff stalk, and further, a point not often mentioned, fragrant foliage like that of the Sweet Briar. Its defects are evident in its lack of form, the flowers often coming double-centred, and in a certain unreliability as to colour. The blooms, especially in dry, sunny weather, are apt to lack the gold, its chief attraction, and in a vase this colour is not long sustained. In fact, Juliet often wears a "washy" look.

However, in spite of such faults, this variety would be well worth growing—at any rate, in the wetter, cooler, westerly parts of the kingdom if it were not for a more serious drawback, viz., its great susceptibility to that bane of the Rose-grower, black spot. It may be possible to ward off this fungous disease by repeated drenchings with some liquid, or by copious dusting with some dry fungicide; but without treatment—in the writer's experience—its foliage invariably becomes attacked in the early summer, and by August the plant is well-nigh stripped of its first leaves. Fresh shoots may be pushed forth, but these are weakly and incapable of yielding autumn blooms of any quality. For this reason Juliet is little else but a summer flowerer, and can be disappointing as such. In fact, it has become somewhat the despair of the ordinary grower—at least, in this part of the country.

Now, fortunately, there is no longer any need to wrestle with Juliet for the sake of its colour novelty. The Queen Alexandra Rose, introduced by Messrs. S. McGredy and Son in 1917, is to all intents and purposes a Juliet in

colouring, and at the same time is free from the grave defect of being a martyr to black spot. It is also a better-shaped Rose, though not ideal in this respect, and is more reliable as to colour—at any rate, it is less inclined to washiness and maintains its brightness better on the bush and as a cut flower. It does not, however, beat Juliet on all points. Its scent is not so pronounced nor so sweet, and its stalk is not so strong. Juliet at its best may be a more telling Rose, with a greater depth of gold, but its rival will give many more good blooms in a season and is superior as a bedding variety. One feels that Juliet will soon become a memory—it has already fallen out of the National Rose Society's list—but The Queen Alexandra has come to stay at least, for a while, until a greater in this line of bicolors arises. There is room for improvement, but it may be some time before a better variety with this colour contrast is forthcoming, suitable for the N.W. of England. Judging from this summer, The Queen Alexandra delights in a cool season, and, further, its bloom is unharmed by the wet—a great point in its favour. It would be interesting to know the parentage of this Rose. *J. P., Carlisle.*

AMERICAN NOTES.

It seems unlikely that we shall get much modification of Quarantine 37 from the Federal Horticultural Board, as they have recently issued a lengthy memorandum filled with commendatory words from Federal and State officials, nurserymen, and a few others, all of whom are interested in excluding plants from foreign countries, not so much from fears of additional insect pests and diseases as from less altruistic reasons. Nurserymen are in the main satisfied to bar practically everything out, so that they can demand greatly enhanced prices for their products, and quite a number of them are now busy propagating Azaleas, Rhododendrons, Boxwoods, and other debarred plants. Others, particularly in California and the South and Far West, are growing bulbous Iris and other debarred bulbous stock. Roses are being propagated, many from cuttings, others from buds or grafts in California, Ohio, and New Jersey amongst other States. *Rosa multiflora japonica* is being much used as a stock for Roses. How well these plants will succeed in the colder States, where horticulture is the most advanced, time only will tell. Own-root plants are all but valueless except in the warm States, and I have not yet seen hybrid Teas or hybrid Perpetuals equal to the British plants worked on the seedling Briar or Manetti.

Orchids in immense numbers are being raised from seed. It will be years before many are of flowering size, and practically all are Cattleyas or hybrids with Cattleyas as one of the parents. In America, if Orchids are mentioned, the average retail florist, grower, and wholesaler concludes that Cattleyas are meant, as other beautiful Orchids like *Vanda coerulea*, *Phalaenopsis*, *Odontoglossums*, *Oncidium*, *Cymbidiums*, *Cypripediums*, and *Dendrobiums* are so little offered for sale commercially. The total debarring of all collected Orchids is absolutely indefensible, as the powers that be are very well aware that no serious pests have come in with them in the past, nor are likely to do so in the future, which will cause damage to our gardens, orchards, or forests. The Federal Horticultural Board was appointed to protect the United States from insect pests and diseases; it has functioned largely as a tariff board, to protect and build up home products. Of course, the whole array of States and Federal bacteriologists, plant pathologists, and entomologists commend its work, as do many commercial growers, but it is encouraging to note that the great and growing amateur horticultural interests are overwhelmingly opposed to the present embargo policy.

In reading reports of the great exhibitions held at Shrewsbury, York, Chelsea, Wolver-

hampton, Birmingham, and elsewhere in *The Gardeners' Chronicle*, many held under canvas, we are regretfully reminded that such shows are all but impossible here. We have some wonderful spring exhibitions in the Eastern cities and a fair sprinkling of Chrysanthemum shows in November, but apart from special exhibitions of Dahlias, Paeonies, Roses and Gladioli we have virtually no summer shows of any size. For this our warm summer climate is largely responsible. Canvas tents become unbearably hot and make both exhibits and visitors miserable.

Special exhibitions of Dahlias and Gladioli are quite numerous in America at this season. These two flowers are grown in enormous numbers. Fields covering ten, twenty, or fifty acres are not uncommon, and there are some even larger. Many who are now specialists in these flowers started as amateurs, and now grow them by the acre. While the gandavensis section of Gladioli is most grown and favoured commercially, there is a steady advance in the culture and popularity of the more graceful primulinus section. The introductions of such noted hybridists as A. E. Kunderd, of Goshen, Ind., has opened up a veritable new world of Gladioli fanciers.

Amongst Dahlias the Paeony-flowered section is now most in favour; decoratives and Cactus follow. Flowers are now produced of such size that they resemble the big disbudded Chrysanthemums. Artistic arrangement of Dahlias at all exhibitions is in large measure lacking. Stereotyped rows of small glass bottles containing single flowers, or larger ones with bunches often badly crowded, are generally in evidence. Groups and baskets arranged for effect are being encouraged, but the average Dahlia fancier cares little for the artistic, but is well satisfied to view a solid bank of flowers, many thousands in number, such as are displayed each autumn at our numerous fairs—as agricultural exhibitions are called. Great numbers of orders are booked by the Dahlia specialists at these shows, sometimes five, ten, or even twenty dollars being charged for a plant for spring delivery, usually a single dry tuber. Green cuttings do not find much favour here.

In the Arnold Arboretum, Jamaica Plains, Mass., the fine collection of Cotoneasters, mainly natives of Western China, are particularly beautiful from mid-August onwards, when their fruits have fully coloured. For rockery work *C. horizontalis perpusilla* is probably the best. At the present time the plants are smothered with red fruits, and while not exceeding thirty inches in height are 10-12 ft. across. The less dense-growing *C. apiculata* is another charming rock-garden subject. The rather slender and fragile habit of *C. Dielsiana* makes it appeal to many; plants here are 6-8 ft. in height, and the numerous clusters of red Crataegus-like berries are quite effective. *C. racemiflora sanguinea* is the most striking of all the Cotoneasters in August and September; plants 7-8 ft. high and 12 ft. across present a most brilliant appearance with their masses of scarlet fruit. The only possible criticism to be made of this shrub would be that the foliage was entirely disproportionate to the fruits, being somewhat scanty.

The dark-fruited Cotoneasters, like *C. tennipes* and *C. multiflora calocarpa*, are much less effective than the scarlet ones, though very interesting botanically and good garden plants. The Cotoneasters have come very much into favour here of late years, and varieties I have reared have withstood minimum temperatures of 20 deg. below zero without injury.

A study of the fruit reports in *The Gardeners' Chronicle* of August 12 shows that your conditions rather closely parallel ours in New England. Here we had an abnormally moist June and July, whilst even in August showers have come with such frequency that no dried-up lawns are to be seen, and trees have looked more healthy and luxuriant. Apples, Pears, Plums, and Peaches are all heavy crops. Amongst small fruits Strawberries were an exception. Very wet weather prevailed during the ripening period, and a large part of the crop rotted. All other small fruits were abundant. *William N. Craig, Brookline, Mass., U.S.A.*

ORCHID NOTES AND GLEANINGS.

ORCHID HYBRIDS.

MESSRS. FLORY AND BLACK, Slough, send flowers of six exceptionally good new hybrids:—

BRASSO-LAELIO-CATTLEYA THURGOODIANA (B.-L.-C. Eric × *C. Thurgoodiana*) is a very handsome flower over 7 inches across, the main features being the retention of the firm substance of the original ancestor, *Brassavola Digbyana*, and its fragrance; the colour being set by *C. Thurgoodiana*, the *C. Luddemania* in which is distinctly traceable. The sepals and petals are light rose pink, the base of the broad lip being of the same colour and its flatly expanded front light violet, darker in the centre. The disc of the lip is chrome yellow on white ground.

CATTLEYA CYTHEREA (Venus × King George). This showy hybrid has *C. Dowiana* in all its parents, with the addition of *C. bicolor* and *C. Rex*. The result is a bright yellow flower with orange base to the lip, on which are purple veinings, the front being ruby red.

CATTLEYA VERONA (Octave Doin × Pittiana). This gives a very interesting instance of the manner in which true species of peculiar form assert themselves in their progeny, the *C. granulosa* in *C. Pittiana*, with its well-defined isthmus and broadly expanded front lobe of the lip, so well defined in that parent, being carried on unchanged, except for some enlargement. The sepals and petals are silver white, tinged with mauve, the side lobes of the lip darker and the front veined and tinged with purple.

LAELIO-CATTLEYA CLARINDA (L.-C. *blechleyensis* × *C. Rhoda*). This is a very brilliantly coloured flower, in which the *Laelia tenebrosa* in L.-C. *blechleyensis* imparts a gold-bronze tint to the sepals. The petals are bright violet with a gold tint and the lip entirely Tyrian purple.

LAELIO-CATTLEYA LUCRETIA (*C. Maggie Raphael alba* × L.-C. *Luminosa*). This is a good flower, with Cowslip yellow sepals and petals and violet lip, with prismatic rays at the base.

LAELIO-CATTLEYA IVER (L.-C. *Rubens* × *C. Luddemania* Stanleyi) is rose pink, with a distinct lip tinged and veined with purple and with orange veining at the base.

INDOOR PLANTS.

GESNERA (NAEGELIA) AND ACHIMENES.

THE Gesneras are an extremely pretty race of plants for the decoration of the warm greenhouse and conservatory during the summer and winter and are also invaluable as table plants. Many of them have strong root tubers, rich velvety leaves, and long paniced racemes of flowers, whilst others have scaly root corms, richly coloured velvety crimson or mottled leaves, and erect, pyramidal spikes of drooping, bell-shaped flowers, richly and variously coloured from white to fine shades of rose, violet crimson and scarlet, prettily dotted or marked. A choice race of hybrids has been raised from time to time, the members of which are a great improvement on the original species. The flower spikes are thrown up in great abundance, and they carry numerous, bright, pendulous flowers in various shades of colour. Seeds should be selected from plants with the finest and brightest coloured flowers. Seedlings will flower the first season, provided the seed is sown early in February or March. After the blooming season is over the plants should be allowed to rest, by gradually withholding water. They will do well in a brick pit or frame, and the pots should be stood on a cool base. During the winter the tubers should be kept in their pots in a temperature of about 50°; in a lower temperature they are apt to rot, but, on the contrary, if kept too hot, they are liable to start into growth before their time.

To have a succession of bloom pot a portion of the tubers in the middle of January, another batch in the middle of February, and another in

March, and place them in a moist atmosphere with a temperature of about 60° to 65°. Treated in that way they will supply flowers over a considerable period. Gesneras do not require large pots, but should be afforded receptacles according to the size of the tubers. Water the latter sparingly at first, but after they have commenced to grow give more moisture at the roots, but at no time over-water them. When they begin to show flower buds, and if well-rooted in the pots, a little liquid manure is beneficial, applied once a week. These plants are invaluable for conservatory and other decoration, and are so easily grown they should be included in collections of indoor plants. The following are a few of the best-named kinds. *G. Donkelaariana*, red; *G. exoniensis*, orange-scarlet and yellow, a fine winter-flowering kind; *G. pyramidalis*, pink; *G. zebrina discolor*, bright orange scarlet; *G. cardinalis*, scarlet; *G. splendens*, bright scarlet; *G. multiflora*, white; and *G. magnifica*, purple. They may be propagated from cuttings of the young shoots springing from the old tubers, or by leaves similar to the *Gloxinia*. Cuttings of the young shoots, if rooted early, will flower the following autumn, whereas those struck from leaves will only form small tubers the first year. Place the cuttings in a warm, moist atmosphere and a temperature of 65° to 70°. The soil should consist of a mixture of rich, turfy loam, fibrous peat, or leaf-mould in equal parts, with silver sand added.

Achimenes is a free-blooming, warm greenhouse plant, closely allied to *Gesnera*. The plants flower in May and June, and are suitable for pot culture. They are also useful for flowering in hanging baskets suspended from the roof rafters of a glasshouse; basket plants give a charming effect in a warm greenhouse or conservatory, and last in flower for several weeks. The flowers vary considerably in size, and are of many distinct shades of colour. The *Achimenes* is not grown so extensively as formerly, which is to be regretted, as it makes a grand display when in flower with a very little trouble, requiring less heat than the *Gloxinia*. A stock is easily raised from seed, or the plants may be increased from cuttings about 2 inches to 3 inches long. The cuttings will root in a moist bottom-heat under a hand light in a temperature about 65° to 70°. They form tubers and should remain in their cutting pots, allowing the tops to gradually die down in the autumn. In the following spring they should be shaken out of the pots and started in fresh soil in small pots, putting several tubers in a pot according to their size.

After the plants have done flowering withhold water gradually, and place the pots on their sides in a house having a temperature of about 50°, until the middle of January or February, when the tubers should be started into growth again. Shake the roots free of the old soil, and repot the tubers in rich soil similar to that recommended for *Gesneras*, putting 5 to 6 of the strongest tubers in a 3 inch or 4 inch pot.

Start the tubers in a steady heat of about 60°, with plenty of atmospheric moisture. As the plants become stronger, gradually use less fire-heat, to prevent the growth from becoming weak and spindly. The *Achimenes* may be grown in an ordinary warm greenhouse or pit near the roof-glass, admitting a little air when necessary. Shade the plants from bright sunshine until they are sufficiently strong to be placed in the conservatory.

The following named sorts offer a good selection:—*Longiflora alba*, white, with slight markings in the centre; *Mauve Queen*, large, mauve-coloured flowers; *Pink Perfection*, magenta rose; *Scarlet Perfection*, rich carmine scarlet with an orange eye; *Unique*, beautifully fringed with deep carmine, eye yellow, spotted with crimson; *Ambrose Verschaffelt*, fine white, with dark, starry centre; *Rose Queen*, rosy lake, shading to deep purple; *Argus*, rich purple, with a deep orange eye; *Dazzle*, vivid scarlet, a variety of dwarf habit; *Carl Woolforth*, large, purplish crimson; *Firefly*, very large, deeply fringed rich magenta, with a yellow eye; and *Margaretta*, pure white. *Achimenes* require similar treatment to *Gloxinias*, but several tubers should be placed in each pot for flowering, instead of one. *John Neal, V.M.H.*

CAVENS, KIRKCUDBRIGHTSHIRE.

It is some years since I visited the gardens at Cavens, in Kirkcudbrightshire, the seat of Major Oswald, though they have been long familiar to me, for I resided for many years quite near to Cavens, and frequently enjoyed a visit to them, when they belonged to the late Mr. R. A. Oswald, brother of the present proprietor, and were cared for by his gardener, Mr. John Cooper, a splendid gardener, who is now in well-earned retirement in the neighbouring village. My first visit was paid in the time of Mr. Cooper's predecessor, and I well remember the pleasure experienced in seeing the old herbaceous borders, then furnished with many good old flowers. Mr. Cooper, encouraged by his employer, added some good features to the place. He kept abreast of the times, but retained the best of the old charms, and even to-day most of these remain, well-preserved by a worthy successor, Mr. Taylor.

The flower garden proper at Cavens is exceedingly pretty, and an excellent illustration of a portion of it appeared as the frontispiece to the *Handy Book of Horticulture*, by the Rev. F. C. Hayes, Rector of Raheny, Ireland, published in 1900. Mr. Hayes asked me for a few photographs of horticultural features in Scotland and was so pleased with the one of Cavens flower garden that he used it as the frontispiece. It remains much as it was in 1900, and consists largely of beds laid out in the grass with some good herbaceous borders. Two of the latter on the east side of the garden have long been examples of well-furnished and well-cared for herbaceous borders. Big plants of Pyrethrums, Delphiniums, Eryngiums, Aconitums, Phloxes, Rudbeckias, and other hardy plants show how excellent is the effect of these old-fashioned flowers when well arranged. One difference exists. Mr. Taylor does not stake the plants, and opinions may differ as to whether this is an improvement or not. No two can exist, however, with regard to cultivation, as this is well attended to. Another broad border on the west side, which was at one time devoted to Dahlias, Hollyhocks, and other summer flowers, has been planted with hardy border plants, and these are well grown. In front, however, a great feature of the garden still remains. This is a magnificent broad margin of *Gentiana acaulis*, which seems to thrive and flower as well as it did more than thirty years ago. Of the beds in the grass it may be said that they are well planted with a variety of flowers. Some are mainly given up to hardy flowers, and there are still, as years ago, good Starworts, Sunflowers, Rudbeckias, and Irises, among which I still saw good numbers of the old Spanish Iris often called Thunderbolt.

Roses have always been well grown, although the soil is on the light side. Such flowers as Carnations, Heliotrope, Verbenas and other bedding subjects are still much employed for the beds at Cavens. One feature I looked for was a big clump of *Lilium auratum*, but it has been divided and numbers of the bulbs planted on the garden front of the house. What have been left and those which have been removed are thriving as of old. *Lilium giganteum* has long been cultivated at Cavens also, and Mr. Cooper had one plant about sixteen feet high one season. There were none of conspicuous stature this year, but a good many plants are still grown of this commanding Lily.

Passing from the flower garden to the vegetable and fruit quarters the path is flanked on either side by charming borders of hardy flowers, among which I noted an old friend in the garden, *Statice latifolia*. Wall and other fruits are always well grown at Cavens, and the crops in general are good this season, both large and small fruits giving excellent results. Vegetables, also, receive full attention, though there is no effort to grow what may be called exhibition produce. At the mansion some extension has been made in the way of flowers and a greater variety introduced with good effect. The old house, which has no pretensions to architectural charm, is well covered with climbers, which do much to redeem its inherent plain-

ness, while the magnificent trees on the splendidly kept lawn give a sense of delight in the beautiful surroundings of this fine old place, moderate in size, yet a delightful home for a family whose connection with Cavens has existed for many years, and whose present representative, Major Oswald, takes the keenest interest in his estate and in the welfare of those who dwell upon it. *S. Arnott.*

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(Continued from p. 182.)

ENGLAND, S.

MIDDLESEX.—Apples are under the average, but the fruits are of good quality. Pears are an abundant crop, and the trees in a clean condition. Plums are of good quality, and these trees also are in a clean condition after spraying. Early Cherries were not good. Strawberries were of excellent quality and good in quantity. All small fruits were plentiful. The soil in these gardens is a medium loam resting on a clay subsoil. From observations I find that the hot, dry season of 1921 had a good effect in ripening the wood of fruit trees, especially on our soil, which is naturally damp. *W. Griffiths, Wildwoods Gardens, Clay Hill, Enfield.*

—All fruit trees flowered profusely, but the promise of bumper crops has not been fulfilled. Strawberries never recovered from the scorching they received last year. Some varieties of Apples, such as Lord Suffield, James Grieve, Lord Hindlip, Barnack Beauty, King of the Pippins, Ribston Pippin, and Lane's Prince Albert have set freely, but others only carry moderate crops. The fruit seems to promise good colouring this year, but whether this is due to the conditions or to other causes I am not certain. *Geo. H. Head, Fulwell Park Gardens, Twickenham.*

SURREY.—Apples are a very poor crop in this district. The majority of the trees blossomed well, but the flowers fell before they were properly matured. Trees of Allington Pippin and King of the Pippins are fruiting better here than any of the other dessert kinds. Culinary Apples, particularly Bramley's Seedling, are very scarce. Pears are a good crop and have required a great deal of thinning. Plums are a good average crop, more especially on the wall trees. Cherries in some parts of this district were a good average crop. Peaches and Nectarines are scarce. We have a heavy crop of Apricots, and these trees are very clean and healthy. Small fruits were plentiful, particularly Red Currants and Gooseberries. Nuts are very numerous. The early kinds of Strawberries, such as Royal Sovereign, were nearly complete failures. Many of the later kinds, including Givon's Late Prolific, greatly improved after the rains, and produced some fine fruit. *J. Collier, Gotton Park Gardens, Reigate.*

—The fruit crops in general with me this season are very indifferent. The drought in 1921 and the cold spring of this year are responsible for the failure. Many Strawberry plants and bush fruits were killed by the drought. Although Currants showed well, they failed to hang after setting, the dryness of the soil being the cause. Apples also suffered, but Pears look exceptionally well. *James Lock, Outlands Lodge Gardens, Weybridge.*

—The effect of last summer's drought is undoubtedly the cause of the light crops of Apples and Plums, and this, coupled with the dry spring, also made the Strawberry crops small, the plants making very poor crowns. There was a fair show of blossom on the top fruits, but little of it matured. Pears are good, being in a little heavier soil than the Apples and Plums, and consequently felt the dry period rather less. *Alan A. Rawes, R.H.S. Gardens, Wisley, Ripley.*

—The fruit crops here, on the whole, are very satisfactory. Although Apples and Pears were covered with blossom, the crops will only be average ones, with the promise of good-quality fruit. Plums and Damsons are very good, Damsons in particular being laden with fruit. Of the smaller fruits, Raspberries in particular were excellent, the heavy rains coming in time to save the crop. Strawberries were practically a failure. Our soil is very light and shallow, with a subsoil of solid chalk. *H. Prince, Polesden Lacey Gardens, Dorking.*

SUSSEX.—Apples are a heavy crop for the second year in succession, except for some trees in a grass orchard which yielded heavily last season. The fruit promises to be much larger and cleaner than in 1921. Pears are scarce and inclined to be scabby, but this is not a good district for them. Early and mid-season varieties of Plums are very plentiful, but the latest kinds are scarce. With Cherries the reverse was the case. Strawberries were a very short crop and the fruit small, owing to drought. Gooseberries were very heavy, and Raspberries and Red Currants full crops; but Black Currants were under the average, owing to the dropping of the fruit during the dry weather. Cobluts are a good average crop, and Walnuts over average. Insect pests have been easily controlled, except Pear midge and Currant-leaf blister aphid. Silver-leaf is less noticeable than of late years, particularly in Victoria Plums; Monarch is now more often attacked. The rains of late June and early July came just in time to help all top fruits and all the bush fruits, except Black Currants. The soil is mainly sandy loam. *E. M. Bear, Magham Down, Hailsham.*

—Fruit trees are generally clean and healthy, free from aphid. Ladybirds (*Coccinella*) were more abundant than we have had for years, which accounts for the scarcity of aphid. Black Currants, Raspberries, and Gooseberries were very heavy crops. Strawberries were completely dried up, consequently the fruits were very small indeed. There was an abundance of bloom on all fruit trees, and weather conditions were favourable at that period, but large numbers of fruits were cast owing to the drought, but this was an advantage, as it saved the labour in thinning. The soil here is an excellent loam resting on sandstone and shale. *Leon Squibbs, Stinchurst Gardens, Ardingly.*

—The fruit trees here, without exception, flowered with the greatest profusion, there being every indication of record crops of Apples, Pears, and Plums. A succession of cold easterly winds, followed by excessive drought, however, caused a number of Apples to cast their fruits. Never have I seen the trees in a cleaner and more healthy condition than at the present time, there having been an absence of aphid. Pears are heavily laden with fine, clean fruit. Plums are also abundant, and there is a good percentage of Apples; some trees of the latter I estimate to be carrying over a quarter of a ton of fruit. Apricots flowered very freely, but late frosts and biting winds ruined their prospects. Figs are fair, and Raspberries have been very fine and cropped heavily. Bush fruits were good and abundant, and, our soil being heavy, Strawberries have been plentiful and very good. *E. Markham, Gravetye Manor Gardens, East Grinstead.*

—All fruit trees in these gardens, with the exception of Plums, blossomed splendidly, and there are good average crops of Apples, Pears, Cherries, Peaches, Nectarines, Apricots and small fruit. Apples and Pears, in spite of the early drought, look well. Trees are very free from insects this season, and in some cases no summer spraying was required. The Strawberry crop was a failure—in fact, some of the plants did not recover from the drought of 1921. These gardens are very secluded, and the soil is light and sandy. *J. W. Buckingham, Milland Place Gardens, Liphook.*

(To be continued.)

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Grape Spot.—(See pp. 141, 169).—I was very pleased to see this subject discussed by *May-flower* as I am sure it is a very important matter for gardeners, judging by the number of inquiries on the complaint you answer through your Answers to Correspondents columns. I have followed the advice given by you, and dressed the leaves and bunches with flowers of sulphur, with lime added to the last two dressings. I am not prepared to say whether it is doing good or not, as it is too early to give an opinion, for this is a very late season, and the berries suffer most when they are fully ripe. I am very much surprised at your correspondent mentioning *Lady Downes* as being troubled with spot, for the skin of this variety is very hard and of quite a different texture to that of *Muscat of Alexandria* and *Cannon Hall*. I have not the slightest sign of the disease in the late vineyard, which is planted with *Lady Downes*, *Alicante* and *Gros Colmar*. There is not the slightest sign of the stalks of the berries shrivelling; they are perfect and green. The description given by Mr. John Wright in *The Fruit Growers' Guide* does not correspond with the disease. It starts with a small, brown spot, and radiates in circles; it is only the skin of the berry which is affected. There is no connection whatever between this disease and shanking. My experience of shanking is that it occurs at a definite time, i.e., between the stoning and the ripening of the fruit. If your correspondent could give us the latest scientific name of the fungus I should be much obliged. *J. L. Mottram, Cheshire*.

[Grape Spot is caused by the fungus *Gloeosporium ampelophagum*.—Eds.]

East Lothian Stocks.—(See p. 152).—Last summer at a village flower show I saw some exquisite white and purple Stocks. I inquired from whence they came, and was informed they were Scotch Stocks. The interesting topic of doubling in Stocks had been under discussion, and these being of more than ordinary merit attracted my notice. Assuming the said stocks to be of the East Lothian type, I procured seed from the same source and elsewhere. The seedlings were treated in accordance with gardening practice by pricking them out into boxes, judiciously saving and potting up all weakly ones to ensure worthy doubles of large size and rich colour of bloom, finally, hardening them off prior to transference then to open quarters. After the plants became established, they soon grew into symmetrical models of healthy growth, but the resultant flower spikes were disappointing, non-existent, in some cases, except for a tuft of bloom deplorable in size and colour; the singles are so numerous that I am very much like the grower, whom Mr. Brotherston referred to as growing all singles. I am familiar with the charming strains, within the reach of all, offered through our seedsmen to beautify our gardens, and the embellishment of the greenhouse in winter and spring, but I was seeking the true East Lothian Stock for personal gratification to adorn the borders and associate with the other types of Stocks. The poor results substantiate the statement given by Mr. Brotherston in his article on the subject in the issue of September 9, with which I agree, and feel convinced that inferior strains predominate over the true type. *F. Gooch, Bossington Gardens, Stockbridge, Hants.*

Abercrombie's Calendars (see page 136).—My copy of *The Amateur Gardener's Pocket Journal*, which contains "A Treatise on Window Gardening, Wardian Cases, and Fern Culture" by George Glenn, F.H.S., contains also a short "Preface to the Seventeenth Edition" signed "M. A. M." undated, but written in Hackney. *F. G. M.*

Wasps in 1922.—In this neighbourhood wasps have been remarkably scarce this year. I know of only two nests so far, one of which, a fine, strong one of *Vespa germanica*, I took from a

neighbour's garden on Saturday last. The other is a *V. vulgaris* one which I have not yet discovered, but the wasps are occasionally seen in my garden. It is a great contrast to last year, when nests were common. On the other hand, I learn from a friend who has recently returned from a holiday near Newquay, in Cornwall, that wasps were very troublesome there. How have other parts of the country fared?—*C. Nicholson, 35, The Avenue, Hale End, E.4.*

I agree with Mr. Dunn, *Gard. Chron.*, Sept. 23, p. 183, that wasps are a plague this season. I have, up to date, taken 73 nests, and am at my wits' end how to deal with these insects, as they are attacking our early Pears and destroying them before they are nearly ripe. I attribute the large number of nests to the cold and wet spring, as I noticed very few queens at that time and only killed nine;

SOCIETIES.

NATIONAL ROSE.

September 21.—By general opinion, this autumn show was the very best of the excellent series the Society has held. The Royal Horticultural Society's Hall, Vincent Square, was well filled with a great array of excellent blooms, and the attendance was so great as to render an inspection of the flowers a matter of difficulty. As usual, the new Roses were a great attraction and throughout most of the day a procession of visitors, often four deep, slowly passed before them. Besides the one which was awarded the Gold Medal, and the five Certificates of merit, there were many others of more than average merit. Those who desire fragrance above all other qualities in a Rose were delighted



FIG. 79.—ROSE FLORENCE M. IZZARD. N.R.S. GOLD MEDAL, SEPTEMBER 21. SHOWN BY MESSRS. S. MCGREDY AND SON, PORTADOWN. (SEE P. 198.)

other seasons we generally kill from 60 to 70 queens. Cotton-wool fastened to a stick and soaked in a solution of cyanide of potassium should be thrust into the hole of the nest, leaving a small space for the wasps to enter. In an hour or two the wasps may be dug out and the nest destroyed. It would be interesting to know if any of your readers have exceeded my total of nests this season. *Geo. Bayliss, Criccieth.*

Hornets' Nests.—As Mr. Hodgson states (p. 183), hornets prefer to build their nests in hollow trees and, of course, that is the most natural situation for them, but they have also been known to build in outhouses and other buildings and underground nests have been recorded before. If Mr. Hodgson, or any other reader, meets with or hears of another nest this season I shall be very glad to have particulars of it before it is destroyed; also I shall at any time be glad to have a few freshly killed queens and drones. The latter, as with the smaller wasps, are slimmer than the queens, but larger than the workers, and they have longer antennae than either. *C. Nicholson, 35, The Avenue, Hale End, E.4.*

with *Herald*, which possesses that pleasing attribute in a marked degree. It is an H.T. variety, of deep, velvety claret-maroon colour, and was shown by Messrs. S. McGREDY AND SON, who also showed *Albert E. Amos*, another particularly fragrant H.T. Rose. It is of smoky crimson colour, but lacks good form in any stage of development. *Doris Trayler*, exhibited by the same raisers, is a showy, H.T. variety of orange-yellow colour, which changes to pale golden yellow when the blooms are fully open. *Climbing Madame Ed. Herriot*, raised by Messrs. KETTEN FRERES, Luxembourg, is, as shown, by no means equal to the lush variety. Messrs. BEES, LTD., have, in *Ariel*, *Macbeth*, *Firefly*, and *Sybil*, four very good garden Roses, even though they were not considered sufficiently meritorious to receive awards.

The *Cory Cup*, offered for the best seedling climbing Rose of the year, was awarded to *Sanctity*, shown by Messrs. F. CANT AND CO., Colchester.

The Silver Medal blooms were *Annie Crayford*, in the open classes, shown by Messrs. A. DICKSON AND SONS, and *George Dickson*, in the amateurs' classes, shown by Mr. G. SPEIGHT.

AWARDS. GOLD MEDAL.

Florence M. Izzard.—This very beautiful rich yellow H.T. Rose received a Certificate of Merit in 1921, and now has the highest award. It was shown in splendid condition and has a slight perfume. It is, perhaps, best in the bud stage and half opened, when the form is very good and the petals recurve in a fascinating manner. The foliage is excellent and, in the deep green shining leaves, suggests *Rosa Permetiana* parentage. Shown by Messrs. S. McGREDY AND SON.

CERTIFICATES OF MERIT.

Arthur Cook.—A fragrant, deep, velvety-crimson H.T. Rose, which occasionally is of very deep purple shading. It is especially shapely when in the bud stage, and when fully expanded is of flattish shape. This deliciously fragrant Rose is named in compliment to the son of Mr. Cook, who in an unobtrusive manner at the offices has done a deal of valuable work for the Society.

Mrs. G. Heath.—This medium-sized H.T. variety is essentially a garden Rose and is especially effective in quantity. It is of soft yellow colour freely shaded with Apricot. In shape, it is much like *Independence Day*, and it possesses firm, dark green foliage.

Vesuvius.—No doubt the crater-like form of this uncommon single H.T. Rose suggested its name, while the glowing velvety-crimson colour and the little cluster of golden stamens add to the suggestion. The vase-shaped blooms are about 2½ inches across and the margins recurve. It is very free-flowering and has substantial petals. These three varieties were shown by Messrs. S. McGREDY AND SON.

Westfield Star.—Although it is stated to be a Polyantha seedling, this is a fully double H.T. Rose of medium size. It is recommended for bedding and for forcing. The colour is a good milk-white, which is relieved by yellow in the heart of the flowers, giving them the appearance of robust Tea Roses.

Nur Mahal.—This is a delicately fragrant hybrid Musk Rose of very bright crimson colour fading to what may be termed blotting-paper red, and there is a small, irregular white zone. The flowers are what the N.R.S. term "semi-single," and average three inches across. They are freely borne on branching stems. Shown by the Rev. J. H. PEMBERTON.

GROUPS OF ROSES.

These generous masses of Roses are always a source of great attraction to the visitors, and the present occasion was no exception to the rule. The competition was very keen and the quality of all the exhibits was so high that the judges awarded extra prizes, and these were justly deserved. In the large class, the first prize was won by Mr. ERIC J. HICKS, with a delightful display. His arches of *Joanna Bridge* and *Ophelia* were particularly charming, and among the many handsome stands of bloom we noted *Climbing Lady Hillingdon*, *Golden Ophelia*, *Hoosier Beauty*, and *Isobel*, as being of superlative merit. Messrs. BEES, LTD., who were second, had great masses of their highly decorative variety *Independence Day*, and also gave special prominence to the large, single *Isobel*, which is of especially bright colouring. The *Queen Alexandra Rose*, *Venus* and *Padre* were also of great merit. Messrs. CHAPLIN BROS. were third, and they arranged their very good blooms chiefly in tall stands, making a fine effect. The principal varieties so displayed were *Red Letter Day*, *Isobel*, *K. of K.*, *Lady Pirrie*, and *Golden Emblem*. Messrs. WATERER, SONS AND CRISP were fourth, and Messrs. ALEX. DICKSON AND SONS were fifth, and each arranged collections of considerable merit.

In the smaller group class, which calls for a collection on a space of 10 ft. by 4 ft., the same high quality and artistic arrangement obtained. The first prize was won by Mr. GEORGE PRINCE with a splendid collection of such varieties as *Isobel*, *Ophelia*, *Padre*, *Souv. de Claudius Pernet*, and *Golden Ophelia*. Although the second prize was awarded to Messrs. A. J. and G. ALLEN, the judges endorsed the card "more representative next time, please."

Although the group was not fully representative, it was of very high quality. Messrs. S. McGREDY AND SON were third, with Mr. T. B. EDWARDS fourth.

The exhibits of 36 varieties made a splendid show, and the first prize was awarded to Messrs. J. JEFFRIES AND SONS for a brilliant display of such sorts as *Miss Buller*, *Madame Ed. Herriot*, *Isobel*, *Lady Hillingdon*, and *Golden Emblem*. Mr. JOHN MATTOCK was second; his best vases were of *Lady Pirrie*, *Margaret Dickson Hamill*, and *Lady Hillingdon*. Messrs. F. CANT AND CO. were a good third. The exhibits in the class for 18 distinct varieties were also of great merit, and the chief honour was won by Mr. HENRY STREET, who had excellent vases of *Isobel*, *Christine*, *Hadley*, *K. of K.*, and *Golden Emblem*. Messrs. CHAPLIN BROS. were placed second.

The best exhibit of 24 varieties of Decorative Roses, excluding Polyanthas, was shown by Mr. JOHN MATTOCK, who included beautiful vases of *Hadley*, *Padre*, and *Golden Emblem*; in the second prize collection by Messrs. F. CANT AND CO., there were very good vases of *Los Angeles*, *Isobel*, and *Red Cross*. Messrs. CHAPLIN BROS. had the best 12 varieties, and Messrs. F. SPOONER AND SON were second in that class.

EXHIBITION ROSES.

The same high quality was to be observed in the classes for general exhibition Roses. The best 24 blooms, distinct varieties, were shown by Messrs. ALEX. DICKSON AND SONS, and these were very fresh and shapely specimens of particularly even quality. The very best were *Edgar M. Burnett*, *Annie Crawford*, *Florence Forrester*, *George Dickson*, *Hugh Dickson*, *Marjorie Bulkeley*, and *Edward Bohane*. Messrs. HUGH DICKSON, LTD., were a good second, and their outstanding blooms were *Alex. Emslie*, *Earl Haig*, *Hugh Dickson*, *George Dickson*, and *Caroline Testout*. Messrs. B. R. CANT AND SONS were third.

In the class for 18 distinct varieties, Mr. GEORGE PRINCE was decidedly first, for he staged a superb collection of such sorts as *Augustus Hartmann*, *Mrs. C. Lamplough*, *Earl Haig*, and *George Dickson*. Messrs. G. and W. BURCH were second, and Mr. H. Y. DREW was third.

Tea and Noisette Roses were not quite so good, though the first prize board of 12 varieties, shown by Mr. GEORGE PRINCE, included beautiful blooms of *Lady Plymouth*, *Mrs. Foley Hobbs* and *Madame C. Souper*. Messrs. D. PRIOR AND SON were second.

Baskets of Roses in the four classes were of particularly high quality. The best three of exhibition Roses were of W. E. Wallace, *Marjorie Bulkeley*, and *Gorgeous*. Shown by Messrs. HUGH DICKSON, LTD. Messrs. S. McGREDY AND SON, who were second, had splendid baskets of *Una Wallace* and *Admiration*. The best five baskets of decorative varieties were shown by Messrs. CHAPLIN BROS., though during the afternoon these were eclipsed by the second prize exhibit of Messrs. ALEX. DICKSON AND SONS, who included most beautiful baskets of *Lady Inchiquin*, *Betty Upchurch*, *Mrs. Wemyss Quin*, and *K. of K.* Mr. G. LILLY. Showing excellent blooms of *Miss May Marriott*, *Ophelia*, and *Madame Abel Chateaux*, was first in the class for three similar baskets, and Mr. JOHN MATTOCK was second. The best three baskets of Polyantha Roses were shown by Mr. GEORGE PRINCE, who had highly decorative baskets of *Orleans*, *Nurse Cavell*, and *Coral Cluster*. Messrs. G. JACKMAN AND SONS were second.

AMATEURS' CLASSES.

While competition generally in these classes was not so keen as in the open section, there were many highly meritorious blooms shown. The best 12 exhibition blooms by Mr. G. SPEIGHT, *Market Harborough*, included fine examples of *E. Bennett*, *George Dickson*, and *Mrs. C. Lamplough*. Mr. F. H. FIELDGATE, *Colchester*, who was second, had a fine set of blooms, amongst which *Colestria*, *Augustus Hartmann*, and *Florence Forrester*, were very good indeed. The first prize, 6 distinct varieties, by Mr. R. DE V. PRYOR, *Hitchin*, included a magnificent bloom of *Candeur Lyonnaise*. Mr. J. T. OWEN, *Wood Green*, was awarded the first prize in the class

for growers residing within 10 miles of Charing Cross, and Mr. W. G. BANERIDGE, *Kettering*, who showed good blooms of Mrs. Foley Hobbs and *White Manian Cochet*, was first for 6 Tea or Noisette blooms.

The class for 6 vases of Decorative Roses was especially popular and included many splendid exhibits. The first prize was won by Mr. G. A. HAMMOND, *Burgess Hill*, with such varieties as *Golden Emblem*, *Irish Fireflame*, and *Mrs. Redford*. Mr. JOHN HART, *Potters Bar*, was a very good second.

DECORATIVE CLASSES.

The dinner table decorations were particularly effective and there were many exhibits in the two sections. In the open class, Mrs. A. BIDE, *Farnham*, added to her many triumphs with a most beautiful table of *Madame Butterfly*, and Miss PRINCE, *Oxford*, was second with *Irish Fireflame*.

In the amateurs' class, Mrs. COURTNEY PAGE was first with a very charmingly arranged table of *Madame Butterfly*; Mrs. OAKLEY FISHER, who used *Isobel* to good effect, was second, and Mrs. A. ROBINSON was third. The bowls of Roses was delightfully arranged. Mrs. MAY, *Waltham Cross*, was first in the open class, and Mrs. C. GEDDENS, *South Minns*, was equally successful in the amateurs' class, while Mrs. CHARLTON, *Yiewsley*, who used *Madame Butterfly* with great taste, had the best vase of Roses.

ROYAL CALEDONIAN HORTICULTURAL.

(Concluded from p. 186.)

AMATEURS' CLASSES.

In the classes restricted to amateurs, the leading prize-takers were:—Mr. D. A. HILL, *St. Boswells*, for a collection of vegetables; Messrs. J. SINCLAIR, *Edinburgh*; A. ARCHIBALD, *V.C.*, *Leith*; R. KERR, *Edinburgh*; and J. ARNOTT, *Corstorphine*, for plants; Messrs. W. GRAHAM, *Lanark*; P. LUGTON, *Ayton*; R. ROBERTSON, *Swinton*; R. GRANT, *Bo'ness*; C. JENKINS, *Cambslang*; and D. B. DOUGHTY, *Ayton*, for cut flowers; and Messrs. J. MALCOLM, *Dunbar*; D. KERR, *Menstrie*; T. WATSON, *Carluke*; and T. NICHOL, *Earlston*, for fruit.

GARDEN ALLOTMENTS' FEDERATION.

The Silver Challenge Cup offered by Messrs. J. W. Scarlett, J.P., *Sweethope*, and T. A. Scarlett, *Edinburgh*, for the best exhibit in the section of the exhibition for collections of vegetables, was awarded for the year to Mr. W. KENNEDY, *Craigmillar, Edinburgh*; and the Gold Badge offered by the Royal Caledonian Horticultural Society to the competitor who obtained the best results from an allotment was won by Mr. ALEX. M'KEAN, *St. Bernards Allotments, Edinburgh*.

AWARDS TO NOVELTIES.

First-Class Certificates.—Decorative Dahlias *Ben More*, *Ben Ledi*, and *Ben Lomond*, exhibited by Messrs. DOBBIE AND CO., LTD., *Edinburgh*; H.T. Roses *W. E. Wallace* and *Oliver Mee*, exhibited by Messrs. HUGH DICKSON, LTD., *Belfast*.

Awards of Merit.—*Colerette Dahlia* *Sunbeam*, exhibited by Messrs. TORRANCE AND HOPKINS, *Busby*; *Begonia Mrs. F. B. McLaren*, exhibited by Mr. J. STEVENSON, *Melrose*; *Fancy Pansy Dr. Kelso*, exhibited by Mr. J. M'KILLOP, *Uphall*; *Fancy Pansy Dryden M'Coll*, exhibited by Mr. H. M'COLL, *Preston House, Linlithgow*.

NON-COMPETITIVE EXHIBITS.

The following awards were made to non-competitive exhibits:—

Gold Medals and Special Appreciations.—To Mr. DAVID KING, *Osborne Nursery, Murrayfield, Edinburgh*, for rockwork; Messrs. DOBBIE AND CO., *Edinburgh*, for Roses and Dahlias; Messrs. AUSTIN AND M'ASLAN, *Glasgow*, for fruits and vegetables; and Messrs. ALLWOOD BROTHERS, *Haywards Heath*, for Carnations and *Dianthus Allwoodii*.

Gold Medals.—To Messrs. CUNNINGHAM, FRASER AND CO., *Edinburgh*, for *Coniferae*,

etc.; Messrs. ISAAC HOUSE AND SON, Bristol, for hybrid Scabious; Messrs. LAIRD AND DICKSON, Edinburgh, for Gladioli; and Messrs. STORRIE AND STORRIE, Glencorse, for fruit trees in pots, etc.

Silver-Gilt Medals.—To Messrs. CUNNINGHAM, FRASER AND CO., Edinburgh, for cut flowers; Messrs. JOHN FORBES (Hawick) LTD., for cut flowers; Mr. JOHN DOWNIE, Edinburgh, for cut flowers; Messrs. TILLIE, WHITE AND CO., Edinburgh, for vegetables and Gladioli; and the SCOTTISH CO-OPERATIVE WHOLESALE SOCIETY, for fruits and cut flowers.

Silver Medal and Cultural Certificate.—To Mr. JOHN A. MURIE, Market Gardener, Edinburgh, for Leeks and Cauliflower.

Silver Medals.—To Messrs. BAKERS, Codsall, for cut flowers; Mr. W. FERGUSON, Dunfermline, for Roses; Messrs. G. MAIR AND SON, Prestwick, for Gladioli; and Mr. JOHN WILSON, Hereford, for Onions.

Bronze Medal.—To Mr. JAMES BISHOP, Biggar, for Violas.

SEPTEMBER 7.—The monthly meeting of this Society was held at 5, St. Andrew Square, Edinburgh, on this date, Mr. David King, president, in the chair.

A paper on "Shrubs and Climbers" was read by Mr. D. McGran, Coodham Gardens, Kilmar-nock.

The exhibits were:—Dahlias, by Messrs. DOBBIE AND CO., Edinburgh (Gold Medal); Potatos, Onions, etc., by Miss BURTON, New Saughtonhall, Midlothian (Special Appreciation and a Cultural Certificate); Chrysanthemum maximum vars. Peggy and Stenhouse Giant, by Mr. FRANCIS BAILLIE, Stenhouse, Liberton (Cultural Certificate).

ROYAL HORTICULTURAL.

Present: Messrs. H. B. May (in the chair), D. B. Crane, J. Cheal, John Green, A. C. Bartlett, J. B. Riding, A. Turner and C. H. Curtis.

The following varieties of Dahlias were selected for trial by the joint floral committee of the Royal Horticultural Society and the National Dahlia Society at the R.H.S. fortnightly meeting on the 19th inst:—

Doris Tisdale.—A large fawn-coloured Cactus variety.

Cameo.—A light yellow Collerette variety, of good size and form.

Cavalier.—A very full, Paecy-flowered sort, deep crimson scarlet, tipped with white.

Primrose.—A large and shapely collerette variety, with almost white collar. The above were shown by Messrs. J. STREDWICK AND SON, St. Leonards.

Leonic.—This miniature Paecy-flowered variety is deep pink, marked and shaded with scarlet over the greater part of the flower.

Betty.—A miniature Paecy-flowered Dahlia, almost single, and with broad florets; the colour is light mauve, almost a blue shade.

Spicy.—A charming miniature Paecy-flowered variety, light crimson, with purplish tips. The flowers have stiff stems.

Welcome.—A shapely miniature-flowered Dahlia of striking appearance; blush or pink ground with rose and crimson flushing.

Peach.—A lovely glowing pink Paecy-flowered variety with golden centre and with golden shading running into the pink area.

Princess.—A miniature Paecy-flowered sort, pink, with golden centre and shading.

Tipsy.—A splendid Camellia-flowered variety of fine form and rich deep scarlet colouring.

Raider.—A miniature decorative variety of soft terra cotta shade, with purplish centre. The foregoing eight varieties were shown by Messrs. J. BURRELL AND CO., Cambridge.

Mrs. Lowes.—A handsome clear yellow Cactus variety of excellent form.

Lady Hurst.—This belongs to the miniature Paecy-flowered section, but shows "Star" parentage; rich pink with golden centre and shading.

Mrs. Trist.—A large Camellia-flowered sort, shapely and full; purplish magenta.

Rowett Star.—Very bright and belonging to the Star section; yellow, tipped with rose-pink.

Peggy Lobjoit.—A Star Dahlia, pink with light yellow centre.

Crawley Beauty.—A Parisian single Dahlia, intense crimson, deeply edged with dark scarlet. The foregoing six varieties were shown by Messrs. J. CHEAL AND SON, Crawley.

Sweet Dorothy.—A pretty Star Dahlia of deep rose-pink shade.

Dainty.—An elegant and somewhat quaint Star Dahlia, yellow, with lilac-mauve tips.

Snowdrift.—A useful white Cactus variety, with narrow, pointed florets of purest white. The three last named varieties were shown by Mr. CHARLES TURNER, Slough.

Trial of Sweet Peas at Wisley.

The following awards have been made to Sweet Peas by the Council of the Royal Horticultural Society after trial at Wisley:—

AWARDS OF MERIT.

No. 34, *Hebe*, sent by Mr. J. STEVENSON; Nos. 47, 48, *Hawmark*, salmon-pink sent by Messrs. A. DICKSON AND SONS and Messrs. CULLEN; No. 74, *Cottage Rose*, sent by Mr. BIRTLES; No. 84, *Royal Cherry*, sent by Mr. H. DICKSON; Nos. 90, 91, 92, *Doris*, sent by Messrs. DOBBIE AND CO., Messrs. E. W. KING AND CO., and Messrs. KING, WEBB AND SONS; No. 116, *Fair Lady*, sent by Mr. J. STEVENSON; and Nos. 144, 151, *Picture*, sent by Messrs. DOBBIE AND CO., and Messrs. WEBB AND SONS.

HIGHLY COMMENDED.

No. 13, *Mavis*, sent by Messrs. E. W. KING AND CO.; No. 16, *Joan of Arc*, sent by Mr. J. STEVENSON; Nos. 18, 19, *Annie Bownass*, sent by Messrs. CULLEN and Messrs. A. DICKSON AND SONS; Nos. 60, 65, *Hawmark Pink* No. 1, sent by Mr. UNWIN and Messrs. DICKSON AND SONS; No. 72, *Mignonne*, sent by Messrs. E. W. KING AND CO.; No. 76, *Rosamund*, sent by Mr. H. DICKSON; No. 81, *Glory*, sent by Messrs. R. BOLTON AND SON; No. 83, *Mrs. Jessop*, sent by Messrs. R. BOLTON AND SON; No. 83, *Hawmark Cerise*, sent by Messrs. A. DICKSON AND SONS; and No. 87, *Eva*, sent by Messrs. S. F. CURTIS.

Trial of Beet at Wisley.

The following awards have been made to Beet by the Council of the Royal Horticultural Society after trial at Wisley (judged August 2, 1922):—

AWARD OF MERIT.

No. 37, *Egyptian*, re-selected, sent by Messrs. CARTER AND CO.

HIGHLY COMMENDED.

No. 4, *Crimson Globe*, sent by Messrs. HURST AND SON; No. 4, *Express Crimson Globe*, sent by Messrs. DICKSON AND ROBINSON; No. 12, *Reliance Globe*, sent by Messrs. E. WEBB AND SON; No. 17, *Eclipse Turnip-rooted*, sent by Messrs. BARR AND SONS; and No. 20, *Perfect Model Globe*, sent by Messrs. KELWAY AND SON.

COMMENDED.

No. 14, *Globe Selected No. 2*, sent by Messrs. DOBBIE AND CO.; No. 24, *Crimson Globe* (sent as *Model Globe*), sent by Messrs. R. VEITCH AND SON; and No. 30, *The Cooper Taber Turnip-rooted*, sent by Messrs. COOPER, TABER AND CO.

JUDGED AUGUST 16, 1922.

AWARD OF MERIT.

No. 39, *Feltham Intermediate*, sent by Messrs. WATKINS AND SIMPSON.

HIGHLY COMMENDED.

No. 42, *Intermediate*, sent by Messrs. KING; No. 46, *New Intermediate*, sent by Messrs. R. VEITCH AND SON; No. 51, *Queen Mary*, sent by Messrs. HARRISON.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

THE monthly meeting of this society was held in the R.H.S. Hall on Monday, September 11, Mr. Chas. Curtis presiding. An extra benefit of £5 was granted to one member for dental treatment. Two members withdrew interest from their deposit, the sum of £5 1s. 8d. each. The sick pay for the month on the private side was £33 3s. 8d., and on the State section £37 7s. 8d., maternity benefits came to £12. Arrangements were made for the annual dinner to take place at the Imperial Hotel, on October 4, when a presentation will be made to Mr. C. H. Curtis as a token of esteem and regard and to mark his completion of twenty-one years' service as chairman of the society; Mr. Leonard Sutton will preside.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

THURSDAY, SEPT. 7.—*Committee present:* The Rev. J. Crombleholme (in the chair), Messrs. B. J. Beckton, A. Burns, A. Coningsby, A. T. Cussons, J. Cypher, A. G. Ellwood, W. Givens, Dr. R. N. Hartley, J. Howes, J. Jackson, A. Keeling, J. Lupton, D. McLeod, W. Thompson, and H. Arthur (Sec.).

FIRST-CLASS CERTIFICATES.

Brasso-Laetio-Cattleya Maculata (B.-C. The Baroness × L.-C. Thylene); *Cattleya Venus* var. *Grand Monarch*; and L.-C. *Golden Sunset* (L.-C. Appam × C. Aureole), from S. GRATRAX, Esq.

Laetio-Cattleya Eloasca (L.-C. Elva × C. Rubens Lambaeanum); L.-C. *Sargon majestica* (C. Hardyana × L.-C. Lustre), from P. SMITH, Esq.

Cypripedium Albion (C. naevium × *Astarte*), from Mrs. GRATRAX.

AWARDS OF MERIT.

Odontoglossum St. George var. *Eileen*; *Odm. amabile The Prince*, from A. HANMER, Esq.

Cattleya Aenas (Venus × aurea) and *Cattleya Faiziana* (L.-C. Schulzeana × C. Fabia), from Messrs. KEELING AND SONS.

Cattleya Gaskelliana Pallens. From Dr. R. N. HARTLEY.

Cattleya Hardyana var. *Ruby*. From Messrs. STUART LOW AND CO.

GROUPS.

The Rev. J. CROMBLEHOLME, Clayton-le-moors (gr. Mr. E. Marshall), was awarded a Silver-Gilt Medal for a group of Cypripediums in variety. J. McCHETNEY, Esq., Bolton (gr. Mr. E. H. Potts), was also awarded a Silver-Gilt Medal for a group of miscellaneous Orchids. Mrs. BRUCE and Miss WRIGLEY, Bury (gr. Mr. A. Burns), staged a group for which a Silver Medal was awarded.

Dr. R. N. HARTLEY, Wigan, was awarded a Silver Medal for a group.

SEPTEMBER 21.—*Committee present:* The Rev. J. Crombleholme (in the chair), Messrs. B. J. Beckton, J. Birchenall, A. Coningsby, A. T. Cussons, J. Cypher, A. G. Ellwood, J. Evans, Dr. R. N. Hartley, J. Howes, W. Morton Jackson, A. Keeling, D. McLeod, E. W. Thompson, J. Witham, and A. Arthur (Sec.).

FIRST-CLASS CERTIFICATE.

Brasso-Laetio-Cattleya Golden Crown var. *Diadem* (B.-L.-C. Joan × C. Venus). One of the largest and best coloured of the type. From P. SMITH, Esq.

AWARDS OF MERIT.

Cattleya Abckiana var. *Aurora*; *Cattleya Hardyana* var. *Albion*; *Brasso-Laetio-Cattleya Asmodia West Point* var. From S. GRATRAX, Esq.

GROUPS.

S. GRATRAX, Esq., West Point (gr. Mr. J. Howes), staged a group for which a Silver-Gilt Medal was awarded.

A Silver Medal was awarded to Messrs. CYPHER AND SONS, Cheltenham, for a group in variety.

TRADE NOTES.

MR. GEORGE MONRO presided at a well-attended meeting of the Council of the Chamber of Horticulture, held on the 20th inst. Railway rates were considered, and the sub-committee dealing with the matter urged that the Chamber should support the co-ordinated objections drawn up by the Co-ordinating Committee. It appeared that a re-classification concession for plants and shrubs, minimum 30 cwt. per truck, in Class 16, being an additional concession to those gained at the Royal Courts of Justice in February last, was considered to be insufficient to meet the sub-committee's requirements, and a further communication to the Railway Rates Tribunal was made.

It was reported that the Parliamentary Committee had met on July 20 to consider the Merchandise Marks Bill now before the House of Commons. The Bill was considered satisfactory in principle, but objections were raised to some of its phrasing, which would appear to endanger a case presented for horticulture under Clause 1 of the Bill. The Ministry of Agriculture was communicated with on this subject, who replied that such an amendment would not be necessary, as Clause 1 would enable an order to be made requiring the indication to be given in some manner other than application to the goods. With this assurance the Bill is being supported. Reference was made to the meeting of representatives of non-trading societies with reference to the terms proposed by the Royal Horticultural Society for the letting of their hall for show purposes. Hope was expressed that the outcome of the meeting would be favourable to the societies. Arrangements have been made for the Chamber to be represented at the Crystal Palace Fruit Show on somewhat similar lines to those obtaining at the exhibition of 1921. The Secretary reported that the Chamber's *Bulletin* had been well received by the horticultural Press, with one exception. The matter of advertisements in the *Bulletin* was referred back to the committee, as there was no intention on the part of the Council to compete with the horticultural Press in advertisements. The Secretary reported that with regard to co-operative advertising of flowers, the Retailers' Association expressed sympathy with the movement, but could not offer any assistance; the British Florists' Federation was of the opinion that retailers as a whole should participate, so, in view of the fundamental difficulties, it was considered that the time was not yet ripe for embarking upon such a scheme, and the matter was postponed for the present. The Shop Assistants' (Facilities) Bill was explained, and as this appears likely to impose further restrictions upon trade, it was referred to the Parliamentary Committee to watch, and take any necessary action.

Mr. A. White and Mr. Seymour Copley requested that action should be taken with regard to the excessive railway charges for flowers. This matter was discussed, but it was decided to adjourn further consideration until the next meeting, it being too late to obtain any benefit for this season's produce; moreover, it was considered that the whole question of existing railway charges for horticultural produce should be discussed and some decisive action taken to obtain relief.

GARDENING APPOINTMENTS.

Mr. W. J. Baker, for the past six years Gardener to Mrs. Evelyn Heslitt, at Goldings, Great Warley, Essex, as Gardener to J. A. FAIRHURST, Esq., J.P., Arlington Manor, Newbury, Berkshire.

Mr. M. L. Sargent, for the past two years Gardener and Bailiff to Mrs. Warner Hooke, at The Rocks, Boars Head, near Tunbridge Wells, as Manager and Chrysanthemum expert at the Bridgewater Nurseries, Somerset.

Mr. G. T. Watson, previously for ten years Gardener to the late R. C. D. GIBBY, Esq., Newby Hall, Ripon, Yorkshire, as Gardener to W. G. TURRANT, Esq., Lake House, Byfleet, Surrey. (Thanks for 2s. 6d. for R.G.O.F. Box.—Eds.)

MARKETS.

COVENT GARDEN, Tuesday, September 26th, 1922.

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Adiantum deco-		Lily of the Valley,	
rum, doz. bun.	10 0-12 0	per doz. bun.	24 0-36 0
—undecorated,		Marguerites, yel-	
per doz. bun.	6 0-8 0	low, per doz.	
Asparagus plu-		bun.	2 0-2 6
mosus, per bun.		—Daisies	
long trails, 6's	4 0-5 0	per doz. bun.	9 0-15 0
med. sprays ..	2 6-3 6	Orchids, per doz.	
short ..	1 0-1 6	—Cattleyas	12 0-18 0
—Sprenger, per bun.		—Cypripediums	6 0-9 0
long sprays ..	2 6-3 0	Pelargonium,	
med. ..	1 3-1 6	per doz. bunch,	
short ..	0 9-1 0	double scarlet	10 0-12 0
Asters per doz. bun.		Physalis per doz.	
—White ..	2 0-4 0	bun.	8 0-12 0
—Coloured ..	2 0-4 0	Richardias (Arums)	
Carnations, per		per doz.	6 0-7 0
doz. blooms ..	2 0-3 0	Roses, per doz.	
Croton leaves,		blooms—	
var. per bun.	2 6-4 0	—Frau Karl	
Chrysanthemum		Druschki ..	1 3-1 6
pink, per doz.		—Madame A.	
—bronze ..	4 0-6 0	—Cherryway ..	1 6-2 6
—white ..	6 0-8 0	—Xanthos ..	1 6-2 6
—yellow ..	4 0-6 0	—Ophelia ..	2 0-3 0
—per doz. blooms		—Liberty ..	2 0-3 0
—white ..	2 0-6 0	—Richmond ..	1 6-2 6
—yellow ..	2 0-3 0	—Sunburst ..	1 6-2 6
—pink ..	2 6-3 0	—White Crawford	2 0-3 6
—bronze ..	2 0-2 6	Scabiosa caucasica,	
Fern, French per		per doz. bun.	3 0-4 0
doz. bun.	1 0-1 3	Statice, per doz. bun.	
Gardenias, per		mauve ..	4 0-6 0
box ..	4 0-5 0	—white ..	4 0-6 0
Glaucous Halley,		—yellow ..	4 0-6 0
per doz. spikes	1 6-2 0	Simulax, per doz.	
Scarlet, per doz		trails ..	3 0-5 0
spikes ..	2 6-3 0	Stephanotis, per	
Heather, white,		72 pips ..	3 0-4 0
per doz. bun.	4 0-10 0	Stock, double	
Lavender, per		White ..	6 0-10 0
doz. ..	3 0-2 6	Sweet Sultan,	
Lilium ..		white, per doz.	
—longiflorum ..	4 6-5 0	bun.	2 0-3 0
—pendulum long		Violas, per doz.	
per doz. ..	3 0-4 6	bun ..	2 0-2 6
short ..	2 0-3 0	Violets, single ..	2 6-5 0

REMARKS.—The salesmen's stands are crowded with cut blooms, but there is a lot of inferior grade, more especially amongst outdoor flowers, for which there is little demand. Chrysanthemums are very much in evidence, and there are many cheap "lilies" in these flowers, principally coloured sprays in bunches. Double blooms are more in demand, some fine blooms of white, yellow, pink, and bronze colours are now available in such sorts as Admirante, Duchess, Debutante, Sanctity, Delight (shell pink), Mercedes, Golden King and Uxbridge Pink. The quantities of Carnations and Roses appear to be sufficient for all requirements, and their prices show no change from those of last week. Lilium longiflorum is again lowering in value. Richardias (Arums) are also arriving in better condition. The weather is most favourable to Gladioli, and some fine varieties are still on sale. Large consignments of Michaelmas Daisies are being sent by the growers. Physalis is also pretty plentiful. Violets are arriving in excellent condition. Trade does not show any general improvement, and there is no particular shortage of anything.

Plants in Pots, etc.: Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Adiantum		Crotons, per doz.	30 0-42 0
cuneatum,		Cyrtomium ..	10 0-15 0
per doz. ..	10 0-18 0	Marguerites, per	
—legans ..	10 0-12 0	doz. ..	12 0-15 0
Aralia Sieboldii		Nephrolepis, in	
per doz. ..	10 0-12 0	variety ..	12 0-18 0
Asparagus plu-		—32's ..	24 0-36 0
mosus ..	12 0-15 0	Palm, Kentia ..	24 0-30 0
—Sprenger ..	12 0-18 0	—60's ..	15 0-18 0
Aspidistra, green		—Cocos ..	24 0-36 0
per doz. ..	48 0-72 0	Polyanthas, per	
Asplenium, per		doz. ..	12 0-18 0
doz. ..	12 0-18 0	—48 per doz. ..	12 0-18 0
—32's ..	24 0-30 0	Pteris, in variety	12 0-21 0
—indus ..	12 0-15 0	—large 60's ..	5 0-6 0
Cycl. per tray,		—small ..	4 0-4 6
12's, 15's ..	5 0-6 0	—72's, per tray	
Chrysanthemum		of 15's ..	3 6-4 0
—white per doz.	10 0-18 0		
—coloured ..	9 0-15 0		

Vegetables; Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Beans		Marrows partially	3 0-4 0
—French, per lb.	0 3-0 6	Mushrooms	
—Scarlets, per bus.	2 0-3 0	—per lb. Forced,	2 0-3 0
Beets, per bus.	1 3-2 0	—Outdoor ..	0 6-0 8
Cabbage, per		Onions,	
tally ..	3 0-4 0	—Valencia ..	9 0-11 6
Carrots, new,		Potatoes, ton ..	43 10-26
cwt. ..	2 6-3 6	Sprouts, 1-bushel	4 0-4 6
Cauliflower, tally		Sprinach bushel	3 0-3 6
10 0-15 0		Tomatoes,	
—flats, 3 doz. ..	8 0-12 0	—English Pinks	4 6-5 6
—" 32 " ..	7 0-10 0	—Pink and white	4 6-5 6
—" 4 " ..	6 0-8 0	—Guernsey ..	3 6-4 0
Endive ..	4 0-5 0	—Jersey ..	3 6-4 0
Garlic, per lb.	0 8-0 0	—Dutch ..	2 6-3 6
Lettuce, Round	2 0-2 6	Turnips, per cwt	2 6-3 6

Fruit: Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Apples,		—English and	
English, per bus.		Guernsey ..	2 0-6 0
—Stirling Castle	4 0-6 0	—Cantaloupe ..	2 6-8 0
—Warner's King	4 6-6 0	Nectarines ..	3 0-18 0
—Bramley's		Nuts—Brazil ..	44 0-46 0
Seedling ..	5 0-6 0	Oranges,	
—Worcester, half		—Australian ..	16 0-20 0
bushel	2 0-3 0	—S. African ..	18 0-21 0
—bushel cases ..	4 0-9 0	—Seedlings ..	16 0-18 0
—James Grieve	2 0-2 6	Peaches, per doz.	4 0-24 0
—Nova Scotia,		Pears, half bus.	
Gravenstein ..	17 0-20 0	—William's ..	3 6-6 0
Bananas, singles	11 0-15 0	—Conference ..	3 0-4 6
—doubles ..	17 6-20 0	—Calabasse ..	3 6-4 0
Blackberries 12lbs	1 6-2 6	—Dr. Jules Guyot	3 0-5 0
Figs, per doz. ..	3 0-8 0	—Sour du	
South African		Congres ..	3 0-5 0
Grape-Fruit ..	18 0-20 0	—Hessie per bus.	5 0-6 0
Grapes		—Californian case	16 0-17 0
—Alcanto ..	1 0-1 9	Pineapples ..	2 0-5 0
—Black Ham-		Plums,	
burgh ..	0 10-2 6	—Fond's Seedling	8 0-9 0
—Cannon Hall ..	2 6-6 0	—Damsons ..	2 6-3 6
—Muscat ..	1 6-6 0	—Fruites ..	3 6-4 6
Lemons		—President ..	6 0-7 6
—Murcia ..	10 0-23 0		
Melons			
—Valencia ..	14 0-16 0		

REMARKS.—Euying was on a fairly large scale toward last week-end, but it has since subsided to very meagre proportions. Prices all round are at a comparatively moderate level, which should have the effect of stimulating trade. Hothouse Grapes are plentiful, and with ample supplies from Belgium and Guernsey as well as home grown, prices are low. Peaches are plentiful, and selling moderately well. The quantities of Worcester Pearmain Apples, both in standard cases and sieves, are ample for the demand, and prices for this variety remain low. Cooking varieties of large size and sound quality are a good trade, and realising more than good average dessert Apples. The Plum season is drawing to a close. Some good fruits of President have been making satisfactory prices. Victorias are rather waxy, and have been difficult to clear. Prunes and Damsons are slightly easier in price. Pears are available in moderate quantities, and parcels of good fruit have sold without difficulty, but some proportion consists of nondescript sorts, badly graded, and these are not wanted. Tomatoes, after a recovery in price, are inclined to be cheaper again. The first consignment from the Canary Islands has arrived in good condition. Cucumbers are a slightly firmer trade. Oranges from Australia and S. Africa are in good condition and larger quantities have brought about lower values. Bananas are a steady trade, but values are inclined to be easier. Green vegetables are cheap and plentiful. The Potato trade is quiet, with plentiful stocks on offer.

ANSWERS TO CORRESPONDENTS.

ADDRESS: J. W. M. The address you ask for is Messrs. C. J. Van Tubergen, Junr., Zwaneburg, Haarlem, Holland.

HEAD GARDENER'S NOTICE TO LEAVE: A. B. You are entitled to a month's notice or a month's wages in lieu of notice. You are also entitled to a month's notice to quit the cottage. If you cannot find alternative accommodation within that time you should explain the position to the court in the event of your employer issuing a summons for possession.

LENGTH OF NOTICE TO QUIT NURSERY LAND: E. W. A market gardener is entitled to recover certain compensation from his landlord, but a nurseryman has no such rights in the absence of any definite bargain on the point. If you use the land only as a nursery and if you are a *warly* tenant, you are entitled to six months' notice to quit, expiring on the anniversary of the date when your tenancy commenced, unless you made any definite arrangement to the contrary.

NAMES OF FRUIT: M. H. E. 1. Yellow Ingestre; 2. Baumann's Red Winter Reimette; 3. Seedling; 4. Queen; 5. Keswick Codlin; 6. probably Gascoyne's Scarlet; 7. Bramley's Seedling; 8. local seedling; 9. Souvenir du Congres; 10. Pitaston Duchess; 11. Glout Morceau.

NAMES OF PLANTS: J. N. and T. J. H. We cannot undertake to name florists' flowers.—J. W. C. Nepeta Glechoma variegata; variegated Ground Ivy.

Communications Received.—C. H. (Thanks for 2s. 6d. for R. G. O. F. Box.—Eds.)—E. S.—G. P. J.—A. D. R.—Rose—A. B. D.—E. H. W.—C. G.—F. A.—F. J. R.—J. J.—J. R.—C. A. P.—Amateur.—J. P.—M. V. B.—W. J. F.

THE

Gardeners' Chronicle

No. 1867.—SATURDAY, OCTOBER 7, 1922.

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 53.1.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, October 4 10 a.m. Bar, 30.1; temp, 60°. Weather—Dull.

Bearded
Isises.

All who grow bearded Isises will find interest, and not a few satisfaction, in the perusal of the article on the classification of garden Isises published in the *Journal of the Royal Horticultural Society* for January of this year. The learned in Iris nomenclature, whose long experience enables them to "place" each Iris with greater or less certainty in its proper group will, perhaps, as Mr. Dykes suggests in his admirable introduction, regret that these sections are brushed aside by the Iris Committee; yet the cogency of the reasons which have led the Committee to adopt a purely empirical classification of bearded Isises is set forth so clearly and authoritatively by Mr. Dykes as to convince them that a classification based on apparent affinity is impossible. That this is so would follow from a consideration of the gaps in our knowledge as to the true origin of garden Isises. Apart from the early flowering quartet *Iris pumila*, *I. Chamaeiris* (which is often offered for *I. pumila*), *I. mellita* and *I. Reichenbachii*, the garden Isises are hybrids to which two or more species or species-like hybrids have contributed. According to Mr. Dykes, the older among the later flowering varieties of Isises are derived from *I. pallida* and *I. variegata*, whilst among more modern kinds some owe their origin to the co-operation of *I. trojana*—characterised by pointed buds and much branched stem. The beautiful variety, *Isoline*, has *I. trojana* blood in it and

crosses between this species and *I. variegata* have, according to Mr. Dykes, produced not a few valuable hybrids. Other species or introduced varieties have also been used in crosses. Of these, Mr. Dykes enumerates *Amas* or *macrantha*, which Sir Michael Foster received from Asia Minor, Foster's *I. cypriana* and *I. mesopotamica*. Permutations and combinations of these parents are represented in garden Isises of the present day, and although the expert will always find an interest in judging of parentage, it is idle to attempt to base a working classification on what must, in many cases, be at best conjecture. Moreover, as Mr. Dykes shows, *I. germanica* is of unknown origin. He gives valid reasons—that it does not lose its leaves in winter and that it does not seed freely—against its being a native of Germany, and he points to the fact that seedlings from *I. germanica* often resemble *I. aphylla*, in support of the opinion that *I. germanica* is itself a hybrid between *I. aphylla* and some not yet identified species. Of the first parents of the older, late-flowering Isises—*I. pallida* and *I. variegata*, the former is to be recognised by its scarious spathes, relatively tall stem, short laterals and glaucous or green leaves, the latter by its herbaceous spathes, much branched stem and strongly ribbed, green leaves. These species are native of southern central Europe, and in their habitat may be found the types and also forms of what used to be known as *I. squalens* and *I. sambucina*. Mr. Dykes points out that the purple of *I. pallida* and the yellow of *I. variegata* are combined in these hybrids to give the characteristic "murky shot-effect" of their flowers. Both *I. pallida* and *I. variegata* seem to be—as might be expected—very variable species. *I. pallida* dalmatica, with its largeness and glaucousness appears to be of garden origin and *I. variegata*, even as a wild plant, has produced as a sport leucographa in which the yellow ground of the type is replaced by white. Such a form crossed with *pallida* has doubtless been responsible for many of our garden varieties. In confirmation of this view, Mr. Dykes mentions the fact that Black Prince self-fertilised has given Richard II, with pure white standards, and other forms with the yellow standards of *I. variegata*; indicating clearly that the natural variety leucographa of *I. variegata* is a "dominant" white. With such a complex and not entirely known genealogy it is useless to attempt to do more than establish a working classification for garden purposes. That sketched by the Iris Committee consists of eight classes based on colour: white; white feathered with purple; standard white, or nearly so, falls purple; purple bicolors (standards paler than falls); purple selfs; standard of shot shades; standards yellow, falls blue-, red-, or brown-purple, yellow selfs. Each class is, of course, further subdivided on a colour basis. The full classification will also take into consideration another character of great importance in the garden, namely, height. What the Society has done in the case of the Iris it will, we hope, attempt in that of other flowers of garden importance and mixed origin.

Memorials to the late Mr. S. T. Wright.—Members of the Fruit and Vegetable Committee of the Royal Horticultural Society are placing a memorial to the late Mr. S. T. Wright, who for twenty-three years was secretary to the committee, in the Wisley Gardens. The memorial will take the form of a sundial with an inscription relating to Mr. Wright's services to the Society and the committee. It will be erected on the lawn between the superintendent's house

and the laboratory, a spot that will ensure it being seen by everyone who visits the gardens. Contributors to the cost of the memorial are restricted to past and present members of the Royal Horticultural Society's Fruit and Vegetable Committee, and the subscription has been limited to 10s. The chairman of the committee, Mr. C. G. A. Nix, Tilgate Forest Lodge, Crawley, Sussex, has been authorised to receive subscriptions. The members of the R.H.S. Gardens' Club have also decided to provide a memorial to the late Mr. S. T. Wright in memory of his long and valued association with the club as treasurer and vice-president. The memorial will take the form of a framed photograph of Mr. Wright, suitably inscribed, and this will be hung in the laboratory at Wisley.

Bacterial Spot of Cucumbers.—The not uncommon disease of Cucumbers, known as Bacterial spot, has been investigated by Messrs. F. C. Meier and G. K. Link, pathologists in the United States Department of Agriculture. The results of this investigation, published in *Department Circular* 234, show that the malady, which is due to a bacterium (*B. lachrymans*) is carried in the seed, and that to prevent infection the seed suspected of contamination with the bacterium should be disinfected by treatment for five minutes with mercuric chloride of a strength of one part in one thousand of water. After treatment, the seed should be washed for fifteen minutes in running water and allowed to dry. Bacterial spot of Cucumber may be recognised by the occurrence on the fruit of minute, circular, water-soaked areas. These areas, as the disease progresses, become more conspicuous and often take on a chalky-white appearance owing to the exudation of white, gummy masses from the diseased tissues. Although the disease itself does not generally do much damage, it often paves the way to rapid deterioration of the fruit as the result of the penetration through the diseased areas of other micro-organisms.

Association of Economic Biologists.—A general meeting of this Association will be held at 2.30 p.m. on Friday, October 13, in the Botanical Lecture Theatre of the Imperial College of Science, Prince Consort Road, South Kensington, London, S.W.7, when a discussion on "Virus Diseases" will be opened by Dr. E. J. Butler (Imperial Bureau of Mycology), who will speak on "Virus Diseases in Plants"; and Dr. J. A. Arkwright (Lister Institute of Preventive Medicine), who will speak on "Virus Diseases in Animals and Man."

The roses of Ancient Egypt.—Some interesting facts concerning the cultivation of the Rose in ancient Egypt were given by Mon. C. Cochet-Cochet in a lecture to the members of the French Horticultural Society on July 27. It is a remarkable fact that the Rose was unknown to the Hebrews in ancient times, the mention of this flower in the Song of Songs being probably an error in translation. It was not until after the Babylonian captivity that the Rose became known to the Jews, and it is mentioned in the later books of the Bible, Wisdom and Ecclesiasticus. Much later still, a mention of it is found in the Talmud. The ancient Egyptians, who had frequent communications with the Jews, were also unacquainted with the Rose. The flower does not occur on any monument of the Pharaohs. It is not until the period of the Ptolemies, i.e., until after 308 B.C., that one can trace, in frescoes and on fabrics, and in the form of dried natural flowers, evidences that the flower had become known to them. As there is no Rose which is native to Egypt, any species grown there must have been imported, and it is certain that even two or three centuries after Christ, it was still considered as an imported flower. M. Gayet, the well known Egyptologist, imported into Paris, in 1902 or 1903, the mummies of Thais and the sorceress Myrthis, from Antinoë, where he also found, with the latter mummy, a fine collection of petals and buds of a Rose which he identified as *R. sancta*. Myrthis lived in the third century A.D. He also discovered silken fabrics worked with Roses which had five petals, and were yellow in colour, the colour signifying that they were of

Eastern origin—colour in Egyptian iore being conventional rather than imitative. It is plain, then, that the Rose at that time was still considered an exotic, but it must have been in cultivation at least five or six hundred years before that, for Theophrastus, who died in 287 B.C., mentioned that Roses flowered in Egypt two months before those in Europe. It would be interesting to know from whence in the first place Roses were imported into Egypt, and it is reasonable to suppose that it was from Greece, where the Rose was well known in very ancient times. Probably it was introduced with the Greeks who entered Egypt with Alexander, 332 B.C. As regards the species and varieties cultivated in Ancient Egypt, with the exception of *R. sancta*, of which numbers of dried specimens have been found at Fayoum, there is evidence in frescoes, fabrics, etc., only of Roses with five petals; but it is probable that they had the same sorts as the Greeks, who, according to Theophrastus, cultivated *R. gallica*, the Damask Rose, and the "Hundred Petalled Rose." Pliny reported that they were exported from Egypt to Rome in winter, before the Romans discovered how to make them flower in Italy at that season; and Martial, in 81 A.D., spoke of the Roses which the Egyptians sent to the Roman Emperor Domitian on the occasion of his birthday. The Rose finally became of great importance in Egypt, the famous Cleopatra using the flower in her entertainments, and it even displaced the Lotus, that once very popular flower. The history of the Rose in Egypt between the Roman era and comparatively recent times is not known, but about 1800, at the time of the Bonapartist expedition to Egypt, the French travellers in that country reported vast tracts of land covered with Rose trees, from which great quantities of Rose-water were made annually. As regards the *Rosa sancta*, discovered in Egyptian tombs, and also imported in a living condition into France, both this species and also *R. Ward Ballady*, which has been cultivated for the past few centuries at Fayoum, Damiatta, and Alexandria, appertain to *R. gallica*.

National Sweet Pea Society.—A novelty trial of Sweet Peas will be held as usual in 1923, at Shinfield, the trial grounds of the University College, Reading. All seeds sent for trial must be in the hands of the Secretary, Mr. H. D. Tigwell, Greenford, Middlesex, on or before Tuesday, the 10th inst. Each separate trial must be placed in a blank packet, which must be enclosed in an outer cover upon which must appear the colour section, name or number of variety, and sender's name and address. A fee of 7s. 6d. must be sent for each trial.

A Big Deal in Cotton Seed.—An idea of the extent of Cotton cultivation in the Southern United States may be gathered from the statement in *The Seed World* to the effect that one purchase of cotton planting-seed, made recently at San Marcos, Texas, consisted of fifteen train-car loads, valued at 42,000 dollars; this was of pedigree seed for distribution among several cotton farmers.

Fine Exhibit of Fruits and Flowers at Llandudno.—On the occasion of the Llandudno Allotment Holders' Show, on the 16th ult., A. Bradbury, Esq., Bryn Lupus, exhibited a very fine collection of fruits and flowers, to which the Royal Horticultural Society's medal was awarded. The display occupied a space of eighty square feet and consisted of finely-grown specimen Begonias, and a decorated table of excellent fruits. The exhibit was pleasingly arranged by Mr. H. Shaw, the gardener, who is a successful exhibitor in the North Wales district.

Horticultural Exhibition at Geneva.—Further particulars are now to hand of the forthcoming horticultural exhibition to be held at Geneva from September 5 to 13, 1923, which was briefly referred to in our issue of September 23, 1922, p. 175. The programme will include two competitions, one for groups of new plants, the other for horticultural sundries, the prizes for which are provided for by an endowment of the late Mr. Marc Estalla. The first prize in each class is a Gold Medal and a sum of money, and there

are also several smaller money prizes. Fuller particulars may be obtained from the Secretary, Mr. John Wolf, Le Pavillon, Grand-Saconnex, Geneva, Switzerland.

Legacy to a Gardener.—Under the terms of the will of the late Sir Hylton Ralph Briscoe, Bart., his gardener, Mr. W. J. Crossman, receives the sum of £200, while three other employees in the gardens receive six months' wages.

Sir Arthur Fenton Hort, Bart.—Sir Arthur Hort, whose portrait we have much pleasure in publishing, is well known both as a gardener and as a scholar. After a distinguished classical career at Cambridge, which ended in a Fellowship at Trinity College, Sir Arthur became an Assistant Master at Harrow, a post which he only resigned this year. As a scholar he is known for his masterly translation of Theophrastus, a work which he undertook with the help of Sir William Thirlwall for the Loeb Library of Classical Translations. As a gardener he had the advantage of an early acquaintance with Sir Michael Foster's garden at Shelford, from which many good Irises went to Harrow. There, in a sheltered wall-garden, Sir Arthur has raised a number of fine hybrids which he has named after Shakespearean



SIR ARTHUR HORT, BART.

characters, most of them of the self colours, which many growers prefer to the art shades so popular in France. Many of these hybrids are remarkable for their broad foliage, tall stature, and large flowers. Sir Arthur has been a frequent visitor to the Pyrenees, and brought back from there plants to furnish his rock garden, as well as many Narcissi, which have flourished in the grass slopes round his house at Harrow. There he could always show patches of *N. pallidus praecox* in full flower long before the ordinary varieties of Daffodils had opened their buds. From the same region he obtained, among other things, various forms of *Saxifraga longifolia* and many coloured varieties of *Anemone Hepatica*. Those who have had to move a garden full of plants which have been collected through a number of years will realise the difficulty of the task, but Sir Arthur's gardening friends will be quite sure that his new garden, at Hurstbourne Tarrant, near Andover, will be at least as interesting as that which he has left at Harrow.

Corky Scab of Potatoes.—This disease of the Potato tuber is caused by a fungus in the soil. Potentially it may be as serious as Wart Disease, but fortunately, although widespread in England, it rarely does serious damage except in undrained and damp or waterlogged

soils, where it may cause severe losses. Its appearance varies from slight scabs which are merely superficial to distorted tubers somewhat resembling those attacked by Wart Disease, and as varieties of Potatoes immune from Wart Disease are often attacked in this way, their immunity from Wart Disease has been doubted and incorrect reports have been spread that certain immune varieties have broken down. In slight cases, it is almost impossible to be certain that the disease is Corky Scab and not ordinary scab, unless a microscopical examination is made. In the more serious cases, the disease, unlike ordinary scab, penetrates into the tuber, though the spore balls which appear on the surface are almost sandy in colour. In wet seasons like the present, Potatoes instead of ripening may produce second growths and give rise to sappy protuberances which are very susceptible to this disease, and these when attacked slightly may appear to the casual observer to be suffering from Wart Disease. Any such specimens should be sent to the Horticultural Division, Ministry of Agriculture and Fisheries, 10, Whitehall Place, London, S.W.1, for examination. As already mentioned, the disease is most prevalent in seasons of excessive summer rainfall and most common in damp and waterlogged soils. Very little can be done to cure the disease, lime rather increasing it than otherwise, though proper drainage of damp soils will generally be found sufficient to lessen the severity of attack of the disease.

Appointments.—According to the *New Bulletin*, Mr. R. E. Holtum, B.A., Junior Demonstrator in Botany in the University of Cambridge, has been appointed by the Secretary of State for the Colonies, Assistant Director of Gardens, Straits Settlements. Mr. H. K. Hewison has been appointed by the Secretary of State for the Colonies as Assistant Superintendent, Agricultural Department, Gold Coast. Captain J. W. D. Fisher has been appointed Assistant in the Agricultural Department, Sierra Leone.

Mr. W. A. Cook.—We understand that Drynham, Walton-on-Thames, is in the market and that Mr. W. A. Cook, the gardener, is seeking another appointment. The gardens at Drynham were described in *Gard. Chron.*, May 22, 1920, p. 257, and we have on other occasions referred to the fine plants and beautiful garden features of that suburban residence. Previous to entering Mr. John Osborne's services at Drynham, Mr. W. A. Cook was for many years gardener to the late Sir Edmund Loder, at Leonardlee. We trust that he will soon have fresh opportunities for displaying his skill as a first-rate, all-round gardener.

Potato Dunvegan at Ormskirk.—The National Institute of Agricultural Botany has awarded a Certificate of Merit to Potato Dunvegan as the best new variety immune to Wart Disease grown at the Ormskirk Testing Station. Dunvegan was raised by Messrs. Sutton and Sons, of Reading, and thus the honour of having the best variety in the trials falls to England this year, whereas, for many years past, Scottish raisers have secured this honour.

Seed Testing.—The Ministry of Agriculture reminds us that in accordance with the requirements of the Seeds Act, 1920, and the Regulations made thereunder, it is necessary, in the case of a sale of any of the principal kinds of farm and garden seeds, for a statement to be made to the purchaser at, or before, the time of sale or delivery, containing certain specified particulars as to the quality of the seed. These particulars must be based on a test carried out at an official seed testing station, or a private testing station licensed for this purpose by the ministry, not earlier than August 1, preceding the date of the sale, except in the case of seeds sold during August and September, when the test may have been made since August 1 in the preceding year. In order to comply with the Regulations, seedsmen and others carrying over stocks of seed for sale from last season must, therefore, arrange to have them re-tested before offering them for sale from October, onwards.

Flowers in Season.—Messrs. John Forbes, Ltd., of Hawick, have sent some spikes of their very fine strain of Pentstemons in a variety of beautiful colours, and also the dwarf, or Mignon, Dahlia Coltness Gem, which is now being extensively used in Scotland for bedding. The flowers of this dwarf Dahlia are glowing red, almost scarlet.

The Queensland Sugar Crop of 1922.—The General Superintendent of the Queensland Bureau of Sugar Experiment Stations states that, owing to the very dry weather experienced, it has been necessary to reduce the previous estimate of the Queensland Sugar crop from 290,000 tons to 283,000 tons. This is only a rough estimate, as a warm, moist winter may increase the yield as a dry frosty period would reduce it. This tonnage, however, if realised, will suffice for Australia's requirements, and, with the production of New South Wales, may leave a small carry-over. The production in 1921 for Queensland was 281,000 tons, and a good proportion of this was made up during the latter part of the season, which was very favourable, the earlier estimates being considerably less.

Appointments for the Ensuing Week.—Monday, October 9.—United Horticultural Benefit and Provident Society's meeting; Bath Gardeners' Society's meeting; Purley Horticultural Society's meeting. Wednesday, October 11.—East Anglian Horticultural Society's meeting; Sheffield Chrysanthemum Society's meeting; North of England Horticultural Society's Show (3 days). Thursday, October 12.—Bristol and District Gardeners' Association's meeting; Hornsey and District Chrysanthemum Society's meeting; Wargrave and District Gardeners' Society's meeting. Friday, October 13.—Foots Cray and North Cray Horticultural Society's Show. Saturday, October 14.—Ringwood Horticultural Society's meeting; British Mycological Society's combined Foray with Essex Field Club; Peebles Chrysanthemum Society's Show.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Horticultural Society's Schedule of Prizes.*—*Cape Pelargoniums.*—I see by the advertised schedule of awards that the Horticultural Society again offers prizes for six species of Cape Pelargoniums, and as a probable exhibitor in that class I beg to offer a few remarks on the subject. On one occasion this season I exhibited six plants, which were beaten by Mr. Stanly, in whose collection there were well-grown plants of *Phymatanthus tricolor*, *P. elatus*, and *Campylia holosericea*. Now, what I wish to observe is, that if the Society is desirous to encourage the cultivation of the high-coloured species, such as *Pelargonium ardens*, *P. quinquevulnerum*, *P. bicolor*, etc., or the more curious but less showy kinds, such as *P. trieste*, *P. gibbosum*, *Jenkinsonii*, *triquetrum*, etc., there ought to be two distinct classes made, because these last cannot under the best culture compete with the free-growing and free blooming *Campylia* and *Phymatanthus* tribe. At any rate, the experience of the last season leads me to this conclusion, for the plants I exhibited were more distinct, and considering the sorts, better grown than those which the judges placed before them. Not that I blame the judges in this instance, for it is very probable, I may say certain, that neither of them had ever previously seen some of the kinds, and therefore they were unable to estimate fairly the merits of the two collections. It is well known to the few who cultivate this tribe of plants that *Campylia holosericea* and *Phymatanthus elatus* will attain a larger size in two years from the time of sowing the seed than many of the tuberous-rooted species will in ten years under the best management; unless, therefore, an alteration is made in the mode of showing, or some other method of placing the various kinds on a more equal footing is adopted, exhibitors will confine themselves to a few of the most easily cultivated sorts, and neglect the choicer species. In the list of prizes there is Class CC for "New Hybrid Pelargoniums," and Class RR for "Seedling Hybrid Pelargoniums, of entirely new crosses." Is either of these classes intended for seedlings or hybrids from the Cape species? *J. B. Whiting, The Deepdene, Dorking.*—*Gard. Chron.*, October 9, 1847.

HARDY FLOWER BORDER.

ARTEMISIA LACTIFLORA.

ONE most frequently meets with *Artemisia lactiflora* growing under conditions which do not reveal its true beauty. Too commonly it is crowded among other tall flowers at the back of a broad herbaceous border, where neither its foliage nor the plume-like flowers can be seen to advantage. On the contrary, if a good plant of this Wormwood is set so as to stand up among dwarfier flowers, or planted in front of other tall subjects of autumn, its grace is revealed in a most attractive way. My first acquaintance with it was in a truly magnificent border of autumn flowers, where it was crowded, as I have just indicated. There it did not impress me so favourably as such a good plant ought to have done. Since then, however, I have formed a much higher opinion of its capabilities for garden decoration, and recently I met with *A. lactiflora* standing high up among

England, but it cannot be trusted, and it is generally necessary to keep a small stock of cuttings under glass to replace any plants that are lost.

I have an impression that this pretty Lavender came from Corsica, but I cannot verify this at present. Apart from the defect of tenderness—a rather serious one, it is true—this Lavender is a pretty plant of much quiet and attractive beauty.

CAMPANULA EXCISA.

OF the numerous dwarf Campanulas which are cultivated by the lover of alpine flowers, there are few less seldom seen than the rare *Campanula excisa*, which many have coveted, but few have succeeded with for any length of time. It is difficult to procure as good plants, and in cultivation it seldom, if ever, reveals the beauty it displays in its native home when growing under the happiest conditions. Those who have seen it there, at the glacier levels of Monte Rosa, are eloquent of its charms when viewed



Fig 30.—HOLLAND PARK SKATING RINK, IN WHICH THE ROYAL HORTICULTURAL SOCIETY'S GREAT AUTUMN EXHIBITION WAS HELD. (See p. 210.)

lower-growing plants, revealing its beauty in its attractive foliage and graceful masses of creamy white flowers, of little consequence individually but of high charm when together. This easily grown plant is valuable for associating with and toning down the brilliancy of the gay, golden Composites of the season, and for associating with the Gaillardias and early Asters of autumn. The plant is very fragrant when in bloom, which is an additional reason for including it in gardens, as scent is as much appreciated as beauty of flower and foliage. *S. Arnott.*

THE ALPINE GARDEN.

LAVENDULA PROSTRATA.

THIS pretty dwarf Lavender appears to be gradually going out of cultivation, after what would almost seem an ephemeral popularity among alpinists. It appears to have disappeared from many trade lists, and at the moment I cannot find it in any which I have available. So far as its beauty is concerned, its disappearance is unjustified, as it is a charming plant for trailing over rocks. In a light soil and a sunny place it constitutes a real ornament for the rock garden. We shall, I think, find the reason for its present scarcity in the fact that it is undoubtedly tender and cannot be relied on to stand the winters of all but the most favoured parts of the British Isles. It will survive mild winters, even in Scotland and the North of

in the masses it forms; but those who have cultivated it in gardens cannot realise its full beauty, for, as I have it, this little Bell-flower seems starved, with small, thin-petalled flowers. Still, it is always well to know the plant and something of its ways, so that those who have an opportunity of obtaining it can give it the conditions it enjoys, at least as nearly as our gardens will permit.

Campanula excisa is only a few inches high (of much the same height as the well-known *C. Bellardii*, but better known as *C. pusilla* or *C. pumila*), and has little leaves and small blue flowers, easily recognised by the holes at the base, which look as if punched out by some instrument or eaten through by an insect. In cultivation it should be planted in a moraine, with moisture below, and plenty of grit about its roots. Before the moraine became so common in gardens I cultivated *C. excisa* on a flat terrace of a rock garden in very light, gritty, well-drained soil, and with plenty of fine grit or small gravel well worked into the plant and laid round it to ward off slugs, which seem to have a special liking for this plant. It succeeded there for several years and increased, not so quickly as one would have desired, but still it did increase. But it had to be kept well supplied with clear water to keep it growing, and one unlucky enforced absence from my garden for a month or so led to its loss, much to my disappointment. I consider *C. excisa* needs plenty of grit and sand, and a sufficient supply of moisture during dry weather in spring, summer and autumn, together with partial shade. *S. Arnott.*

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(Continued from page 196.)

ENGLAND, S.

WILTSHIRE.—Apple trees have fair crops, and Pears are also carrying a heavy crop on walls. Morello Cherries were very plentiful, but dessert sorts only fair, although of good quality. Plums and Damsons are plentiful. Peaches and Apricots are good. Small fruits set badly, especially Black Currants and Gooseberries. Strawberries collapsed under the intense heat. Walnuts are plentiful in some places, and Filberts and Cob Nuts are good. Our soil is loam on chalk, and the position is sheltered from N. and N.E. H. H. Mills, Fonthill House Gardens, Tisbury.

—Pears, Peaches, and Nectarines are carrying good crops. Plum blossom in exposed positions suffered from late frosts, whilst Plum trees in more favoured places have good crops. Apple trees blossomed fairly well, and amongst the best croppers are Lord Suffield, King of the Pippins, Ribston Pippin, Brownlee's Russet, and Allington Pippin. The heavy crops of Apples last year and the extreme drought doubtless account for the thin crop this season. Strawberries were an excellent crop. Black and Red Currants yielded plentifully, while Raspberries, Loganberries, and Gooseberries were all good crops. Insect pests have not been troublesome, very little spraying being necessary. G. Vandell, Manor Gardens, Ramsbury.

SUSSEX.—We have an abundance of Pears, Apples, Plums, and Damsons, some of the trees carrying exceptionally heavy crops. Apple trees appear to be very clean this year, and there is much less bitter pit in the fruits. Raspberries, Gooseberries, and Red Currants were all very plentiful, but the crop of Black Currants was rather a light one, owing to the bushes being infected with big bud. Strawberries were only an average crop. The plants suffered very much from drought from the latter part of May and early June, when the days were hot and the nights cool. Nuts, including Walnuts, are very plentiful. Edwin Neal, Tilgate Gardens, Crawley.

ENGLAND, N.W.

CUMBERLAND.—After the hot, dry summer of 1921, we had every reason to anticipate a record fruit year in 1922, but adverse weather conditions for small fruits prevailed at a critical time, especially in the case of Strawberries. Apples are a heavy crop, old varieties, such as Tower of Glammis, Stirling Castle, Warner's King, Dumelow's Seedling, King of the Pippins, Ribston Pippin, and Cox's Orange Pippin quite holding their own with Apples of more recent date. Pears are a disappointment. Trees of Jargonelle, Williams' Bon Chrétien, and Clapp's Favourite have fair crops, but Doyenné du Comice, Marie Louise, Beurré Diel, and other well-known varieties are a failure. Our soil is a fairly heavy loam over a sandy subsoil. J. Service, Holme Hill Gardens, Dalston, R.S.O.

—Owing to the late season, many crops escaped frosts, but Black Currants suffered from a frost in May, and half of the crop dropped from the bushes. Peaches and Nectarines, although protected by double folds of fish netting, suffered through the long period of cold, sunless weather. The dry weather at the end of May and beginning of June affected the crops, but the copious rains we have had since have more than compensated for it. Many of our Black Currants are badly affected with big bud, and, although I have been experimenting with different washes and insecticides, I have not found a remedy. The soils in this district vary very much from light, mossy soil to heavy loam. James Tail, Justicetown Gardens, Carlisle.

WESTMORLAND.—Our soil is on the limestone and very quickly dries out, and the dry weather at Whitsuntide had a bad effect on the crops in some places. Fruit trees generally set an enormous number of fruits, but in

some places, owing to the late frost and north winds, the Pear crop was thinned very much, and Damsons considerably. Richard F. Lambe, Witherslack Hall Gardens, Grange-over-Sands.

—We had a very fine spring, and consequently the trees escaped frosts. I never saw Apple trees bloom so abundantly, and the set of fruit was enormous. Rains fell in sufficient quantity to swell the fruits. Plums are also a big crop. Pears are scarce. Small fruits were very plentiful. Strawberry plants are not very vigorous, and good runners are scarce. The soil is of a gravelly nature. W. A. Miller, Underley.

—All Apple trees in this district are carrying heavy crops. Late Plums were fair crops, and Victorias an abundant yield. Owing to the fine summer of last year, the fruit buds were strong and plentiful, with the result that there was a fine show of bloom, which escaped injury by frost, but, owing to a cold, dry spring, we have a late general fruit crop, and have suffered from attacks of aphids, etc., considerably. Wet, cold weather ruined the Strawberry crop. Raspberries were a good yield. James Jeffrey, Lowther Gardens, Penrith.

ENGLAND, S.W.

CORNWALL.—The fruit crops generally are well up to the average, and, considering the drought of last year, surprisingly good in quality. In some areas, field Strawberries were a failure, owing, probably, to the variety having become spent or to the soil getting "Strawberry sick," or to both causes. Most of our Apples are too thickly set on the branches, and have had to be thinned, a labour which gives no return. Pears are unusually good and prolific. Insect pests are noticeably absent. Our soil lies on greenstone, and we have a good, deep loam. Harry Williams, Tolvean Gardens, Redruth.

—The fruit crops are, on the whole, about average. The Apple crop is not so abundant as was expected, judging by the amount of blossom the trees produced, but we have to take into consideration the heavy crop of last year and the drought, which are the chief reasons why the crop is not more abundant this year. It is very interesting to see the large number of fruits some of the trees are carrying on last year's wood, which is not usual in this district. The Pear crop is above the average, due, I think, to a light crop last year and an abundance of sunshine last autumn, which well ripened the wood and gave extra energy to the trees. Red Currants, Raspberries, Gooseberries, and Loganberries were abundant and of good size. Black Currants and Strawberries were a little under the average yield. These fruits suffered very considerably from the drought of last year and this spring. James Treloar, Trevanno Gardens, Sithney Helston.

DEVONSHIRE.—There was a fine show of blossom on all fruit trees. Apples probably failed to set owing to dryness at the roots. Pears are extra plentiful, but a few fruits dropped during the dry weather in May. Plums, Peaches, and Cherries were all light crops. Small fruits were a good average yield, but the season for Strawberries did not last very long. The soil is gravelly and dries out quickly. G. Sleep, Hartland Abbey, Hartland S.O.

SOMERSETSHIRE.—The show of blossom in the spring on Plum, Pear, and Cherry trees was remarkable. Peach trees, too, flowered profusely. Apple bloom was not so pronounced, being later than usual and very short-lived. Cold winds and frosts prevailed in the spring and checked vegetation in general. Apples are only a moderate crop, some trees carrying a fair number of fruits, others having practically none. Plums are probably the best crop, although Pears are good, and Cherries were excellent. Peaches and Nectarines were good average crops, whilst Apricots were better than usual. Bush fruits were good, especially Black Currants. Early Strawberries were a light crop, but later sorts were good after beneficial rains. James Glasheen, Hestercombe, Taunton.

—Certain varieties of Apples, such as Lane's Prince Albert, King of the Pippins, Peasgood's Nonesuch, Blenheim Pippin, and a local Apple called Morgan Sweet set in abundance, and the trees are loaded with fruits. Peaches, Nectarines, and Apricots also set abundantly, and had to be very severely thinned. Strawberries were almost a failure in the open, but on the east side of a high wall, where they were shaded from the sun after twelve o'clock, we had a fair crop. Raspberries were plentiful after the drought broke, although they looked poor and stunted during May. Our soil is a deep, red loam. Grigor Roy, Halswell Park Gardens, Bridgwater.

HISTORY OF THE DAHLIA.

MRS. STOUT, the author of *The Amateur's Book of the Dahlia*, recently noticed in these columns, seems to think (p. 182) that if other people make mistakes she has a right to copy them, and thus aid in perpetuating error, without giving herself any further trouble in the matter. She excuses herself on the ground that the late George Gordon made a certain statement in his work on *Dahlias*, published under the editorial supervision of the late Mr. R. Hooper Pearson.

Mr. Gordon did what every other English Dahlia historian did before him for a hundred years or so. He accepted evidence on the introduction of the Dahlia into England without submitting it to independent verification. And this is precisely what Mrs. Stout has done in her turn and what probably others will do in the future, judging by what experience in such matters teaches us. But that is no legitimate excuse for her, for him, or for their predecessors.

With regard to the extract quoted from Mr. Gordon's book, it is almost identical, in words, with every other Dahlia historian's account. I do not hesitate to say that it is not only improbable that the Dahlia was imported into England in 1789, but that it is impossible to find any contemporary record to prove it. This date obtained currency owing to a misprint in the *Hortus Kewensis*, Vol. V., 1813. Prior to that date nobody ever asserted that the flower was introduced here in 1789, but after 1813 everybody accepted that authority.

The contradiction can be strengthened by the fact that in 1789 there was no such person as the "Marquis" of Bute. The title was not created till 1796, as a reference to any peerage will show. Therefore, in 1789 there could not have been an English ambassador of that name at the Spanish Court. The Rt. Hon. Wm. Eden occupied that position up to July, 1789, when he was replaced by Mr. Chas. Hy. Fraser. It is true that John Smart, fourth Earl and first Marquess of Bute, was ambassador in 1795, but he and his wife returned to England in 1797. It was in 1798, after this event, that Lady Bute, as the Marchioness is commonly called, procured for Kew Gardens, through Dr. Ortega, of the Madrid Botanic Garden, three varieties of Dahlias, which had been previously sent there by Cervantes of Mexico.

Aiton blundered when he put the date of introduction as 1789, in his *Hortus Kewensis*, but tried to remedy it when he published his epitome of the 2nd edition of the *Hortus Kewensis* in 1814, where the date is correctly given as 1798. Unfortunately, the rectification was too late. People had become accustomed to refer to the *Hortus Kewensis*, Vol. V. 1813, and to rely upon it, and so it went on.

Experience teaches us, day by day, that in all matters of floricultural history modern writers are in duty bound to make independent research. They cannot be excused for accepting statements of dates and facts, without verification, simply on the ground that some other previous writer, in whom they may have confidence, is responsible. Prove all things! is the old injunction, and if this were more generally the rule there would be little danger of falsifying history either carelessly or intentionally.—*The Reviewer*.

ORCHID NOTES AND GLEANINGS.

DENDROBIUMS OF THE D. DEAREI SECTION.

DENDROBIUM DEAREI was discovered by Col. Deare in 1882 on the island of Dinagat, one of the Philippine Isles. The late Sir Trevor Lawrence obtained a First-class Certificate for the species on May 22, 1883. It constituted a very remarkable introduction of quite a new type, its reed-like stems, two feet or so in height, clad with bright green leaves on the upper part, and sending from them drooping sprays of five to ten pure white flowers, with yellowish-green disc to the lip and each about two and a half inches across, being very distinct from other species. The flowering of several of the small plants originally obtained caused much competition for the limited supply available, and lack of knowledge of its requirements in most cases caused failure to obtain good results.

In later years *Dendrobium Dearei* was found to be plentiful on several of the islands

1909, p. 374) is a grand plant, introduced from the Philippines by Messrs. Sanders, St. Albans, but unfortunately in small quantity. Its strong stems, clad with thick, bright green leaves, are often over three feet in height. In habit it is similar to *D. Dearei*, and bears racemes of four to six large white flowers with greenish disc to the lip, the side lobes and throat being streaked with dark purple, the same colour suffusing the inside of the spur.

D. SCHUTZEI, ROLFE is the latest introduction of Messrs. Sanders from the same region as *D. Sanderae*, which it much resembles, though dwarfer, in habit. It secured a First-Class Certificate when shown at the Royal Horticultural Society. *D. Schützei* (Fig. 81) is the largest flowered species of this interesting section. Its flowers are pure white, with emerald green disc to the lip.

D. PARTHENIUM, RCHB. (*Gard. Chron.*, 1885 11, p. 489), is a Bornean species of the same class, and a few others of the section not yet in cultivation may be introduced later. *J. O'B.*

Class Certificate on December 5, 1905. A similar award was made to *O. Woodroffae* on September 24, 1912, when shown by Mr. Davidson, who was one of our great losses in the war. The flowers sent have the yellow ground of *O. triumphans* nearly covered with dark chocolate red blotches, the yellow only appearing in thin, wavy lines between the markings. The lip is one of the finest pieces of colour in the section, being bright violet-purple, with a distinct ovate, yellow blotch at the base; the crest is yellow.

BLUE ORCHIDS

WHAT are now known as Gatton Blue Cattleyas, blue forms of *Laelia pumila* and some other Orchids developed in Sir Jeremiah Colman's collection at Gatton Park, are familiar to Orchidists, especially to those who have seen a group with flowers all of the blue tint best shown in *Vanda coerulea*, exhibited on several occasions from Gatton Park (gr. Mr. J. Collier) at the Royal Horticultural Hall. Blue-tinted forms of *Cattleya Bowringiana*, *C. Portia*, *C.*



FIG. 81.—*DENDROBIUM SCHUTZEI*.

in the Philippine group, and good importations were made, but still some failed to grow the plant satisfactorily, mainly because they grew it in too warm a house or maintained the high temperature too long after the growths were completed.

D. Dearei and other members of this useful section may be said to be evergreen species, for they retain their glossy bright green leaves for two or more years, the last made young leaves being always perfect.

Messrs. McBEAN, of Cooksbridge, are among the most successful cultivators of *D. Dearei*, and they suspend their plants in the warmer end of a large *Cattleya* house, where they get free circulation of air and a clear light. Water is liberally supplied during the season of growth, and afterwards the plants are shifted to the cooler end of the house and receive a restricted water supply. When well grown it is an ideal florist's species, its numerous stems supplying a profusion of charming flowers suitable for bouquets.

D. SANDEBAE, ROLFE (*Gard. Chron.*, June 12,

LAELIO-CATTELEYA NOVARA

MESSRS. STUART LOW AND Co., Jarvisbrook, Sussex, send us a first inflorescence of this promising hybrid between *Cattleya Mrs. Frank Hurdell* (*Iris* × *Trianae*) and *Laelio-Cattleya Colmaniana* (*C. Dowiana* × *L.C. callistoglossa*), to which latter it is nearest. The sepals and petals are silvery white tinged with mauve, and the lip purple, with yellow lines from the base. A very distinct type of the same cross as *C. Mrs. Frank Hurdell* was raised by Messrs. Charlesworth and named *C. Hybla*.

ODONTOGLOSSUM WOODROFFEA.

A FIRST-FLOWERED inflorescence of this rare and beautiful hybrid between *O. Rossii rubescens* and *O. Queen Alexandra* (*Harryana* × *triumphans*) is sent by H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. F. W. Thurgood). It is the darkest of the favourite class of *O. Rossii* crosses so well begun by Messrs. Charlesworth's *O. Smithii* (*Rossii rubescens* × *crispo-Harryana*), which obtained a First

labiata, *C. Trianae*, *C. Gaskelliana*, and of *Laelia Dayana*, and some crosses with them. have been raised at Gatton Park, and the latter have generally carried on the blue colour.

But that the hybridist does not always get what he aims at is shown in a flower now received, produced by crossing *Cattleya Aleimeda coerulea* (*labiata coerulea* × *Gaskelliana coerulescens*) and a blue-tinted form of *Laelia Dayana*, and which has reverted to the normal rose and reddish purple tints of its ancestors. The flower, of medium or small size for a *Laelio-Cattleya*, has rose sepals and petals and a reddish purple lip crimped at the edge; the base, which is coloured yellow, shows some constriction, acquired from the tubular lip of *L. Dayana*, but in the dried flower, however, a decided blue tint appears. Blue-tinted *Laelio-Cattleyas* are rare; the only two we can call to mind are *L. C. Paysatis coerulea* (*C. Bowringiana lilaena* × *L. pumila* Gatton Blue), and *L. C. Portia pumila* (*C. Portia coerulea* × *L. pumila*, blue form), flowered at Gatton Park. *J. O'Brien.*



THE ORCHID HOUSES.

By J. T. BARBER, Gardener to His Grace the
DUKE OF MARLBOROUGH, K.G., Blenheim Palace,
Woodstock, Oxon.

Seasonable Remarks.—At this time of the year it is very necessary for the Orchid cultivator to watch for signs of change in the weather. Cold winds and high winds may be the means of reducing the temperatures of the houses considerably; and if the temperature is allowed to remain too long at a low point irreparable harm may be done, especially after such a sunless summer. Frost may be expected at any time, hence the necessity of paying the strictest attention to sudden changes of the atmospheric conditions outside. On a still, clear, frosty night the temperatures are easily maintained, but the thermometer usually shows a sudden fall about daybreak. This would have no ill-effects provided the atmosphere within the house is moderately dry. Between, say, 10 p.m. and morning, the fires should be so regulated that there is no danger of the temperatures falling too low. Should the temperatures be too high, a little damping will counteract the effects of overheating. Should the reverse occur, no damping should be done until the temperatures reach their normal degree. A damp, cold atmosphere has the worst possible effect on any plants at this season of the year, and may be the means of many Orchids contracting black spot and other diseases.

Fuel Economy.—Every means should be taken to economise fuel, owing to its high cost, and unless the stoking of the furnace is done carefully and intelligently, much may be wasted. During October the sun often has considerable power; and should there be much warmth in the water pipes and the sun shining strongly, the temperatures will rise considerably and much harm may accrue, and plants may even get scorched. It is advisable to begin preparing for winter by reducing the temperatures in all the houses a few degrees by night, and also by day in the absence of sun-heat; at the same time a corresponding reduction of atmospheric moisture must take place. A buoyant atmosphere is of the greatest importance in all the houses, and especially at this season, as the health of the various plants depends entirely on the conditions provided. Orchids need all the sun-heat and light available, and so long as the sun is capable of increasing the warmth in the houses considerably, full advantage should be taken to admit fresh air to the plants, which will be the means of strengthening them. Evaporation will be much less in every department as the days become shorter. All blinds that are not required for protection during the winter should be removed, and any that require repairs should be attended to, and a note made of those that require replacing.

THE FLOWER GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY
GIBBS, Aldenham House, Hertfordshire.

Bulbs in Grassland and Woodland.—At this period of the year bulbs of suitable subjects should be planted in woodland and grass, where it is desired to naturalise them in what are probably their most ideal growing quarters. Many lovely bulbous plants may be grown in this way, and where planted in big stretches they form a lovely sight in early spring. Do not plant bulbs where early mowing has to be carried out, for if the leaves are removed the plants will be spoiled. This may appear unnecessary advice, yet bulbs are often planted on lawns that are subject to early mowing, and the planter wonders why he gets no results. Such subjects as Daffodils, Narcissus, Squills, Bluebells, Grape

Hyacinths, Onionodoxas, Snowdrops, Crocus, Colchicums, Snowflakes and Tulips, all lend themselves readily to free planting. The bulbs should be planted under the turf at a similar depth to that adopted for bulbs in borders, and the planter will find a trowel the best tool to use. Scatter the bulbs irregularly and plant them where they come to rest.

Early Frosts.—There have been one or two early frosts in this district. Where it is desirable to leave any plants of a tender nature in the open, steps should be taken to devise some means of protection to be used when necessity arises, until such time as the plants can be removed to more congenial quarters for the winter months. The frosts, damp periods, and heavy winds are also causing the foliage of deciduous trees and shrubs to fall, and the leaves should be swept up carefully from time to time, so that they do not get trodden underfoot and render gravel paths and lawns unsightly. Fallen leaves need not be collected in the shrubberies, as they may be forked in later, affording a certain amount of fertilising material as they decompose, and many prefer to leave the fallen foliage around the plants as a means of giving slight protection to the roots from frosts.

General Work.—Continue to remove decaying foliage from herbaceous borders. Keep drains and gulleys free from fallen leaves and silt, otherwise they may get blocked in stormy weather.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER CLAY,
M.P., Ford Manor, Lingfield, Surrey.

Cherries.—Trained Cherry trees on trellises under a fixed roof should be given the fullest amount of fresh air, both day and night, especially if Red Spider has been troublesome and injured the leaves. If the weather is hot and the trees are kept too moist this will cause leafless buds to swell, and especially if the shoots are inclined to be gross. Exuberant growth may be checked by working the soil from about the ball of roots and shortening the latter. Trees in pots that are plunged in the open air have had the benefit of cool nights, and, provided the foliage is still hanging, the buds will now be safe. A mass of roots being essential to success, water should be given in sufficient quantity to prevent an unduly dry condition of the soil. If the pots are well covered with plunging material, the demand for water will not be frequent, but when moisture is required it should be given in sufficient quantity to penetrate down to the drainage.

Vineries.—Early vines may be pruned and cleansed, and the rods slung from the wires, where they may remain until the time arrives for starting the vines. If the vines are young and not overburdened with loose bark, a double washing with strong soapy water or a solution of Gishurst Compound at a strength of 4 to 6 oz. to the gallon should suffice. If the vines are aged and have old spurs, and mealy bug has been troublesome, this pest must be dealt with. The old bark should be carefully removed, and the smallest holes and crevices stopped with undiluted Gishurst Compound from the box. If this is done thoroughly and the vines washed as advised, there should be no necessity for divesting the rods of every portion of sound bark. Every part of the house, including the woodwork and walls, should be scrubbed and lime washed, and all loose mulching material and soil, especially near the stems, removed, and fresh compost substituted. Cleansing the vines is less difficult than cleaning old vineries, as every crack in the walls and woodwork of the latter needs to be carefully watched throughout the following spring. Outside borders may be cleared of loose soil and top-dressed afresh with loam mixed with bone-meal. This dressing should be left exposed to the weather until November, when a thin covering of fresh stable litter will prevent the new compost from being lifted by frost.

HARDY FRUIT GARDEN.

By H. MARKHAM, Gardener to the EARL OF STRAFFORD,
Wrotham Park, Barnet.

Raspberries.—Although Raspberries will grow well and yield good crops in the same beds for a number of years, fresh beds are essential at intervals if large fruits are expected. The most suitable soil for this fruit is a moderately light, deep loam, with ample decayed manure thoroughly incorporated with it. Heavy mulchings of dung should be placed over the roots during the summer, and if the land is heavy in texture a liberal dressing of charred soil from the rubbish heap or any other light material that will help to keep the soil open should be added. These materials should be well mixed, as the work of trenching and preparing the land proceeds. If the soil is very light, resting on gravel, an abundance of manure and soil of a somewhat heavier texture should be incorporated with it when digging the ground. The digging should be done early, so that the soil may settle before the planting season arrives. Hornet, Baumforth's Seedling and Superlative are three good varieties, and the canes should be obtained from a strong, healthy stock.

Pears.—Most Pear trees are bearing very good crops, yet the fruits are not ripening satisfactorily, owing to the cold nights and sunless days. In order to maintain a reasonable supply without a break, the ripening of the fruits may be hastened under glass. The method which I have practised for a number of years is to gather and place the more forward fruits in boxes when dry, resting them on some soft material and covering them with tissue paper and a coating of wool. The lids are placed in position and the boxes stood in a moderately warm structure. I have repeatedly lengthened the season of Marguerite Marillat by several days. Louise Bonne of Jersey, Buerré Hardy, Marie Louise, Doyenné du Comice, and others, have readily responded to this treatment. Give every attention to the gathering of all varieties of Pears as fast as they show signs of approaching maturity, and store them in a dry, sweet structure that is a few degrees warmer than the Apple store.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir C. NALL-CAIN, Bart.,
The Noce, Codicote, Welwyn, Hertfordshire.

Violets.—These plants should now be lifted and replanted in cold frames. When this has been done give them a thorough watering in order to settle the soil about their roots. Keep the lights rather close for a few days, but as soon as the plants have recovered from the check caused by transplanting, admit air freely during the day and also at night whenever the weather conditions will allow. Keep all runners removed as they appear in order that the plants may produce fine, large blooms.

Azalea indica.—Where these shrubby plants have been stood out of doors for the summer return them to a cool greenhouse or frame, where they can be protected from frost. If thrip is present on the plants, spray them with an insecticide and see that the wash reaches the underside of the leaves.

Sweet Peas.—The Sweet Pea is a valuable plant for growing in pots, and it is useful for providing flowers during the early spring. The seeds should be sown now in three-inch pots, placing three seeds in each receptacle, which should be well drained. Use a light, sandy soil. It is preferable to germinate the seeds in mild warmth, but immediately the seedlings appear they should be removed to a position near the roof-glass in a light, airy glasshouse. When the shoots are about 4 inches high the tips may be pinched out to cause side shoots to develop, and of these only two should be retained. About the turn of the year the plants should be shifted into five-inch pots, and finally transferred to 10-inch or 12-inch receptacles. The compost for the final potting may be enriched with a little decayed manure. Careful watering is necessary during the winter, and a high temperature caused by excessive fire heat must be guarded against, otherwise growth will be weakly.

THE KITCHEN GARDEN.

By JAMES E. HATHAWAY, Gardener to JOHN BRENNAND, Esq., Baldersby Park, Thirsk, Yorkshire.

French Beans.—A sowing of French Beans in pots should be made every fortnight. Give the plants every encouragement to develop by placing them where they will receive plenty of light. Use the syringe freely on bright days to keep down red spider; the floor may be damped with liquid manure.

Cauliflowers.—The plants should be examined every day, and where the curds are ready the outer leaves should be turned in over them to protect them from frost, a very little of which will injure them. Covering them in this way will also help to keep the heads white. If much frost threatens, the head may be cut, and will keep fresh for a considerable time if the stem is placed in water.

Tomatos.—At the first sign of frost outdoor Tomato plants should be cut off at the base and hung up inside in a warm place, where the

HARDY FERNS.

HARDY Ferns are extensively used at exhibitions in the arrangement of various hardy plants with good effect, giving a very cool and refreshing tone to their surroundings. It is not, however, as exhibition plants that I wish to refer to them, but their value as garden plants. The subject of hardy Ferns brings clearly to my mind journeys to various parts of England, Cornwall and Scotland, roaming through the rural lanes and hedge-rows where many of our British Ferns abound in shady nooks and dells, on hedge banks, etc., their tall, graceful, feathery fronds rising through bushes and grasses which support them at the base, developing a most luxuriant growth of tenderest green during the summer, while the decaying fronds during the autumn and winter present the most pleasing tints of russet bronze. A visit to the homes of many of our British Ferns is an object lesson in their culture, and to note how the common *Polypodium vulgare* clings with its creeping rootlets to the rough, stone walls and

pretty and decorative water-loving plant, which will grow in 2 to 3 inches of water, and if given plenty of room, will soon form a colony.

Lastrea Filix-mas the Soft Male Fern, is a good plant for London gardens. *Lastrea pseudo-mas*, the Hard Male Fern, is very ornamental until well into the winter months, and of stout, leathery texture. Ferns suitable for the shady parts of a rockery are *Polypodium Phegopteris*, the Beech Fern; *Polypodium Dryopteris*, the Oak Fern; and *Cystopteris fragilis*, *C. alpina* and *C. montana*, Bladder Ferns.

For growing on walls *Polypodium calcareum*, the Limestone Polypody, is a most beautiful subject its lovely, fresh, green foliage appealing to all.

The cultivation of hardy Ferns is a most fascinating hobby, and it is gratifying to see in many gardens shady nooks and banks planted with these cool and refreshing foliage plants. Those desirous of adding to the beauty and interest of their gardens would do well to plant hardy Ferns in a spot sheltered from high winds, where it is shaded from sunshine. The Ferns should be planted in well-worked soil, consisting



FIG. 82.—A BANK OF *SCOLOPENDRIUM VULGARE CRISpum SPECIOSUM*, IN MR. W. B. CRANFIELD'S GARDEN AT ENFIELD CHASE.

fruits will ripen. The smaller and immature fruits should be picked off and used for the making of chutney.

Globe Artichokes.—All old flowering stalks should be removed from Globe Artichokes and the young heads protected from frost. Before very cold weather sets in the old plants should be protected by placing ashes around their bases; stable litter or Bracken Fern may also be used as protective materials. Young, strong suckers should be placed in good-sized pots filled with a mixture of 2 parts light loam, 1 part each leaf-mould and grit, and put in a cold frame to winter.

Salads.—Make frequent sowings of Mustard and Cress, and also of Onions in boxes.

Leeks.—The soil about late-planted Leeks should be kept well stirred with the Dutch hoe, and liberal supplies of farmyard manure water should be given to encourage the plants to make quick growth.

Cabbage.—Continue to plant Spring Cabbages as land becomes available. Plant in firm ground as this will favour compact growth that will withstand cold better than loose, gross growth.

rocks, or on mossy banks, always in sheltered, moist positions, is a sight not easily forgotten.

The common Hart's Tongue Fern (*Scolopendrium vulgare*), although one of the most plentiful of our native Ferns, is one that adapts itself to any congenial form of cultivation, no matter whether it is on a bank (see Fig. 81), on moist, old walls, or the shady nooks of a rock garden, and it is especially suitable for pot culture, retaining its freshness and verdure nearly all through the winter.

Those with Water Lily ponds could not do better than plant *Osmunda regalis*, the Royal Fern, the most majestic of our native species. It grows luxuriantly by lakes and streams in Devonshire and Killarney, its graceful, arching fronds frequently attaining to a height of 7 to 8 feet. It grows best in a spongy bank, watered by a stream, the shady end of a Water Lily pond, or anywhere where its fibrous roots can descend into water below.

Struthiopteris germanica, the Ostrich Fern, is a good companion to the Royal Fern, and, when systematically planted with it, makes a beautiful combination, its large, drooping, spreading fronds adding materially to the effect produced. Another moisture-loving Fern is *Lastrea Thelypteris*, the Marsh Buckler Fern, a very

of a mixture of fibrous, turfy loam, leaf-mould, and sufficient sandstone grit to render the texture porous.

The following are a few of the more recently introduced varieties that are especially meritorious:—*Scolopendrium vulgare crispum nobile*, with large, deeply frilled fronds that are frequently 5 inches broad and 2 feet long; *Scolopendrium vulgare plumosum*, Perry, undoubtedly the most beautiful of Hart's Tongue Ferns, the edges of the long fronds being beautifully waved and crimped, and with dense, tassel-like crests; *Polystichum angulosum divisilobum plumosum densum*, Perry, the nearest approach to vegetable mosaic tracery. The fronds are of a pale green tone, with a gold-coloured sheen at the edges of the pinnules. *Polystichum angulare divisilobum plumosum superbum*, undoubtedly the nearest approach to a *Todea superba* and very handsome. *Polypodium Dryopteris plumosum*, a densely plumose form of the Oak Fern. *Adiantum pedatum Klondike var.*, the Bird's-foot Maidenhair, a large and handsome form of *A. pedatum*; it is a good pot plant for the cool greenhouse, and very decorative; and *Lastrea pseudo-mas angustata cristata*, a variety with long, strap-shaped fronds, that are prettily crested, with terminating tufts of glossy pinnules. W. T.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the **PUBLISHER, 5, Tavistock Street, Covent Garden, W.C.2.**

Letters for Publication. as well as specimens of plants for naming, should be addressed to the **EDITORS, 5, Tavistock Street, Covent Garden, London.** Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.

Editors and Publisher.—Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the **PUBLISHER**; and that all communications intended for publication or referring to the Literary department, and all plants to be named, should be directed to the **EDITORS**. The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

MR. KINGDON WARD'S SIXTH EXPEDITION IN ASIA.*

NO 25.—THE LAST MOUNTAIN JOURNEY.

CHANGES had been wrought during our five weeks' absence from Mu-li. The grass slopes were dotted with a violet coloured Gentian which now basked in the winter sunshine. A slender, pale blue Campanula, and masses of shrill yellow Saxifrage fringed the Oak wood. Even the Rhododendrons burst their buds, *R. racemosum* and an *Azalea* being discovered in furtive flower; the latter was a particularly beautiful sight, for its leaves were turning colour. My collectors were scattered. Two crossed the Litang river; two went north to a pass we had crossed so far back as June; and I climbed the cliffs of Mu-li. In this way we collected seeds of *Primulas*, *Rhododendrons* and other desirable flowers.

Gradually the snow was melting on the heights till, after ten days, scarcely a vestige was visible from the valley; but the men, returning, reported deep snow on the passes.

It never quite froze in the valley at this period, though the temperature fell as low as 35°, and on one occasion rose as high as 71°; generally the maximum recorded was over 65°.

Clearly the time had come to return to Glacier Lake Camp. We hurried on with the seed collecting—some species gave trouble by setting very little seed—and decided to start on October 27.

That night the weather changed, and rain fell steadily. When I awoke and saw from my tent

... What envious streaks

Do lace the severing clouds in yonder East! I could have wept with disappointment. More snow on the peaks, everything buried again!

The bad weather continued for a couple of days, but on October 30 we started under more promising conditions. On the second afternoon we camped behind the cliffs of Mu-li, at the foot of the limestone screes, and next day, in splendid weather, collected seed of the wonderful Gentian we had found here in August. Every peak stood out hard as flint against a sky of frosted, blue glass, and the wind corroded our flesh; but the gorgeous sunshine was delightful. It had brought into flower a striking new Gentian on the ruthless white cliffs, a large, squat trumpet of violet tint, not very beautiful, indeed, but certainly unexpected at 13,000 feet;

for November was on us. It resembled, if indeed it was not actually, *G. Georgii*.

We now moved on over the pass into the glacier valley, and found that nearly all the snow which had given us such trouble a fortnight before had disappeared; only the peaks were still white. So we pitched our tents once more.

In the three days we allowed ourselves here, all the seeds required, with the exception of a dwarf Larkspur, were collected. The weather remained fine—yet it snowed one night. Hard frosts by night—the temperature falling to 17° below zero—were succeeded by warm, sunny days; only the wind was hostile on the high peaks. *Gentians*, *Saxifrages* and *Rhododendrons* were collected.

On the screes the typical scree plants were not merely dead, but snow and wind had broken the brittle stems off short, and they were blowing about loose on the scree. *Myosotis Hookeri* was frozen into a solid block. The *Rhododendron* capsules gaped wide, and a fine powder

but when spread out to dry, a faint crepitation arose from them, and on closer examination almost every seed was observed to be rocking to and fro! It was a most quaint sight. Further investigation showed that, though outwardly sound, each seed comprised merely a shell—the testa—within which lay curled up a small grub, whose uneasy movements, consequent upon the removal of the seeds from the capsule no doubt, caused the creeping of the seeds. Out of hundreds of seeds collected, only a few dozen were not.

As is the bud bit by an envious worm,

Ere he can spread his sweet leaves to the air,
Or dedicate his beauty to the sun!

The brilliant blue Gentian of the grass slopes had only just been uncovered, and we could find no seed, all the capsules aborting; a few flowers were just opening after the melting of the snow. But the bog Gentian, which appeared to be exactly the same plant growing under different conditions (though the flowers are often of a less intense blue), had set plenty of seed.

At higher altitudes, *G. heptaphylla* had suffered, too, but we found some seed, nevertheless. The late alpine had suffered cruelly from the heavy snow fall; but there were other plants growing on the cliffs, which had suffered just as badly from the brilliant sunshine with which they were now being drenched. Amongst these latter may be noted especially the dwarf Campanula, which was utterly shrivelled up, the small *Primula*, which is associated with it, and a species of *Didissandra*. These three yielded hardly any seed.

At this time we obtained our first uninterrupted views of the group of snow peaks to the west, which are fine. We also went up the valley behind the Mu-li cliffs and over the pass, till the Litang river came into view again—or, rather, the gorge at the bottom of which it flowed. These cliffs, indeed, are completely severed from the range of which they form a part, and present on every side the most formidable precipices.

There was something about the meagre flora of these sunny, white cliffs not quite in order. One felt that it ought not to be there at all. Here were these shattered spires and crimped scarps absolutely devoid of life for the most part; with rarely a ledge or cranny supporting a few flowers which clung desperately to their insecure footing. And after a hectic season, they set no seed, these despairing vegetables. Perhaps they thought it would be too cruel, after they had been so badgered themselves; perhaps they thought it would be better to give up the struggle altogether and clear out. Anyhow, it was obvious these plants—*Saxifrages*, *Gentians*, *Primula*, *Campanula* and a few others—were by no means at home. And when I thought of the glaciers which had once crept down the valleys, and of the rainfall necessary to feed them, I could not but look upon these plants as the last remnant of a once rich alpine flora, fighting a hopeless rearguard action before they, too, were overwhelmed by the increasing drought. On November 8 we broke camp and returned to Mu-li. The fine weather also broke, and it was snowing as we came down into the valley; but it was only the last dregs of the autumn storm, and two days later it was as fine as ever. The snow had crept down the cliffs, however, and hung on the trees just above the monastery, though it quickly melted again.

The hillsides were a maze of colour, scarlet, orange and lemon yellow; even the *Gentians* had faded during the last ten days.

We now set about making preparations for our departure, which was fixed for November 13. Seed collecting continued, however, till the last minute. On the appointed day the transport arrived. The two head lamas came to bid us good-bye, and escorted me though the courts of the monastery.

It was perfect weather, the sky of that soft, sapphire blue only seen during an eastern "cold weather." Before us rose the limestone towers of the Yungning range, mantled with snow.

By noon we had finally left the monastery behind us, and were on our way south. *F. Kingdon Ward.*



FIG. 83.—SEEDLING OF GINKGO BILOBA.
(See p. 209.)

of seeds rose in the air as we brushed through the scrub. Curiously enough, it was easier to make progress on south slopes than on north slopes, though at 15,000 feet the snow lay equally deep on both; but on south slopes a crust had been formed by alternate melting and freezing of the snow, whereas on north slopes the wind had pulverised it to a fine dust; and in this dust we sank almost to our knees. We had an experience of what the wind could do in this direction on one occasion. A gale was blowing and as we turned the corner to the pass we caught the full force of it. We could see nothing—it was like a London fog. The air was filled with flying spicules of ice, which scratched our faces and filled our eyes. With each gust the surface snow rose in spouts of whirling mist as sharp as steel filings.

A curious phenomenon was observed in connection with some *Caragana* seeds we gathered. Outwardly these appeared to be quite sound,

* The previous articles by Mr. Kingdon Ward were published in our issues of May 11, June 18, July 23, August 20, September 3, October 8, October 29, 1921; January 7, January 21, March 11, March 25, April 8, April 22, May 6, May 20, June 3, June 17, July 1, July 15, July 22, August 5, August 26, September 9 and September 23, 1922.

TREES AND SHRUBS.

THE RED-FRUITED SYCAMORE.

THE observant cannot have failed to notice many trees of *Acer Pseudo-platanus* with fruits of a beautiful red colour during the early summer months in different parts of the country. This has been named *A. Pseudo-platanus erythrocarpum* by L. H. Bailey in his standard work on American horticulture, though I have not yet seen it in European books of reference. The amount of colour varies in different trees, which may be due to frequent crossing by bees and the method of raising trees from seeds. Where trees occur with the deepest coloured fruit, they are highly ornamental. I have seen many trees during the present and previous years, but the finest was a well-furnished and symmetrical tree in an open position at Thames Ditton, where it was about 30 ft. high. The Maples have fruited heavily this year, and that in question was highly attractive from June till the fruits faded late in August. The variety in its best form is as worthy of propagation by budding or grafting as any of the variegated or coloured-leaved varieties; for the red fruits show themselves a good way off and suggest a red-flowered tree in bloom. J. F.

LILACS.

THE near approach of the planting season is an opportune time to draw attention to the many beautiful named varieties of Lilacs available for planting.

It is cause for very considerable surprise to see so little attention paid to the cultivation of the best sorts in the majority of private gardens and public parks. Far too frequently Lilac bushes are represented only by poor varieties, and little attention is given them in regard to cultivation, soil, and pruning. We place great stress on the trenching of the ground and the pruning of fruit trees; if similar attention is given to the trenching of the ground and manuring before planting Lilacs and other flowering shrubs, the outlay of time and labour will be more than repaid in the flowering of the bushes, assuming also that the old flowers are removed when they fade, and the young shoots duly thinned. There is no better time for planting than late October and November.

The following is a selection of ten varieties, five single and five double-flowered:—Single—Gloire de Croncels, reddish carmine; Madame F. Morel, violet pink; Madame Florence Stepmann, white; Rubra de Marlev, purple; Souvenir de Louis Späth, dark red purple. Double—Alphonse Lavallée, bright violet; Charles Joly, dark red; Michael Buchner, pale lilac; Miss Ellen Willmott, snow white; Virginité, pale blush.

A further ten varieties are worth planting, if space for planting permits:—Single—Geant des Batailles, dark red; Lucie Baltet, flesh; Toussaint Louverture, crimson changing to dark violet; Princess Marie, pinkish lilac; alba grandiflora, large white. Double—Enile Lemoine, rosy flesh; Leon Simon, coral buds turning to blue; Madame Abel Chatenay, pure white; President Carnot, pale lilac, white centre; Senateur Volland, violaceous red.

The two single varieties, Charles X., rosy purple, and Marie Legraye, white, are not included in the above list, as they are well known varieties for growing in pots. A. O.

HYDRANGEA PANICULATA.

AMONG showy autumn-flowering shrubs this *Hydrangea* occupies a high place. Generally cultivated as a bush in China and Japan, it is described as a large shrub or small tree up to 20 or 25 feet in height. Much hardier than *Hydrangea hortensis*, its large white pyramidal panicles last in beauty throughout September. The largest inflorescences are obtained by pruning the vigorous young shoots of the previous year back to one or two eyes during March. In addition, if need be, the young shoots are thinned when an inch long, leaving, perhaps, not more than ten or twelve on each bush. To continue this treatment year after year, rich soil is necessary, with a

mulching of manure over the roots given about midsummer. The variety *grandiflora* is, perhaps, better known, being used for spring forcing in greenhouses; out of doors it flowers three to four weeks before the species. A. O.

FRUITING OF GINKGO BILOBA.

UNTIL the production of several fruits on the Maidenhair Tree at Kew in the autumn of 1919, no authentic record of its fruiting in this country appears to exist. The male and female flowers are borne on separate trees, and curiously enough, all the larger trees in Britain, though, no doubt, seedlings, appear to be males. At one time it was said to be possible to distinguish the sex of the tree by its growth, the male being upright in growth, and the branches of the female more or less spreading.

During Mr. E. H. Wilson's extensive tours



FIG. 84.—FRUITS OF GINKGO BILOBA.

in China and Japan he made many inquiries on this point, the result being that he found it impossible to determine the sex by its mode of growth, in which Chinese and Japanese arboriculturists agreed.

Ginkgo biloba was first introduced to Britain about 1760, the Kew tree being planted in its present position in 1760 or 1761. It bore the first flowers, which proved to be male, in 1795. The tree produced quantities of staminate flowers in most years, and it was for this reason that shoots from the famous female tree in the Montpellier Botanic garden were obtained in February, 1911. Several of the grafts united satisfactorily, but it was not until the autumn of 1919 that the first fruits were produced. This year, as shown by the illustration in Fig. 84, the grafts are carrying a heavy crop of fruits. The fruits, or, to be strictly botanical, the seeds with a fleshy covering, are bright yellow, a little over 1 inch long, borne on stalks $1\frac{1}{2}$ to 2 inches long. The fleshy portion has a disagreeable smell, but the kernel of the seed is roasted and eaten in China and Japan.

In addition to the propagation of the *Ginkgo* by seeds (see Fig. 85), the identity of the young plants as male or female can be determined by the propagation of cuttings. There are small plants at Kew, rooted from cuttings made of the young growths, with a thin heel of the old wood, inserted this year in June in a close propagating frame with slight bottom heat. A. O.

INDOOR PLANTS.

THE SMALLER CYRTANTHI.

GENERALLY speaking, the members of this group of *Cyrtanthus* form bulbs not much larger than those of a Snowdrop. From these bulbs are produced dark green, grass-like leaves, from a quarter to one-third of an inch in width and about a foot long. The flower spike reaches a height of a foot to 18 inches, and is terminated by a loose umbel of flowers, usually from six to nine in number. The flowers are of a tubular shape, somewhat curved, about $1\frac{1}{2}$ inch long and half an inch across the expanded mouth. Some of them vary a little in size and other particulars, but not to any great extent, except in colour. Among the best are *C. angustifolius*, orange

red; *C. lutescens*, pale yellow; *C. Macowanii*, bright red; *C. McKenii*, white; *C. Flambeau*, deep scarlet; and *C. intermedius*, orange buff. The last two are garden forms, *Flambeau* being a selected seedling from *C. Macowanii*, whilst *C. intermedius* is the result of a cross between *C. McKenii* and *C. angustifolius*.

All of these just named increase rapidly by means of offsets, and in a greenhouse under conditions favourable to *Pelargoniums* they will grow and flower well. During the spring they bloom freely; then, as a rule, in early summer new growth is made, the flowers from which are at their best about August. The growth made after that will give a spring display. This refers only to the general flowering, as scattered blooms make their appearance at any time. The culture of these *Cyrtanthi* is simple. Owing to their slender nature and the fact that the roots do not descend very deeply, they are seen to the best advantage when grouped in a deep pan; but, if grown singly in pots, receptacles 4 inches in diameter will be large enough. The soil should be of a good lasting nature, such as a mixture of two parts yellow loam to one part of well-decayed leaf mould and silver sand combined. Though they require very little water in winter, the bulbs must at no time be dried off.

These small-growing *Cyrtanthi* are easily raised from seeds, as well as from offsets. T.

ROYAL HORTICULTURAL SOCIETY.

EXHIBITION AT HOLLAND PARK SKATING RINK.

OCTOBER 3, 4, 5 and 6.

THE great combined exhibition, held in the spacious Holland Park Rink on the above dates, was in the nature of an experiment. In past years the Royal Horticultural Society's Summer Show at Holland House was held at the height of the exhibition season and, by certain folk, was considered to follow too closely upon the Chelsea Show as regards both time and material. With Holland House grounds no longer available for a summer show, the R.H.S. Council considered the question of a great autumn show, in which the Vegetable and Fruit Shows—held separately in other years—might be combined with autumn flowers and the autumn colouring of trees and shrubs. Eventually, the idea developed and arrangements were made for such a show as soon as suitable accommodation could be found. The choice of a suitable building was not an easy matter, and tents were out of the question for a show so late in the season, as in wet weather these would soon afford uncomfortable conditions.

Holland Park Skating Rink was finally chosen as offering sufficient room for the anticipated show. It is fully four times as large as the R.H.S. Hall and has a spacious gallery all round the building and from where the larger exhibits in the body of the hall may be viewed as a whole. We confess to some disappointment at the spectacular effect of the show: it was sombre in general effect and this was accentuated by the comparative lack of light overhead. The impression created was that many of the groups presenting fine colouring were placed just below the gallery, where their effectiveness was hidden by groups in front of them. Perchance, if the show is a financial success, the knowledge gained on this occasion will be used to alter these matters and get more colour massed down the central part of the hall.

Horticulturally, the show was a great success. The trade contributed magnificent exhibits and, on the whole, the material was in excellent condition and the arrangement good, though it was possible to find displays of poor material, and several where crowding was an obvious fault. Amateurs' exhibits, save in the competitive classes, were few, but the outstanding one was the great central group of the newer trees and shrubs, staged by the Hon. VICARY GIBBS.

Trees and shrubs, berried, or showing autumn colouring, Dahlias, Carnations, Orchids, Clematises, Roses, Chrysanthemums, and Michaelmas Daisies, were the leading floral subjects. Fruits and vegetables were contributed in quantity and many of the trade displays were as interesting as they were beautiful. Here again the Hon. VICARY GIBBS was the foremost amateur exhibitor, contributing one of his wonderful and instructive displays of vegetables. The exhibits in the competitive classes for fruits and vegetables were, for the most part, accommodated in the gallery.

For a short time after the exhibition was opened the attendance was small, but at about 2 o'clock in the afternoon of the first day the attendance increased rapidly until between 3 o'clock and 4 o'clock the great hall was crowded with Fellows and visitors, and the whole scene, as viewed from the gallery, was a most animated one.

During the evening of the opening day the President and Council of the Society entertained the members of the Standing Committees, the judges and principal exhibitors at dinner at the Hotel Cecil. This pleasant function took the place of the luncheon formerly given at the Holland House Show.

Orchid Committee.

Present: Sir Jeremiah Colman, Bart. (in the chair), Prince Shugdan, Messrs. Jas. O'Brien (hon. secretary), Arthur Dye, Fred. K. Sander,

E. R. Ashton, W. H. White, S. W. Flory, J. W. Potter, H. G. Alexander, R. G. Thwaites, C. H. Curtis, J. Cypher, Stuart H. Low, R. Brooman White, Pantia Ralli, H. J. Hatcher, Frederick J. Hanbury, A. McBean, J. E. Shill, Gurney Wilson, W. J. Kaye and H. T. Pitt.

FIRST CLASS CERTIFICATE.

Brasso-Laelio-Cattleya Golden Crown, var. Prince Humbert (B.-L.-C. Joan × C. Venus), from Messrs. CHARLESWORTH AND Co. One of the fine series developed by Messrs. Charlesworth and Co. from their fine yellow B.-L.-C. Joan (B.-L. Mrs. M. Gratrix × C. Octave Doin), which contains remarkable elements that have been very successfully developed, the highest example being the new form of B.-L.-C. Golden Crown, which was unanimously given the highest award. The flowers are of fine substance and good shape; the colour is golden-yellow with a rich, ruby-crimson lip.

AWARDS OF MERIT.

Cattleya Desdemona (Folia × *Thurgoodiana*), from Messrs. CHARLESWORTH AND Co. C. Thurgoodiana is derived from C. Hardyana and C. Luddemanniana, the latter giving large size, and the former rich colour, which has been admirably blended by the C. labiata and C. Dowiana in the other parent. The flower, which is of the largest size and of perfect shape, is clear mauve, with deep ruby-crimson front to the broadly expanded lip, which has a clear chrome yellow disc.

Oncidioida Medina (*Cochlioda Noezliana* × *Oncidium corynephorum*), from Messrs. CHARLESWORTH AND Co. An elegant hybrid, bearing a much branched spike of pretty mauve coloured flowers.

Miltmia Warszewiczii Rosslyn variety, from Messrs. CHARLESWORTH AND Co. The largest and most remarkable variety of the species, the branched spike bearing flowers twice the size of those of the type. The sepals and petals are blackish-chocolate with yellow tips; the broad lip is deep violet at the base and white in front.

Brasso-Cattleya Viscount Toda (C. Rhoda × B.-C. Hene), from Messrs. FLORY AND BLACK. A welcome new type of Brasso-Cattleya, of perfect form. The segments are flatly arranged and of firm substance, distinct from the usual run of Brasso-Cattleyas. The sepals are rose-coloured, with a yellowish tinge, the petals broad and a darker rosy mauve; the showy lip is tinged and veined with mauve. A very sturdy and floriferous plant.

Laelio-Cattleya Mrs. Medo (C. Venus × L.-C. Luminosa), from Messrs. STUART LOW. A showy hybrid with good golden-yellow sepals and petals and ruby-purple front to the well-formed lip.

GROUPS.

Sir JEREMIAH COLMAN, Bart., Gatton Park, Surrey (gr. Mr. J. Collier), the only amateur exhibitor, loyally faced the perils of a four days' show and staged a remarkable group replete in good plants, both species and hybrids. Cattleyas and Laelio Cattleyas were largely represented; among the former were the Gatton blue C. Alcimeda coerulea, C. Browniae Gatton Park variety; fine forms of C. Iris and C. Hardyana; the large, pure white C. Lady Veitch and other fine forms. Laelio Cattleyas were equally well represented and there were fine Brasso Cattleyas of varied tints. To many the large number of curious species was the greatest attraction, the Butterfly Orchid, *Oncidium Papilio*, and other insect-like species never failing to draw attention. Among the more curious were *Cirrhopetalum miniatum* with umbels of long, orange-

red flowers; the curious fleshy-green *Catasetum* discolour, a nice batch of the slender pale yellow *Spathoglottis*, a selection of *Dendrobium Phalaenopsis*, the singular *Angraecum distichum*, the profuse flowering orange-coloured *Pleurothallis fateritia*, and various pretty *Masdevallias*.

MESSRS. CHARLESWORTH AND Co. staged a fine group in which were large numbers of showy novelties, including *Brasso-Laelio-Cattleya Golden Crown* ar. *Prince Humbert* (B.-L.-C. Joan × C. Venus), a noble golden yellow flower with dark crimson purple lip; *Odontonia inter* (*Odontonia Magali Sander* var. *xanthotes* × *Odm. luteo-purpureum* *Vuyistek-anum*) with a spray of pretty, straw-yellow flowers; *Oncidioida Medina* (*Cochlioda Noezliana* × *Oncidium corynephorum*) with a graceful, branched spike of mauve flowers that have a yellow crest to the lip; and *Sopbro-Laelio-Cattleya Flamingo* (L.-C. St. Gothard × S.-L.-C. Carna), dark mauve with a golden shade, and a purple lip. The group well displayed the many pure white *Odontoglossums* of the *xanthotes* type raised by the firm, and among the home-raised hybrids were grand forms of *O. crispum*, both white and richly coloured. Among the species *Miltmia Warszewiczii Rosslyn* var. represented the finest type of the species ever seen, the large flowers having blackish-chocolate coloured sepals and petals, tipped with yellow, and the broad lip violet at the base and clear white in front.

MESSRS. STUART LOW AND Co. staged a fine group. They utilised to great advantage tall, slender *Oncidioids* arching over from Palms at the back, that associated well with the larger flowered Cattleyas, Laelio-Cattleyas and *Odontoglossums* well displayed with them. Noticeable among the *Odontoglossums* was a fine plant of the handsome *Odm. Woodroffiae*. The *Brasso-Cattleyas* and their allies included an exceptionally fine B.-L.-C. *Truffautiana*, whilst the Cattleyas embraced the clear white and mauve C. *Snayvor* var. *Glory*; the showy C. *Don* (*Remula* × *Armstrongiae*) which shows much of the yellow in the lip of the latter parent; C. *Orita* (*Vestris* × *Dowiana*) and a good selection of white forms and *Cypripediums*.

MESSRS. SANDERS had an extensive and well-arranged group, in which forms of Cattleya Hardyana, both white and coloured, were well displayed, together with specially fine Laelio-Cattleyas, the best of which was L.-C. J. Ansaldo var. *atro-vioacea*, a noble flower with mauve sepals and petals and entirely deep ruby claret lip. It was obtained between L.-C. Hillegarde and L.-C. Lustre. Among the white varieties L.-C. *Cremona alba* (C. Suzanne Hye de Crom × L.-C. Ophir) was a fine example, with clear white flowers and chrome yellow disc to the lip. The *Odontoglossums* in the group were excellent, and the whole collection was well arranged.

MESSRS. FLORY AND BLACK had one of the neatest groups, all of good, well-grown and perfectly flowered specimens, raised in their nurseries. Among the Cattleyas, C. Dr. G. G. Macdonald (*Kienastiana* × *Dowiana*) one of the firm's raising and the best of its class, bore large, cream-white flowers with wholly deep violet-crimson lip; C. *Mimosa* (*Venus* × *triumphans*) is a good new yellow variety with a purple lip. The pure white forms were specially good. *Sopbro Laelio-Cattleya Antoine* and S.-L.-C. *Cytherea* (S.-L. *Gratrixiae* × C. *Empress Frederik*) were finely coloured.

MESSRS. CYPHER AND SONS had a beautiful and artistically displayed group, in which a fine selection of Cattleyas, Laelio-Cattleyas and Brasso-Cattleyas were arranged with richly coloured *Cyclopiums* and *Caladiums*. Slender yellow *Oncidioids* and countless pretty things were displayed on each side of the bold group in a manner which few artistic florists could excel.

Floral Committee.

Present: Messrs. H. B. May (in the chair), J. W. Barr, W. J. Bean, Sydney Morris, G. Reuthe, H. R. Darlington, Arthur Turner, D. B. Crane, John Heal, J. F. McLeod, T. Hay, W. Howe, W. H. Page, H. J. Jones, J. Jennings, W. B. Gingell, R. C. Notcutt, Andrew Ireland, M. C. Allwood, W. G. Baker, Thos. Stevenson, Hugh Dickson, and Clarence Elliott.

AWARDS.**FIRST-CLASS CERTIFICATE.**

Pyrus Eleyi.—A handsome *Pyrus*, which, like so many of its congeners, is of great garden value when flowering as well as when fruiting. It secured an Award of Merit when shown as a flowering tree at one of the fortnightly meetings, and on this occasion secured the higher award for its attractiveness while in fruit. The leaves show a little autumn tinting, but the pendulous, elongated Apple-shaped fruits of rich, reddish scarlet colouring, provide the great attraction. Shown by Mr. R. C. NOTCUTT, Ipswich.

AWARD OF MERIT.

Aster Little Boy Blue.—This very attractive Michaelmas Daisy has double flowers of a rich shade of purplish-blue. The individual flower heads are about an inch in diameter. This name needs to be altered as, we believe, Mr. Beckett raised a variety named Little Boy Blue several years ago. Shown by Mr. E. BALLARD, Colwall.

Kniphofia The Rocket.—This showy addition to the decorative Red-hot Poker family, has symmetrical heads of clear coral red flowers. Shown by Messrs. W. ARTINDALE AND SON, Sheffield.

Chrysanthemum Cissbury White.—A very useful early-flowering variety with medium-sized, incurved white flowers, which are faintly cream tinted. As an outdoor variety, this is a very distinct advance and a useful addition. Shown by Mr. S. AISH, Cissbury, Dunstable.

Aster Barr's Pink.—One of the finest of late-flowering Michaelmas Daisies. It belongs to the *Novae Angliae* group and carries large flower heads in great abundance. The colour is bright, deep rosy, but scarcely pink according to ordinary ideas; it is a famous variety none the less, and its individual flower heads measure 2½ inches across. Shown by Messrs. BARR AND SONS, Covent Garden.

Viburnum Davidii.—The charm of this shrub lies in its deep-green leaves, with paler underside, and in the flattish heads of small turquoise-blue fruits. The flowers are small and white. Shown by LIONEL DE ROTHSCHILD, Esq., (gardener Mr. F. Kneller), Exbury, Southampton.

Chrysanthemums.

A handsome collection of both large-flowered Japanese and decorative varieties was arranged in an imposing group by Mr. H. J. JONES. He had exhibition-sized blooms of such sorts as Mona Davis, Mrs. G. Lloyd Wigg, and Donatello, a yellow incurving variety, unusually early in the season. Of the smaller, but highly decorative sorts, September Glory, October Glow, Red Almirante, Pink Delight, Pink Profusion, Uxbridge Pink, and Blanche de Poiteau were particularly effective.

At the far end of the hall Messrs. W. WELLS AND Co. displayed a fascinating collection of sprays and disbudded blooms from the open ground. Blanche de Poiteau is very large for this type and the blooms were a particularly clear white. Of the many other sorts, we were especially impressed with Verona, of intense terra-cotta colour, Golden Polly, Sanctity, Pink Delight, Knaresboro Yellow, Harvester, September Glow, September Gem, as well as the varieties which received awards on the previous day.

A very large quantity of decorative sprays was well arranged by Messrs. KEITH LUXFORD AND Co., whose display occupied both sides of a length of tabling. The outstanding varieties were Early Buttercup, Uxbridge Pink, J. Banister, Marie Massé, Polly, Verona, and some beautiful sprays of Framfield White.

A collection of well-grown Chrysanthemums of market type was arranged by Mr. WM. YANDELL, who included such varieties as Normandie,

Mr. Roots, Miss E. Harvey, Cranfordia, Crimson Pride, Le Pactole, and Horace Martin.

Carnations.

Perpetual-flowering Carnations were shown in admirable form by a number of exhibitors, including Messrs. ALLWOOD BROS., Haywards Heath, who staged a magnificent display just inside the main entrance. The large centre piece of Edward Allwood, a fine scarlet flower, attracted attention, and there were also large panels of Wivelsfield Apricot, and the paler Wivelsfield Beauty and Wivelsfield White. The new yellow Maine Sunshine, Triumph, crimson; Benora, white, flaked with crimson; and Chintz, pale mauve with crimson pencilling, were also shown, whilst the hanging baskets were filled with the varieties Walter Hemus, salmon pink, and May Day, pink. The ends of the group were occupied with *Dianthus Allwoodii*, some of the newer varieties of which included Arthur, maroon with deep scarlet eye; Vera, pale pink; and Alfred, white. There were also some epergnes filled with the new perpetual border Carnations, raised from the perpetual and border

those shown in that manner, Isobel, Covent Garden, Padre, Mrs. Elisha Hicks, and Mrs. C. Lamplough were perhaps the very best, but when all are so good, a selection seems invidious. A large vase containing sprays of Rosa Fargesii, bearing its large brilliant hips, attracted a deal of attention.

Alongside this fine exhibit, Messrs. ALEX. DICKSON AND SONS displayed many excellent roses, and also arranged those with considerable taste. Of the many sorts, we selected Lulu, Earl Haig, Elizabeth Cullin, Betty Uprichard, Lady Inchquin, Sunstar, La Tosca, and Lady Pirrie as being the very best of a meritorious collection.

Messrs. B. R. CANT AND SONS were prominent among the exhibitors of particularly good Roses. They included large stands of fresh and well coloured blooms of The Queen Alexandra Rose, K. of K., Lady Pirrie, Golden Emblem, Covent Garden, Lady Hillingdon, General MacArthur, and Ophelia.

In an interesting collection of Roses, chiefly of his own raising, the Rev. J. H. PEMBERTON showed the new fragrant Nur Mahal, with The Adjutant, Pax, Mermaid, Ruth, of delightful



FIG. 85.—THE NATIONAL CHRYSANTHEMUM SOCIETY'S CUP. WON BY MR. H. J. JONES.

types and claimed to be perfectly hardy. The flowers were of exceptionally fine quality with a fine range of colouring.

Mr. C. ENGELMANN, Saffron Walden, staged a wonderful group and rarely, if ever, have we seen such perfectly grown flowers. A huge mass of the salmon-pink Laddie occupied the central position, flanked with columns and epergnes of Cupid, pale salmon pink; Tarzan, a very fine scarlet flower; Yellow Saffron, and its sport, Cream Saffron, White Enchantress, Maine Sunshine, yellow; Bona, deep salmon pink; Surprise, pale pink; and White Delight. Messrs. STUART LOW AND Co., Bush Hill Park, also devoted a part of their exhibit to Carnations, chief among which were White Pearl, Red Ensign, Mrs. Mackay Edgar, crimson, Eileen Low, a good salmon pink, and Mrs. T. Ives, salmon pink, together with a number of promising seedlings.

A small, effective group was also staged by the PRESTON HALL NURSERIES, Aylesford, the chief varieties being Enchantress Supreme, salmon pink; Destiny, rose; Marion Wilson, yellow ground flaked scarlet; and Lady Northcliffe, pink.

Roses.

In spite of the sunless weather, Roses were extensively shown, and in particularly fresh and good condition. Mr. ELISHA J. HICKS almost surpassed himself with an especially fine display. His aches of Mrs. Henry Stevens, Madame Butterfly, Climbing Lady Hillingdon, and Ophelia were very fascinating and served to draw attention to the very many beautiful blooms arranged in tall stands and vases. Of

golden Apricot shading, and the beautiful pink Mary Monro.

Tea and Noisette Roses of great merit were shown by Mr. GEORGE PRINCE. The chief sorts were Mrs. Henry Stevens, Lady Plymouth, Souvenir de Claudius Pernet, and Alex. Hill Gray. Of his many H.T. sorts, Golden Mail, an orange-yellow sport from Madame Ed. Herriot, Lady Pirrie, Hadley, Sunstar, and Golden Emblem were very prominent.

A collection by Messrs. F. CANT AND Co. included their new Capt. F. S. Harvey Cant, Los Angeles, Joanna Bridge, The Queen Alexandra Rose, Covent Garden, and Ophelia. A smaller collection, which included good blooms of Caroline Testout, General McArthur, and Climbing Madame E. Herriot, was displayed by Messrs. D. PRIOR AND SON, while Messrs. W. H. CUTBUSH AND SON associated with Polyantha varieties as Ellen Poulsen and Girdle with herbaceous flowers.

Mr. JOHN MATTOCK had a most beautiful basket of the old favourite Niphetos, and also showed Walter C. Clarke, Isobel, Hadley, La Tosca, Pax, and Ophelia in great excellence. Alongside their Carnations Messrs. STUART LOW AND Co. arranged such Roses as Hosiery Beauty, Hadley, The Queen Alexandra Rose, and Golden Emblem. Messrs. JARMAN AND Co. displayed Souvenir de Claudius Pernet and Mrs. Henry Morse in a collection, while Messrs. DUNNE AND Co. had a noteworthy exhibit with their Dahlias. The chief Roses were Madame Ed. Herriot, Christine, Col. Oswald Fitzgerald, and Lient. Chauré.

Dahlias.

A large and comprehensive display of Dahlias came from Messrs. CARTER PAGE AND CO., LTD., London Wall, the flowers being arranged in epergnes with bracken foliage. The principal varieties were Harmony, pure white decorative; Beauty, rose decorative; Ivory White, Cactus; Border King, red Cactus; Queen of the Whites, pompon; Ada Finch, cream Anemone-flowered; and Peronne, scarlet, collerette.

Mr. C. TURNER, Slough, showed magnificent flowers of a pretty Star Dahlia, the blooms having a yellow ground tinted with magenta rose at the tips of the florets. Other good things were Ladas, scarlet collerette; Creation, a Paeony-flowered variety of rich brick rose colour; Aphrodite, white Paeony-flowered; Fusilier, scarlet Paeony-flowered; Mrs. Douglas Fleming, ivory-white Cactus; and Orpheus, yellow pompon.

Messrs. DOBBIE AND CO., Edinburgh, staged a very effective group of high quality flowers, including Arran, a pretty deep rose collerette with white collar; Scarlet Queen, a fine scarlet with yellow collar; Avon, a fiery brick-red collerette variety; and Goldendale, a large yellow flower of self amber-yellow colour. Cactus varieties were seen in Saffron, yellow; Amos Perry, scarlet; and Alabaster, creamy white. Duchess, scarlet, and Queen of the Belgians, pale flesh pink were two beautiful large-flowered pompon varieties, and Queen of the Yellows, Dagmar, deep maroon; and Bacchus, scarlet, were noted among the dwarf varieties.

Opposite the latter group Mr. J. T. WEST, Brentwood, had a pleasing display of the newer varieties of Dahlias, including Mrs. W. H. Hussey, pure white Paeony-flowered; Roy Hay, a fine decorative flower of amber and orange colours; Mrs. Carl Salbach, lavender pink on a white ground; Lovelight, pale pink; and Dazzle, scarlet, two good miniature decorative varieties; Rona, crimson collerette with white tips and yellow collar; and Lolah, crimson and yellow.

Messrs. JARMAN AND CO., Chard, made a feature of the rose-pink decorative variety Rosie, and a selection of Cactus varieties, while Mr. J. B. RIDING, Chingford, was responsible for a large group of Dahlias, chief of the large decorative varieties being Salmonea salmon pink; Star, amber; Sunset, old gold; and Ebor, cerise. Belonging to the small decorative class were Lady Bird, rose, with golden eye; and Madame Herriot, rich red; while amongst large Paeony-flowered varieties were King of the Autumn, apricot; King Harold, crimson; and Yellow King. Judith, brick red; Our Annie, pink with yellow centre; and Audrey, amber, were noted in the small, Paeony-flowered section, and there were also excellent pompon collerette, and star-flowered varieties.

Messrs. TRESEDER, LTD., Cardiff, filled a table-length with a miscellaneous collection of Dahlias, chief of which were David, Magenta, Big Ben, crimson-rose; and Scarlet King, scarlet, of the decorative section. Good Paeony-flowered varieties were Harmony, white; and Iliad, amber, while there were also some magnificent show-blooms of Cactus and large-flowered pompon varieties. A very pleasing display was also staged by Messrs. J. CHEAL AND SONS, LTD., Crawley, who included large epergnes of Silver Queen, a decorative variety of silver-rose on white ground; Princess Juliana, white decorative; Darkest of All, deep maroon pompon; and single Star and collerette flowers in variety.

Hardy Flowers.

Hardy herbaceous plants were shown in abundance, Michaelmas Daisies predominating. A very bright group was arranged on the ground level by Mr. AMOS PERRY, Enfield, and amongst Michaelmas Daisies were Nancy Ballard, semi-double, purple; Brightest and Best, violet purple; Mrs. Eisle, lavender; Cloudy Blue, Rye-croft Pink, and the large flowered Maggie Perry, lavender mauve. Other attractive subjects included Helenium Gartensoene, H. autumnale rubrum, Solidago Shortii, also known as Golden Wings; Chrysanthemum Kenneth, a single white flower with serrated ray-florets, Salvia uliginosa, blue; Helianthus multiflorus maximus, and the double variety H. Soleil d'Or; and Tritoma gracilis.

Messrs. R. WALLACE AND CO., LTD., Tunbridge Wells, effectively displayed hardy herbaceous plants amongst ornamental shrubs. Lilium auratum, L. speciosum rubrum, and L. album Kraetzeri were represented by fine spikes of flowers, as were also a variety of hybrids of Gladiolus primulinus and spikes of Hyacinthus candicans. Asters provided banks of colour and included such good things as Cloudy Blue, Brightest and Best, Blue Gem, Beauty of Colwall, and Cleopatra, a single white flower tinged with mauve.

From Messrs. JACKMAN AND SONS, Woking, came a pleasing display, the centre of the group being occupied by graceful plumes of Pampas Grass, around which were some magnificent specimens of pot-grown Clematis. Asters were shown in variety, and other autumn-flowering plants were Helianthus sparsifolius, Poterium canadensis, Pentstemon Southgate Gem, Rudbeckia Nemani, Salvia uliginosa, Gaillardia Sunrise, and Delphinium Capri, light blue. Messrs. RICH AND CO., Bath, had a table group of miscellaneous herbaceous plants, the back of the exhibit being occupied with tall epergnes of Helenium Riverton Gem, H. Riverton Beauty, H. autumnale superbum rubrum, and the large flowered Helianthus Monarch. Michaelmas Daisies, border Chrysanthemums, Dahlias and Phloxes were also shown in variety. Mr. E. SCAPLEHORN, Haywards Heath, brought Asters in variety, including King of the Blues, deep blue; Mons, rose; and the large-flowered King George and King of the Belgians. Sedum atropurpureum, Hemerocallis Sir M. Forster, Tritoma Corallina, and T. Macowani were also shown. Close by, Messrs. BAKERS, LTD., Codsall, filled a low table with herbaceous flowers arranged in bottles, over which was placed wire netting. The centre consisted of a mass of blue Aster Anita Ballard, and Scabiosa caucasica, while other good things were Pyrethrum Fire Fly, Primula Wanda, Spiraea Codsall Queen, with creamy white flowers, the deep blue Delphinium Mrs. H. Kay, Astilbe Brilliance, rosy mauve, Gentiana Farreri, blue, and their strain of Sunbeam Poppies, which flower from May until October.

Messrs. LADHAMS, Southampton, made a feature of hybrid Lobelias obtained from L. cardinalis and L. siphylitica. Among the fifteen named varieties were Mrs. Humbert, rose; B. Latham, scarlet; Purple King, a very distinct colour; Shirley Beauty, crimson; Delight mauve; and Carmineus, cerise. Pentstemon, Pink Gem, Aconitum Wilsoni, Lavatera Olbia rosea, and Cimicifuga simplex were also staged.

Violets were shown by Mr. J. J. KITTLE, Corie Mulken, the flowers being cut from the open. The chief varieties were Princess of Wales, La France, Mrs. J. J. Kettle, Lloyd George, and the new Princess Mary.

Messrs. W. CUTBUSH AND SON, Highgate, had a pleasing arrangement of Michaelmas Daisies, Dahlias and Pentstemons. Among the former were Brussels, pale blue; Elta, double flower of rose colour; Mons, rose; and Robinson V.C., blue. Dahlias were represented by Delice, rose; Porthos, mauve; Yellow Transparent; and Paul Crampel, scarlet; while amongst Pentstemons were Bronze Lass, pink; Mrs. Leonard Cutbush, red; and Magnificence, rose. Lilium tigrinum was freely used in the groundwork, and one part of the exhibit was occupied with Polyantha Roses.

Asters were freely used in the exhibit from Mr. W. WELLS, Junr., Merstham, who showed large vases of King of the Blues, Grace Sweet, Robinson V.C., Rose Queen, and King George. Rudbeckia purpurea, Lupinus Merstham Gem, Helenium Crimson Beauty, were also shown, and at one end of the exhibit were some fine spikes of Tritoma Princess Juliana, in front of which was a mass of Gentiana Farreri. Mr. G. REUTHE, Keston, had a very pretty group in which he showed Asters in variety. Solidago altissima, Boltonia latissuama, Lobelia cardinalis, and L. Queen Victoria were also included in the group, together with Lilium sulphureum, L. tigrinum; L. Fortune giganteum, and L. superbum. Colchicums and autumn flowering Crocuses were also shown, the former including C. speciosum, C. s. album, and C. s. rubrum, C. autumnale flora plena, and C. Bornmülleri.

The CHALK HILLS NURSERIES, Reading, showed Antirrhinums in variety, the plants of which have provided flowers for exhibiting purposes from May onwards. Monarch, a fine crimson; Prima Donna, salmon buff; Silver Queen, silvery mauve; and Harmony, rose with yellow centre, were some of the best varieties. A delightful strain of seedling Pentstemons and hybrid Lupins were included in the exhibit, and at one end were staged sprays of Zonal Pelargoniums, of which Maxim Kovalensky salmon scarlet; Prince of Orange, double orange; The Speaker, semi-double salmon; Snowstorm, white; and Victory salmon; were a few of the best.

Mr. T. CARLILE, Tyford, made a feature of Kniphofia corallina, together with hybrid Lupins, Aster Amellus Queen Mary, large deep blue flowers; Helianthus Monarch, and some very fine sprays of Delphiniums, including Lavanda, magenta blue; and Nora Ferguson, pale blue. From Messrs. ISAAC HOUSE AND SON, Bristol, came a beautiful collection of forms of Scabiosa caucasica, and among the deeper shades of blue were Mary Witchell, Diamond, and Isaac House. Paler varieties were Silver Queen, Silver Prince, and Silver King, and included in the white forms were Mrs. Isaac House, alba perfecta, and alba nana.

Mr. H. J. JONES, Lewisham made a very effective display of Michaelmas Daisies heightened in colour by the judicious use of Helianthus Monarch. At the back were arranged large columns of Elsa, deep blue; Amellus major, large-flowered, deep blue; and Dainty, double lavender rose, while towards the front were good clumps of R. Von Gerscho, King George, Weinholdt, White Climax, and Robinson, V.C. Mr. ERNEST BALLARD, Colwall, showed a very beautiful ground group of Michaelmas Daisies, and amongst the many fine things noted were Maid of Colwall, white; Queen of Colwall, lavender blue; Ethel Ballard, rose; Purple Emperor, deep purplish blue; Snowdrift, white; and Anita Ballard, double lavender blue. Messrs. BOWELL AND SKARRAIT, Cheltenham, brought a miscellaneous collection of herbaceous plants, and towards the front of the exhibit were clumps of Colchicum Bornmülleri, Crocus zonatus, Primula Forbesii, and Chaerostoma hispida.

A magnificent display of Lilium auratum came from Mrs. C. LEMON, Carlton Hill, N.W., some of the spikes carrying over two dozen flowers and cut from plants growing in the open at Brodick, Arran, N.B.

Messrs. G. GIBSON AND CO., Bedale, showed Papaver orientale Ethel Swete, cerise; Verbascum Bronze Beauty, reddish bronze; V. Indiana, Indian lake; good blooms of Pyrethrum Queen Mary, new hybrid Lupins of many shades of colour and Scabiosa caucasica together with Iceland Poppy, Gibson's Giant Orange and Gladoli in variety. From Messrs. HARKNESS AND SONS, Bedale, came a collection of herbaceous plants, included amongst which were Tritoma uvaria, Hyacinthus candicans, Lupins in variety, Michaelmas Daisies, Chrysanthemums, and Gladioli. Mr. H. VIGARS showed small plants of his Delphinium Sky Blue, the plants being specially prepared for forcing.

One of the features of the show was the charming grass gardens arranged by Mr. J. MACDONALD, Harpenden. Ornamental grasses were grouped in beds set in a beautiful lawn, and the tall, graceful red spikes of Tricholaena rosea were employed with much effect with such beautiful things as Eragrostis elegans, Agrostis nebulosa, and the dwarf A. pulchella, Phleum aurea, the blue Festuca glauca, Eulalia japonica variegata, the new hybrid Trichagrostis, and Dactylis glomerata. The silvery Glyceria spectabilis argentea was used with much effect as an edging to the beds.

Messrs. LOWE AND GIBSON, Crawley Down, showed an interesting collection of Gladioli raised from seed sown under glass in early spring.

Alpine Plants.

At this time of the year alpine plants are not freely shown, but there was nevertheless a few interesting groups. Messrs. CLARENCE ELLIOTT, LTD., Stevenage, showed some very choice things, such as the true Saxifraga valdensia and a fine pan of S. Greisbachii. The prostrate Rhododendron Williamsii, a fine loving species,

Artemisia canescens, *Scutellaria indica japonica*, *Anthemis Haussknechtii*, and the free flowering *Primula Juliana* Elliott's variety were also seen, whilst spikes of *Polygonum affine* and *P. campanulatum* added a touch of colour.

MESSRS. MAXWELL AND BEALE, Broadstone, had a rock garden arrangement, in which were shown *Rosa pumila*, *Gentiana Farreri*, *G. pneumonanthe*, and the white form *G. p. alba*, *Erica vagans*, *E. cinerea alba*, and *E. ciliaris* (the Dorset Heath). The same firm also staged herbaceous plants in variety, and bowls of Violet Princess of Wales cut from the open fields. A small rock-garden display was staged by Mr. F. G. WOOD, Ashstead, who showed *Nierembergia rivularis*, *Sedum spectabile*, *Verbena venosa*, and *Artemisia pedemontana* backed with a miscellaneous display of Michaelmas Daisies, Phloxes, and hardy Chrysanthemums in variety.

Mr. ERNEST DIXON, Putney, arranged a small formal garden and rock garden on the table, and the Misses K. and E. HOPKINS, Shepperton-on-Thames, also had a neat rock garden exhibit.

Trees and Shrubs.

Collections of growing specimens and cut sprays of many ornamental trees and shrubs were important features of the show.

In the centre of the hall there was a very large circular group from the Hon. VICARY GIBBS (gr., Mr. E. Beckett), Aldenham House, Elstree, which was noteworthy for the great number of very interesting subjects it contained. For the most part it was the newer Chinese specimens that were displayed, but there were also examples of the older and valuable shrubs, especially amongst those in flower. These included *Erythrina Crista-galli*, *Viburnum Tinus*, *Spartium junceum*, with *Lepedeza Sieboldii* and *Spiraea sorbifolia*. Amongst the many berried shrubs there were *Rhamnus Erythroxylon*, *Pyrus Aucuparia munda subarachnoides*, bearing good bunches of its pure white fruits; *Pyrus firma*, of glowing crimson colour, and *Cydonia japonica Wilsonii*. The most brilliant foliage colour was provided by *Acer japonicum laciniatum*. A small plant of *Vitus Brandtii* bore small clean bunches of small Grapes.

Near by Messrs. J. CHEAL AND SONS arranged a group of autumn trees and shrubs, surmounted by a golden specimen of *Pseudolarix Kaempferi*. The fruiting shrubs included *Crataegus yumanense*, *C. coccinea dentata*, *C. mollis* and *Pyrus discolor*. Amongst the flowering species were *Eucryphia cordifolia*, *Clerodendron foetidum*, *Buddleia variabilis compacta* and *Kerria japonica fl. pl.* A small plant of *Ginkgo biloba* in its rich yellow autumn colour was very fascinating.

A particularly interesting collection of Conifers was contributed by Messrs. HILLIER AND SONS, who also showed general shrubs. The Conifers included fruiting specimens of *Pinus Ayacahuite*, *P. sinensis*, *Picea bicolor* and its variety *reflexa*, *Abies arizonica* and *A. brachyphylla*. *Pinus Massoniana*, *Picea excelsa aurea*, *P. Kosteri*, *Abies Delavayi*, glabra variety, and *A. homolepis* were also of more than usual interest. Various Conifers and other trees and shrubs were associated with border flowers by Messrs. R. WALLACE AND CO.

On a table space Mr. SIDNEY MORRIS, Earlsam Hall, Norwich, contributed an interesting and instructive collection of berried shrubs. The most uncommon was the fruits of the half-hardy *Lonicera Hildebrandtii*, which accompanied a spray of the very long yellow tubular flowers. *Hippophae rhamnoides*, *Berberis aggregata nana*, *Euonymus intermedia* and many varieties of *Crataegus* were well represented. In a general exhibit Messrs. J. PIPER AND SON had *Elcagnus glabra*, *Berberis* in variety, Conifers and Topiary. The largest group of Topiary was from Messrs. W. CUTBUSH AND SON, who had a well-trained collection.

One of the most uncommon objects in the group by Mr. G. REUTHE was the pods of *Descainea Fargesii*. These are like rounded Pea pods and are of a dark violet colour. The flattish seeds are set in a greenish viscid pulp. *Rhododendrons*, particularly those with large, handsome foliage, *Berberis* in variety and dwarf rock shrubs were also represented.

Ceanothus, in such sorts as *Ceres*, *Gloire de Versailles*, and *floribunda* were very interesting in an exhibit by Messrs. WATERER, SONS AND CRISP, who also included specimens of *Taxus nova aurea*, *T. japonica* and many Barberries. Clematis were particularly good. Messrs. L. R. RUSSELL, LTD., had a magnificent collection in practically all the best sorts. These were shown as young plants in quite small pots, and each plant was a perfect specimen, in robust health, bearing half a dozen or so of beautiful flowers. The principal varieties were King Edward VII., Gipsy Queen, Lady Northcliffe, Lasurster, Marie Boisselot, Lady Neville, Lord Neville, Jackmanii rubra and Viticella alba luxurians.

Many Clematis were arranged with border flowers by Messrs. G. JACKMAN AND SONS. Their outstanding varieties were Crimson King, Jack-

Humea elegans were used with effect amongst finely coloured *Codiaeums*, the scarlet *Clerodendron fallax*, *Statice intermedia*, *Nandina domestica* and *Jacaranda mimosaeifolia*, the latter with fine, light green foliage. Close by Messrs. L. R. RUSSELL, LTD., displayed flowering and foliage stove plants in variety. Among the former was the gigantic flowered *Aristolochia gigas Sturtevantii*, with *Acalypha Sanderiana*; *Bilbergia rhodocyanea*, *Nidularium Meyendorffii*, and baskets of *Columnea gloriosa purpurea*. Among foliage plants noted were *Alocasia argentea*, *Dracaena Victoria*, *Codiaeum Reidii*, *C. Golden Bracelet*, and *Acalypha Hamiltoniensis*. Messrs. R. and G. CUTHBERT filled a table length with their delightful strain of hybrid *Streptocarpus* in white, rose and mauve shades, while from Mr. H. N. ELLISON, West Bromwich, came some very fine specimens of greenhouse Ferns,



FIG. 86.—MR. H. J. JONES' EXHIBIT OF CHRYSANTHEMUMS, AWARDED THE NATIONAL CHRYSANTHEMUM SOCIETY'S SILVER CUP (SEE P. 211).

manii superba, Mrs. Cholmondeley, Empress of India, Beauty of Worcester, Alba Magna and *C. tangutica*, obtusiuscula, the last named bearing small, quaint pendulous yellow flowers.

Greenhouse Plants.

MESSRS. BLACKMORE AND LANGDON were again excellent with Begonias, a central position being allotted to *Begonia Hilda Langdon*, a pretty rose-pink variety; Mrs. J. Davidson, yellow; Sir J. Wilson, scarlet; Lord Lambourne, orange; Lady Cory, salmon; and Queen of the Belgians, rose. Along the front were arranged tuberous varieties suitable for hanging baskets, and including such beautiful things as *Fleur de Chrysantheme*, pale rose; *Sirius*, salmon red; *Rose Cactus*, pink; and *Gladys*, deep rose. Begonias were also shown by Messrs. BASTIN AND SONS, Bexley Heath. Among named varieties were King Edward VII., scarlet; Lady Sebright, rose; Mrs. H. J. Kilker, white; and the Hon. Maurice Glynn, orange. Numerous seedlings of single and double varieties were also on view.

A very attractive group of stove and greenhouse plants was staged by Messrs. J. CYPHER AND SONS, Cheltenham. The arrangement was very light and effective, foliage and greenhouse flowering plants being gracefully employed in conjunction with Orchids. Feathery sprays of

including *Polypodium glaucum crispum*, *Platycerum Veitchii*, *Gleichenia longipinnata*, *Nephrolepis Scholzei*, and *Cibotium Scheidii*. A miscellaneous collection of Cacti occupied the front of the exhibit.

From Mr. S. SMITH, Enfield, came a unique display of Cacti and miniature planted gardens for room and table decoration. There were some very fine specimens of *Mamillaria viridis*, *M. Walloni*, *Cephalocereus senilis*, and *C. polycephalus*, *Cereus formosus monstrosa*, *Aloe vera*, *Cyanotis somalica*, and *Echeveria rosea*.

Zonal Pelargoniums were shown by Mr. R. J. CASE, Staplegrave Nurseries, Taunton, including *Chavarrri Hermanos*, semi-double scarlet; *Champ de Neige*, white; *Pasteur*, rose; *Staple-grove Wonder*, rose salmon; and *Mars*, crimson.

Joint Dahlia Committee.

Present: Messrs. H. B. May (in the chair), J. Green, J. Cheal, H. J. Jones, D. B. Crane, A. Turner, J. B. Riding.

The following varieties were selected for trial at the R.H.S. Gardens, Wisley.

Lady Hall.—This is a deep rose-pink Paeony-flowered variety of medium size.

Mrs. Barris.—A miniature Paeony-flowered variety, of pale pink colouring, with white veins; the flowers, however, seemed to be somewhat pendulous.

Hector.—A showy miniature Paeony-flowered variety; scarlet shaded with rose. These three varieties were shown by Messrs. J CHEAL AND SONS, Crawley.

F. G. Bird.—A scarlet single variety, some what after the Coltness Gem style, but of better shape. Shown by Mr. W. TRESEDER, Cardiff.

Fruit and Vegetable Committee.

Present: Messrs. J. Cheal (in the chair), J. C. Allgrove, W. H. Divers, W. Bates, J. G. Weston, P. D. Tuckett, P. C. Veitch, S. B. Dicks, T. Pateman, A. H. Pearson, E. Neal, E. Beckett, G. Reynolds, W. Pope, W. F. Giles, T. Coomber, Owen Thomas, F. Jordan, G. F. Tinley, A. C. Smith, G. Bunyard, H. S. Rivers, A. Bullock, A. W. Metcalfe, H. Prince, J. Wilson, E. Harriss, G. P. Berry, W. Crump, J. Basham, F. G. Treseder, F. Barnes and G. Woodward.

Several seedling Apples were submitted for award, the most promising being a very large-culinary variety named John Waterer, which

Wilks, and Cox's Orange Pippin. There were also fine trees of Coe's Golden Drop Plum and Bullaces The Langley and White Bullace. The baskets contained magnificent fruits of such sorts as the new S. T. Wright, Rev. W. Wilks, King of the Pippins, The Queen, Emperor Alexander, Blenheim Pippin, Peasgood's Nonesuch, Lord Derby, and James Grieve.

Messrs. STUART LOW AND Co., Enfield, exhibited a collection of fruit in baskets and epergnes, decorated with Adiantum Ferns and Pyracantha plants in berry. The Pears were exceptionally fine, especially the varieties Marguerite Marillat, Pitmaston Duchess, Doyenné du Comice, Conference, Beurré Hardy and Roosevelt. There were also splendid fruits of such Apples as Cox's Orange Pippin, Early Victoria, Rival and Lord Derby.

KING'S ACRE NURSERY, Hereford, showed pot fruit trees, and baskets of gathered fruits. The fruits on the trees carried very high colouring, the more notable varieties being Chas. Ross, James Grieve, Gascoyne's Scarlet Seedling, King

James Grieve; whilst of the Pears there were choice fruits of Pitmaston Duchess, Doyenné du Comice, Roosevelt, Conference, and Marguerite Marillat.

Messrs. J. CHEAL AND SONS, Crawley, put up a very attractive exhibit of hardy fruits, in which were seen most of the best sorts of Apples in cultivation. There were also several excellent varieties of Pears. We noticed fine dishes of Ellison's Orange, St. Everard, Herring's Pippin, The Houblon, and James Grieve amongst the Apples, and Beurré de Nagan, Roosevelt, and General Todleben amongst the Pears.

J. A. NIX, Esq., Tilgate, Crawley (gr. Mr. E. Neal), showed nearly one hundred dishes of Apples and Pears, with a central stand of Grapes. The last included fine bunches of Lady Hastings, Appley Towers, Muscat Hamburgh, Black Hamburgh, Madresfield Court, Muscat of Alexandria, Mrs. Pince, and Gros Maroc. Those of Lady Hastings variety were exceptionally large in berry and bunch. The hardy fruit was of the largest exhibition size and most of the Apples splendidly coloured.

Messrs. WATERER, SONS AND CRISP, LTD. showed sixty dishes of Apples and a few of Pears. The fruits were exceptionally fresh and clear looking, the coloured varieties being splendidly tinted. Lord Derby, Chas. Ross (remarkably large), Golden Spire, Cox's Orange Pippin, Ellison's Orange, and Rev. W. Wilks are a selection of the best Apples.

THE STUDLEY COLLEGE, Warwickshire, showed sixty varieties of Apples and Pears. The fruits were attractively arranged in baskets with a stand in the centre and at either end, and included some of the most useful kinds in cultivation.

Messrs. LAXTON BROS., Bedford, put up a very attractive exhibit of hardy fruits, which were displayed in fancy baskets and epergnes decorated with coloured foliage and berries. Gascoyne's Scarlet Seedling, Worcester Pearmain, Chas. Ross, James Grieve, The Premier, Beauty of Bedford, Rival, and St. Everard, were all remarkable for high colouring, and Pott's Seedling, Newton Wonder, The Queen, Cellini Pippin, and Rev. W. Wilks for large size. The Pears included the varieties Pitmaston Duchess, Louise Bonne of Jersey, Princess, Doyenné du Comice and Conference.

Messrs. G. G. WHITELEGG AND Co., Orpington, showed 85 varieties of Apples and 20 sorts of Pears, with a few Medlars and Nuts. They also exhibited their late Gage Plum, Orpington Prolific, which is most prolific in cropping. The culinary Apples were exceptionally fine and there was an outstanding dish of the highly-coloured dessert variety Duchess's Favourite. The highest Pears were Souvenir du Congrès and Conference.

Messrs. T. RIVERS AND SON, Sawbridgeworth, showed an imposing collection of choice fruit trees in pots, of Apples, Pears, Plums, Cherries, and Peaches. All the trees were laden with fruits, and the various subjects contributed a pleasing range of colours from the red of Cherry Guigne de Winkler through scarlet and orange of such Apples as Cox's Orange Pippin and Gascoyne's Scarlet Seedling, with russet brown of Conference Pears to purple of President Plum. The central Cherry trees were outstandingly good, the branches bearing down with the numerous fruits.

THE BARNHAM NURSERIES, Sussex, showed a collection of Apples and Pears on tabling, the exhibit being raised on tiers in the centre. There were excellent fruits of Apples Lord Derby, Cox's Orange, Worcester Pearmain, Newton Wonder, Peasgood's Nonesuch, Bramley's Seedlings, James Grieve, and Devonshire. In all, the collection embraced 100 varieties of Apples and 12 sorts of Pears.

RUDGWICK FRUIT FARM, Rudgwick, Sussex, showed fruit in baskets and barrels as packed for market. The quality was excellent, outstanding varieties of Apples being Cox's Orange Pippin, Warner's King, Newton Wonder, Lane's Prince Albert, Worcester Pearmain, and Allington Pippin.

Mr. R. C. NOTCUTT, Woodbridge, Suffolk, exhibited Apples and Pears of remarkable quality both as regards size and colour. The handsome



FIG. 87.—FRUITING SPRAY OF PYRUS ELEIY.

SEE AWARDS BY THE FLORAL COMMITTEE (P. 211).

appears to be a cross between Warner's King and Lord Derby. This variety was shown by Messrs. WATERER, SONS AND CRISP, and the Committee expressed a desire to see fruits again later in the season. Messrs. LAXTON BROS., Bedford, submitted their variety Lord Lambourne in competition for the Bunyard Cup. This was the only variety submitted, but the award was not recommended as the Committee did not think the variety was of sufficiently outstanding merit. It has the general appearance of Cox's Orange Pippin, but is not so good in quality.

The Committee unanimously requested the Chairman to inform the Council that it was undesirable to meet on the occasions of these special shows, as many of the members were engaged in judging and could take no part in the deliberations, whilst there was seldom any business of importance that could not be dealt with at the subsequent fortnightly meeting.

GROUPS.

Mr. J. C. ALLGROVE, Middle Green, Langley, Slough, exhibited a collection of Apple trees in pots, with choice gathered fruits in baskets. The biggest tree was of the variety Ontario, and it was laden with fruits. Others carrying heavy crops were Charles Ross, Allington Pippin, Bramley's Seedling, Bismarck, Rival, Rev. W.

of Tompkin's County, Emperor Alexander and Peasgood's Nonesuch.

Mr. WILL TAYLER, Godalming, showed Apple Pantia Ralli, a seedling dessert variety, like Ellison's Orange in shape, and suggesting James Grieve in the parentage.

Messrs. G. BUNYARD, LTD., Maidstone, contributed a distinct exhibit in a trellis furnished with vines in bearing, and pleasingly grouped about with pot Fig trees. The vines carried numerous bunches of ripe Grapes and included the two excellent varieties Diamant Traube and Frontignan. This firm had also a striking exhibit of hardy fruits, principally Apples and Pears; a number of Cobnuts and Filberts added interest to the exhibit. The fruits were displayed in mahogany-coloured baskets of attractive design, and some of the baskets were hung from stands, making a pleasing change to the usual style of showing these fruits. The Apples were splendid, outstanding varieties being Jubilee, Thorle, Cutler Grieve, Lady Sudeley, Ben's Red (exceptionally fine), Belle de Boskoop, and Adams's Pearmain.

Messrs. DANIEL BROS., Norwich, showed trained fruit trees and fruits of Apples and Pears. Of the Apples, the principal varieties were Cox's Pomona, Rev. W. Wilks, Ellison's Orange, Chas. Ross, Bramley's Seedling, and

Apple Guelph was especially prominent and the dish of Gascoyne's Scarlet Seedling was the best of its kind in the show. Others of special merit were New Hawthornden, Vicar of Winkfield, King Harry (very large), Cutler Grieve, and Cox's Pomona. The Pears were of the same high standard of merit, Roosevelt, Beurré Hardy, and Conference being three of the best dishes.

Mr. H. M. JONES, Letchworth, Hertfordshire, showed a handsome, coloured form of James Grieve Apple named Redcote Grieve.

E. A. WATTS, Esq., Copford Lodge, Colchester, showed a small collection of fruits including Apples, Plums, Pears, Figs, and nuts.

W. H. THICKETT, Esq., Bradley, near Grimshy (gr. Mr. J. Irving), showed two dozen bunches of Grapes, of the varieties Cooner's Black, Black Alicante, Muscat of Alexandria, Mrs. Pince, Cannon Hall and Black Hamburg. They were all of commendable quality.

Mr. E. J. PARSONS, Worcester, showed Apples, Pears and Cherries against a pleasing background formed of sprays of the Darmonth Crab and Shropshire Prune.

GROUPS OF VEGETABLES.

Messrs. SUTTON AND SONS put up one of the largest exhibits of vegetables we have ever seen at an exhibition. The display was made very attractive by the skilful disposition of the various coloured subjects, and the whole plan was worked out to present an exhibit of great interest. Almost every vegetable in season, and a great many out of season, were included in this remarkable collection, whilst the quality of the various dishes was exceptionally good, being an object lesson in high cultivation, as well as in clever exhibiting. The varieties represented the specialities of the firm, as well as the finest of the standard sorts. Of the various kinds included special mention may be made of Leeks, Celery, Onions, Carrots, Beets, Cauliflowers, Potatoes, Tomatoes, and Peas. Not the least pleasing feature of this imposing exhibit were numerous very decorative plants of Cissampelos in pots, with fruits of various colours, these being distributed throughout the collection.

The Hon. VICARY GIBBS, Aldenham House, Elstree (gr., Mr. E. Beckett), also contributed a collection of vegetables. Although the group was not so large as that of Messrs. Sutton and Sons, it was pre-eminent for its fine quality, as every dish was almost as perfect as could be wished. It is to be regretted that Mr. Beckett was unable to obtain the whole of the space he needed, as he would doubtless have made a record display, even for Aldenham produce. In this case also, the staging and arrangement generally were all that could be desired, whilst from an educational point of view in growing and showing high-class vegetables the display was outstanding. There were very few vegetables that were not included, and in most cases the best types and varieties were represented.

Messrs. H. CHAPMAN, LTD., Rye, exhibited Cissampelos and Tomatoes, representing many new and desirable varieties of both kinds. He also showed a stringless Bean.

COMPETITIVE FRUIT CLASSES.

FRUITS GROWN UNDER GLASS

The most important class in this section was that for a collection of nine dishes representing at least six kinds, but not more than one Pineapple, one Melon, one white or one black Grape. There were two exhibits and the better was shown by LORD HILLINGDON, Wildernes, Sevenoaks (gr. Mr. J. Shelton), with excellent dishes of Triomphe de Vienne and Marguerite Marillat Pears, Rival and Cox's Orange Pippin Apples, Sea Eagle Peaches, Pineapple Nectarines, White Marseilles Figs and Grapes Muscat of Alexandria and Madresfield Court. Mr. PATEMAN, gardener to Sir Charles Nall-Cain, The Node, Welwyn, was a good second, but his Grapes were smaller bunches, although of nice finish and evenly matched. He also showed fine fruits of Ellison's Orange Apple, Pineapple Nectarines and splendid Dovenné Boussoch Pears.

In the smaller class for six dishes there were three exhibits, and much the best collection was shown by G. MILLER, Esq., Radlett (gr. Mr. J. Kidd), who had a magnificent dish of Marguerite Marillat Pears, good Appley Towers

Grapes, Countess Melon, Ribston Pippin and Cox's Orange Pippin Apples; 2nd, F. A. HORNE, Esq., Colley Manor, Reigate (gr. Mr. E. Coleman); 3rd, Mrs. O. BARWELL, Barkfold House, Billingshurst (gr. Mr. W. Mould).

GRAPES.

LORD HILLINGDON had remarkable success in these classes, winning no fewer than six first prizes.

The principal class for Grapes was for six distinct varieties, two bunches of each sort, of which two at least must be white Grapes. Two competed and the first prize was awarded to Mr. G. MILLER, whose bunches were the largest. Those of Appley Towers and Mrs. Pince were of large size, but the latter required a little more time for perfect finish. Those of Alnwick Seedling were remarkably good, and there were splendid bunches of Lady Hutt. The berries of Prince of Wales were sleek-black and finely finished generally. The berries of Muscat of Alexandria were of a nice amber colour, the bunches long and narrow; 2nd, LORD HILLINGDON, with bunches on the small side but of excellent quality, especially Muscat of Alexandria, Black Hamburg, Muscat Hamburg and Mrs. Pince.

The first prize for three varieties was awarded to Sir CHARLES NALL-CAIN for the varieties Mrs. Pearson, Madresfield Court and Muscat of Alexandria, the bunches being of good exhibition quality.

Four competed in the class for Black Hamburg variety, and LORD HILLINGDON won the first prize easily with two heavy shapely bunches; the berries were not large, but finely finished. G. MAYER, Esq., Wistlers Wood, Woldingham, Surrey (gr. Mr. W. Sayer) was second, but the berries were not so plump or so black as Lord Hillingdon's, although of large size; 3rd, Mrs. ARTHUR WILSON, Tanby Croft, Hull (gr. Mr. W. J. Earl).

LORD HILLINGDON also excelled in the class for two bunches of Mrs. Pince variety, in which Mr. MAYER, the only other competitor, was second; the first prize bunches were much superior.

The variety Black Alicante was also shown best by LORD HILLINGDON, with Mr. MILLER a close second. They both showed large bunches with well-finished berries. Three competed in this class. Mr. MAYER was placed first for Prince of Wales variety; 2nd, Capt. R. B. BRASSEY, Canpesbrooke Hall, Northampton (gr. Mr. J. G. Quinn).

LORD HILLINGDON met with further success in the three remaining classes for Grapes, viz., for Any Other Black Grape with Muscat Hamburg, in which Mr. MAYER was second with Lady Downe's Seedling; for Muscat of Alexandria, again followed by Mr. MAYER; and for Any Other White Grape with Cannon Hall Muscat; 2nd, Mr. MILLER, with two exceptionally fine bunches of Lady Hutt.

COLLECTION OF HARDY FRUITS.

This class called for a collection of 30 dishes, distinct, of hardy fruits, arranged in a space of 10 feet by 3 feet. Not more than 12 varieties of Apples nor more than 8 varieties of Pears were permitted, and because of this stipulation the finest collection was disqualified, for Mr. Pateman showed nine sorts of Pears in the exhibit from Sir Charles Nall-Cain's gardens. The first prize was awarded to V. C. VICKARS, Esq., Newells Park, Royston (gr. Mr. W. Watkins). This representative collection included excellent Plums of the varieties President, Jefferson and Coe's Golden Drop. Pineapple Nectarines were good, as were Apples Emperor Alexandra, King of the Pippins, The Queen and Chas. Ross; Pears Beurré Hardy, Dovenné du Comice, Pitmaston Duchess and Emile d'Heyst. There were also Brown Turkey Figs, Mulberries, Peaches, and Red Currants; 2nd, Major-General Sir CHAS. F. HADDEN, K.C.B., Rossway, Berkhamsted (gr. Mr. O. Havles), whose Plums Magnum Bonum, Coe's Golden Drop and Reine Claude de Bavay were especially good.

DISTRICT COUNTY CLASSES.

In the class open to Kent growers, Mr. J. H. LOUDON (gardener, Mr. G. Bond), Wye, Kent, gained first prize with six dishes of

Apples of good colour and size, and Capt. M. DRUMMOND (gardener, Mr. E. Smith), Cadland Park, Southampton, was first in a similar class open to Surrey, Sussex and Hampshire growers, and first for six dishes of Pears with excellent fruits of Marguerite Marillat, Triomphe de Vienne, and Pitmaston Duchess.

For six dishes of Apples, open to growers of Wilts, Dorset, Somerset, Cornwall, and Devon, Lady MARY MORRISON (gardener, Mr. H. Mills), Tisbury, Wilts, led with good specimens of Peasgood's Nonesuch, Rev. W. Wilks, and Cox's Orange Pippin, and the same exhibitor also carried off first prize with six excellent dishes of Pears. Mrs. AUSTIN (gardener, Mr. E. G. Longhurst), Totteridge, scored in the class for Apples open to growers in Gloucester, Oxford, Bucks, Beds, Herts and Middlesex, and C. V. SALE, Esq. (gardener, Mr. R. Learmouth), Aston Rowant, was placed first with six dishes of Pears.

Mr. S. H. GOODWIN, Ramsey, St. Mary's, Huntingdon, was first with highly coloured Apples in the class open to growers in Essex, Suffolk, Norfolk, Cambridge, Hunts and Rutland, and Capt. R. R. BRASSEY (gardener, Mr. J. G. Quinn), Cottesbrooke Hall, Northampton, was first for both Apples and Pears in the class open to growers in Lincoln, Northampton, Warwick, Leicester, Notts, Derby, Staffs, Shropshire and Cheshire. Of the two exhibits of Apples open to growers in Worcester, Hereford, Monmouth and Wales, the EARL OF COVENTRY (gardener, Mr. W. H. Wilson), Crombe Court, Worcester, was first, and Mrs. A. WILSON (gardener, Mr. W. J. Earl), Hull, won first prize for Apples and Pears open to growers in the six northern counties and the Isle of Man.

The EARL OF BESSBOROUGH (gardener, Mr. T. E. Tomalin), Pittown, Co. Kilkenny, was the only exhibitor in the class open to growers in Ireland, and was awarded first prizes for Apples and Pears.

SPECIAL AMATEURS' CLASS FOR APPLES.

In the class open to amateurs possessing not more than 25 Apple trees, for the best dish of one dessert variety, there were six entries. Mr. A. R. CARLISLE, The Maltings, Henlow, Biggleswade, won the first prize with an excellent dish of Cox's Orange Pippin, and the same competitor was also first in a similar class for a cooking Apple, with fine specimens of Peasgood's Nonesuch.

SINGLE DISH CLASSES.

The following are the first prize winners in the single dish classes for Apples with the number of competitors:—

DESSERT APPLES.—*Adam's Pearmain*, six entries, Mr. J. A. STIDSTON, with highly coloured fruits; *Allington Pippin*, 10, Mr. A. R. CARLISLE; *American Mother*, 8, Mr. J. A. LOUDON; *Ellison's Orange*, 5, Mr. J. A. STIDSTON, an excellent dish; *Blenheim Orange*, 14, Mr. F. M. VOKES, Southampton, well coloured fruits of good dessert size; *Charles Ross*, 13, Mr. A. H. PULLIN, Wallington, fine, well-coloured fruits; *Claygate Pearmain*, 3, Mr. W. B. WRIGHT, Wallington; *Cox's Orange Pippin*, 14, Mr. F. C. STROP (gardener Mr. A. Carpenter), West Hall, Byfleet, a very excellent dish; *Egremont Russett*, 3, Mr. J. H. LOUDON, Wye, for fruits of beautiful colour; *James Grieve*, 13, Mr. J. A. STIDSTON, highly-coloured fruits; *Lord Hindlip*, 6, Capt. M. DRUMMOND; *Margil*, 4, Mr. F. C. STROP; *Ribston Pippin*, 13, Mr. A. H. PULLIN, fruits of exceptional quality; *Rival*, 8, Mr. J. H. LOUDON, excellent fruits; *St. Edmund's Pippin*, 3, Mr. J. A. STIDSTON; *St. Everard*, 4, Mr. J. A. STIDSTON, richly coloured; *King's Acre Pippin*, 3, Sir H. WEBB (agent Mr. F. Dennys, Holme Lacey, Hereford); *Sturmer Pippin*, 4, Mr. W. B. WRIGHT.

For eight fruits of an early variety not named above, Lady Mary MORRISON, Tisbury, was awarded the first prize for choice, even fruits of Coronation, while for a late variety Mr. J. A. STIDSTON was first with a good dish of Winter Ribston or Orleans Reinette.

COOKING APPLES.—*Bismarck*, 7, Mr. F. C. STROP, with excellent fruits of high colour; *Blenheim Orange* (large fruits), 2, Mr. F. C. STROP; *Bramley's Seedling*, 4, Rev. C. G. KEAN; *Dumelow's Seedling*, 6, The EARL OF

BESSBOROUGH; *Ecklinville Seedling*, 5, Sir HENRY WEBB, an excellent dish; *Edward VII.*, 4, Mr. F. C. STOOP; *Golden Noble*, 5, Mr. F. C. STOOP, a grand dish; *Grenadier*, 5, the EARL OF BESSBOROUGH; *Lane's Prince Albert*, 10 the EARL OF BESSBOROUGH, excellent fruits of large size; *Lord Derby*, 9, Capt. M. DRUMMOND; *Crawley Beauty*, 3, Mr. F. C. STOOP, a fine dish; *Newton Wonder*, 8, Mr. J. H. LONDON, very large fruits; *Peasgood's Nonesuch*, 4, Sir H. WEBB, beautiful specimens; *Golden Spire*, 5, Capt. M. DRUMMOND; *Annie Elizabeth*, Mr. F. C. STOOP; *Rev. W. Wilks*, 6, the EARL OF BESSBOROUGH; *Stirling Castle*, 4, Sir H. WEBB; *Warner's King*, 8, Mr. J. H. LONDON; *The Queen*, 5, Mr. J. H. LONDON.

In the class for eight fruits of any variety not named above, there were nine competitors, and the first prize was awarded to Mr. F. J. LONG, Belmont, Surrey, for a good dish of Emperor Alexander.

For the best flavoured Apple not mentioned in the single dish classes, Mr. J. A. STIDSTON was first, out of eight competitors, with the variety -Gravenstein.

DESSERT PEARS.

DESSERT PEARS.—*Beurré d'Anjou*, 2, Rev. C. G. KEAN; *Beurré Bosc*, 3, Rev. C. G. KEAN, with large, shapely fruits; *Beurré Hardy*, 9, Capt. M. DRUMMOND, an excellent dish; *Beurré Superfin*, 7, Mr. J. H. LONDON, good fruits; *Conference*, 7, Rev. C. G. KEAN (gardener Mr. A. Basile), Woburn Park, Weybridge, an excellent dish; *Doyenné du Comice*, 6, Capt. M. DRUMMOND, very fine, well coloured fruits. *Durondeau*, 6, Rev. C. G. KEAN; *Easter Beurré*, 2, Rev. C. G. KEAN; *Emile D'Heyst*, 5, Capt. M. DRUMMOND; *Fondante d'Automne*, 5, Mr. F. C. STOOP, fine fruits; *Glou Morceau*, 3, Rev. C. G. KEAN, an excellent dish; *Josephine de Malines*, 6, Mrs. HELSHAM-JONES, Newbury; *Louise Bonne de Jersey*, 9, Rev. C. G. KEAN, fine fruits; *Marie Louise*, 7, Rev. C. G. KEAN; *Thompson*, 3, Mrs. HELSHAM-JONES; *Winter Nelis*, 3, Mrs. HELSHAM-JONES; *Pitmaston Duchess*, 7, Capt. M. DRUMMOND, a very good dish; *Margaret Marillat*, 6, Rev. C. G. KEAN, highly coloured and of fine size.

In the class for eight fruits of an early variety not named above, Capt. M. DRUMMOND, was first, out of nine entries, with a good dish of Doyenné Bussoc, and for a late variety, the same competitor was first with excellent fruits of Roosevelt.

Mr. A. P. BRANDT (gardener, Mr. J. W. Banks), Bletchingley Castle, Surrey, was first, with Comte de Lamy, in the class for the best-flavoured dessert Pear not enumerated in the single dish classes.

Our Report of other Fruit Classes and of the Competitive Vegetable Classes is held over till the next issue.

List of Cup and Medal Awards.

The following is a list of the awards made by the Council of the Royal Horticultural Society:—

CHALLENGE CUPS.

Coronation Cup.—To Messrs. G. BUNYARD AND Co., LTD., Maidstone, for the most meritorious group in the show.

Gordon-Lennox Cup.—To J. A. NIX, Esq. (gr. Mr. E. Neal), Tilgate, for the most meritorious exhibit of fruit by an amateur.

Sutton Cup.—To T. H. JONES, Esq., for the best collection of vegetables.

R.H.S. Cup for Vegetables.—To W. H. MYERS, Esq. (gr. Mr. Elland), Swanmore, for the competitor who secured the greatest number of first prize points.

George Monro Memorial Cup.—To G. MILLER, Esq., for the best exhibit of Grapes by an amateur.

National Chrysanthemum Society's Piece of Plate.—To Mr. H. J. JONES, Lewisham, for the best exhibit of Chrysanthemums.

Wigan Cup.—To Messrs. ALEX. DICKSON AND SONS, Newtownards, for the best exhibit of Roses.

Large Silver Cup.—To the Hon. VICARY GIBBS (gr. Mr. E. Beckett), Elstree for a collection of trees and shrubs; to Messrs. ALLWOOD BROS.,

Haywards Heath, for Carnations; to Messrs. ALEX. DICKSON AND SONS, Newtownards, for Roses; to J. A. NIX, Esq. (gr. Mr. E. Neal), Tilgate, for fruits; to KING'S ACRE NURSERIES, Hereford, for fruit trees in pots and picked fruit.

Small Silver Cup.—To Messrs. J. PIPER AND SON, Bayswater, for trees and shrubs; to Mr. L. R. RUSSELL, Richmond, for Clematis, etc., and also one for stove plants; to Messrs. DOBBIE AND Co., Edinburgh, for Dahlias, etc.; to Mr. G. PRINCE, Oxford, for Roses; to Messrs. SANDERS, St. Albans, for Orchids; to Messrs. STUART LOW AND Co., Enfield, for Orchids; to Messrs. BLACKMORE AND LANGDON, (Iverson-on-Avon, for Begonias; to Messrs. LAXTON BROS., Bedford, for fruits; to the RUDGWICK FRUIT SCHOOL, for fruits; and to Messrs. T. RIVERS AND SON, Sawbridgeworth, for fruit trees in pots.

MEDALS.

Gold.—To Messrs. G. BUNYARD AND Co., Maidstone—with congratulations—for fruit trees and fruits; to Messrs. SUTTON AND SONS, Reading, for vegetables, also with congratulations; to Mr. J. C. ALLGROVE, Slough, for fruit trees in pots; to the Hon. VICARY GIBBS (gr. Mr. E. Beckett), Aldenham House, Elstree, for vegetables; to Messrs. DOBBIE AND Co., Edinburgh, for Potatoes; to Mr. H. J. JONES, Lewisham, for Chrysanthemums; to Messrs. CHARLES WORTH AND Co., Haywards Heath, for Orchids; to Messrs. JAS. CYPHER AND SON, Cheltenham, for Orchids and foliage plants; to Mr. R. C. NOTCUTT, Ipswich, for fruits; to Mr. C. ENGELMANN, Saffron Walden, for Carnations; and to Mr. ELISHA J. HICKS, Twyford, for Roses.

Silver-Gilt Lindley Medal.—To Messrs. HILLIER AND SONS, Winchester, for trees and shrubs.

Silver-Gilt Hogg Medal.—To Messrs. J. CHEAL AND SONS, Crawley, for fruits; to Messrs. WATERER, SONS AND CRISP, Twyford, for fruits; to Messrs. G. G. WHITELEGG AND Co., Chislehurst, for fruits; and to STUDLEY COLLEGE, for fruits.

Silver-Gilt Flora Medal.—To Mr. E. BALLARD, Colwall, for Michaelmas Daisies; to Mr. AMOS PERRY, for hardy autumn flowers; to Mr. J. MATTOCK, Headington, for Roses; to Messrs. R. WALLACE AND Co., Tunbridge Wells, for trees and shrubs; to Messrs. WATERER, SONS AND CRISP, for trees and shrubs; and to Mr. CLARENCE ELLIOTT, Stevenage, for Alpines.

Silver-Gilt Banksian Medal.—To Messrs. CARTER PAGE AND Co., London Wall, for Dahlias; to Mr. J. B. RIDING, Chingford, for Dahlias; to Messrs. B. R. CANT AND SONS, Colchester, for Roses; to Messrs. FRANK CANT AND Co., Colchester, for Roses; to Mr. J. DIXON, Putney, for small rock garden; to Messrs. J. CHEAL AND SONS, for Topiary; to Messrs. WM. CUTBUSH AND SON, Highgate, for Topiary; to SYDNEY MORRIS, Esq., Earham Hall, Norwich, for trees and shrubs; to Mr. W. YANDELL, Maidenhead, for Chrysanthemums; to Mr. H. J. JONES, Lewisham, for Michaelmas Daisies; to Mr. W. WELLS, Junr., Merstham, for hardy flowers; to Messrs. WM. CUTBUSH AND SON, Highgate, for hardy flowers.

Silver Lindley Medal.—To Sir JEREMIAH COLMAN, Bt. (gr. Mr. J. Collier), Gatton Park, Reigate, for Orchids; to the Hon. VICARY GIBBS, Elstree, for shrubs of botanical interest; to Messrs. J. MACDONALD AND SON, Harpenden, for a grass garden.

Silver Hogg Medal.—To Mr. E. J. PARSONS, Worcester, for fruits; to Messrs. S. LOW AND Co., Enfield, for fruits; and to Messrs. DANIELS BROS., Norwich, for fruits and fruit trees.

Silver Flora Medal.—To Messrs. MAXWELL AND BEALE, Broadstone, for Alpines; to Mr. F. G. WOOD, Ashstead, for Alpines; to Mr. G. REUTHE, Keston, for shrubs; to Messrs. G. JACKMAN AND SON, Woking, for Clematis, etc.; to Mr. K. LUXFORD, Harlow, for Chrysanthemums; to Messrs. W. WELLS AND Co., Merstham, for Chrysanthemums; to Mrs. C. LEMON, Carlton Hill, London, for Lilium auratum; to Messrs. S. LOW AND Co., Enfield, for Carnations; to Messrs. W. TRESEDER, LTD., Cardiff, for Dahlias; to Mr. J. T. WEST, Brentwood, for Dahlias; to Messrs. DOBBIE AND Co., Edinburgh, for Roses; to the

Rev. J. H. PEMBERTON, Havering, for Roses; to Messrs. FLOXY AND BLACK, Slough, for Orchids; to Messrs. MANSELL AND HATCHER, Leeds, for Orchids; to Mr. H. N. ELLISON, West Bromwich, for Cacti and Ferns; to Mr. S. SMITH, Enfield, for Cacti; to Messrs. HARKNESS AND SON, Bedale, for hardy flowers; to Messrs. ISAAC HOUSE AND SON, Bristol, for Scabious; to Mr. G. REUTHE, Keston, for hardy flowers; to Messrs. RICH AND Co., Bath, for hardy flowers; and to Mr. E. SCAPLEHORN, Haywards Heath, for hardy flowers.

Silver Knightian Medal.—To Messrs. H. CHAPMAN, LTD., Rye, for vegetables.

Silver Banksian Medal.—To Mr. CHAS. TURNER, Slough, for Dahlias; to Messrs. J. CHEAL AND SONS, Crawley, for Dahlias; to Messrs. D. W. PRIOR AND SON, Colchester, for Roses; to Messrs. BOWELL AND SKARRAIT, Cheltenham, for Alpines and hardy flowers; to Messrs. R. J. BISTON AND SON, Bexley Heath, for Begonias; to Messrs. R. AND G. CUTHBERT, Southgate, for Streptocarpus; to Messrs. BAKERS, Codsall, Wolverhampton, for hardy flowers; and to Messrs. B. LADHAMS, LTD., Shirley, Southampton, for hardy Lobelias.

Bronze Hogg Medal.—To Mr. H. M. JONES, Letchworth, for Apples; to Mr. E. A. WATTS, Colchester, for fruits.

Bronze Flora Medal.—To Mr. J. J. KITTLE, Corfe Mullen, for Violets; to PRESTON HALL NURSERIES, Aylesford, for Carnations; to Messrs. JARMAN AND Co., Chard, for Carnations; to CHALK HILL NURSERIES, Reading, for Pelargoniums; to Messrs. G. GIBSON AND Co., Bedale, for Gladioli, etc.; to Mr. T. CARLILE, Twyford, for hardy flowers; and to Messrs. JOHN FORBES, LTD., Hawick, for Pentstemons.

Addenda.—Messrs. MANSELL AND HATCHER, Rawdon, Leeds, had a very fine group of Orchids, in which were a score or so of varieties of Cattleya Iris of their raising, and varying much in the fine colour of the flowers; they also showed a good selection of other hybrid Cattleyas and Laelio-Cattleyas and showy hybrid Odontoglossums. Cypripediums were well represented also, with a number of fine examples of the old favourite Odontoglossum grande and other Orchid species.

NATIONAL CHRYSANTHEMUM.

THE first meeting of the Floral Committee for 1922-23 was held in the R.H.S. Hall on Monday, September 18. Mr. W. B. Crane was elected chairman of the committee for the twenty-first time. Awards were made as follows:—

FIRST-CLASS CERTIFICATE.

Cissbury White.—An early-flowered white, incurved variety (I. b), free flowering and elegant. Shown by Mr. S. AISH, Cissbury, Dunstable.

Mrs. A. W. Thorpe.—A buff terra cotta market variety, very attractive (II., 1 b) Shown by Mr. A. W. THORPE, Lichfield.

Lichfield Early White.—A useful white market variety (II., 1 b). Shown by Mr. A. W. THORPE.

OCTOBER 2.—The Floral Committee met on this date in the gallery of the Holland Park Rink. There was a capital attendance, but few novelties. The following awards were made:—

FIRST-CLASS CERTIFICATE.

Mdme. E. David.—An early-flowering, stiff-petalled variety (II., 1 b), of rosy magenta colour; very distinct. From Messrs. W. WELLS AND Co., Merstham.

FIRST-CLASS MARKET CERTIFICATE.

Blanche de Poitou.—This fine early-flowering white Japanese variety, previously awarded a First-Class Certificate, was now granted a Market Certificate. Shown by Messrs. W. WELLS AND Co.

COMMENDATION.

September Gem.—A pretty, golden-yellow single variety (V., 1 b), and a good spray flower. Shown by Messrs. W. WELLS AND Co.

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

The History of the Moss Rose.—In *The Gardeners' Chronicle*, page 69, July 29th, Mr. Harman Payne states that from Gerard to Furber the evidence is purely on the negative side. I have an edition of Culpeper's *Complete Herbal*, in which the author states, on page 242: "What a pother have authors made with roses! What a racket have they kept! I shall add that red roses are under Jupiter, damask under Venus, white under the moon, and provence under the King of France." Culpeper lived in the middle of the 17th century, and evidently knew the Provence Rose. I do not know the number of my edition, and would suggest that if any reader has an original edition he may find therein further reference to the Provence Rose, or perhaps to the Moss Rose. I also have another book called *The Accomplished Housewife and Gentlewoman's Companion*, dated 1745: Printed by J. Newman, at The Bible and Sun, near the Chapter House in St. Paul's Churchyard. The Garden Calendar in this book states that the Musk and Monthly Roses are in flower in November. It appears that Monthly Roses have been grown many years in our English Gardens. *Mark Mills.*

Tomatos with Hard Patches.—Having noticed from time to time replies in your Answers to Correspondents columns on the subject of Tomato fruits with hard, green patches at the base, my experience may be of interest to Tomato growers. Up till about ten years ago, I was bothered with this defect in Tomatos, and I always noticed there were more green patches after hot, dry weather, which suggested to me that it was caused by a hardening of the skin of the fruit, due to an excessively dry atmosphere. I therefore syringed the house and closed the ventilators for about two hours every fine afternoon, well wetting the fruits and plants all over with a fine spray. From that time I have never seen more than an odd fruit or two with hard, green patches where I had previously had 12 lb. or more at a single picking. I may add that I usually grow about a ton of Tomatos each year, and am not troubled with any disease whatever. *W. R. Catt, Hodnet Hall Gardens, Market Drayton.*

Reversion in *Epipactis latifolia*.—Quite recently I found a curiously malformed plant of the above, or as it is sometimes named, *Helleborine latifolia*. A few of the flowers at the top of the inflorescence only were normal. The lowest bract carried two flowers of unequal size in its axil. The most common malformation consisted of three small flowers within the original one in place of the axis or column. The dorsal one often remained on the peduncle and the dorsal sepal remained with it at various heights on the peduncle, the ovary in all cases of abnormal flowers being suppressed. In many cases there were two or three lips, the supernumerary ones being younger and fresher than the original. There were three processes resembling filaments, in a thin and petaloid condition, but convolute. In some cases these filaments bore brown knobs on the top like imperfect anthers. The secondary flowers had pedicels, and some of the latter carried a bracteole, also an innovation. The crenate lip, with its short, recurved point, on the few normal flowers, showed the plant to be the typical *Epipactis latifolia*. It was growing under the shade of Beech trees in a wood, its usual habitat, with nothing to suggest the cause of reversion. *J. F.*

Dianthus Allwoodii.—Last season (1921) my *Dianthus Allwoodii* flowered so profusely all through the summer and right into late autumn that I then formed the opinion that they enjoyed a hot, dry time. Now I have had to considerably modify that opinion, for this season—a cool, moist one—the plants have been even better than last. I planted them out in March in some fairly good soil. They were in bloom in June, and have been so ever

since. Now, at the end of September, they have a miniature forest of stems, many of which are two feet high and carrying eight and ten buds and blooms each. There will evidently be plenty of bloom, so long as the weather remains open. All the attention they have had is removal of weeds and some hazel twigs placed among the stems to keep the blooms from the ground, and this assistance is, I think, better than stakes and ties. *R. B. Leech, Teddington.*

Obituary.

John Davis.—We learn with regret of the death of Mr. John Davis, which occurred on the 26th ult. For over twenty years Mr. Davis was gardener to the late Lord Glenconner at Wilsford Manor, Salisbury. He was a clever gardener, and particularly well known among the gardening fraternity of Wiltshire. About a year ago his health broke down, but not seriously, hence the end came with unexpected suddenness. Mr. Davis was 55 years of age; he leaves a widow and grown-up family.

TRADE NOTES.

Mr. C. T. Kew, the British Flower Shop, Nanking Road, Shanghai, will be glad to receive trade catalogues of nursery, horticultural, and florists' supplies.

THE adjourned Conference of the Chamber of Horticulture and its affiliated associations was held on Wednesday, September 27 last, under the chairmanship of the Controller of Horticulture, Mr. W. G. Lobjoit.

Those present were:—Messrs. G. W. Leak, W. H. Page, Geo. Shawyer, Geo. Monro, G. H. Barr (representing Chamber of Horticulture), Messrs. A. G. Daniels, A. T. Miller, E. C. Boughton, and W. F. Seabrook (Federation of British Growers), Messrs. C. J. L. Du Cann, E. Horton, and W. R. Oldham (Horticultural Trades' Association), Mr. A. W. White (British Florists' Federation), Mr. C. H. Shonlts (Lea Valley Growers' Association), Mr. F. W. Ladds (N.W. Kent Growers' Association), Mr. J. S. Brunton (Birkenhead Horticultural Trade Society), Mr. W. A. Binley (Royal Horticultural Society), Mr. C. H. Curtis (Non-Trading Societies), and the secretary, Mr. C. M. Matthews.

The minutes of the previous conference having been read and approved, the chairman asked the meeting to consider the report of the committee appointed by that conference. This report, copies of which had been previously posted to members, dealt with the terms of reference as passed by a majority vote at the first conference, and the committee's decision, not to attempt any propositions thereon, but suggesting the advisability of a round table conference. Following discussion, it was unanimously agreed that the report be received and that the committee be discharged. It was ruled that the Terms of Reference were thus dispensed with, and would not apply to a new committee.

The conference then unanimously passed the following resolution:—

"That the whole question of organised horticulture be referred to a committee to report to an adjourned conference."

It was agreed that the membership of this committee be formed as to five of the Chamber of Horticulture (to include representatives of the affiliated commercial associations), three of the Federation of British Growers, and two of the Horticultural Trades' Association.

Mr. W. G. Lobjoit was unanimously requested to act as independent chairman to this committee, to which he agreed. The committee will, therefore, meet at the offices of the Ministry of Agriculture, Whitehall Place, on Friday, October 20.

ANSWERS TO CORRESPONDENTS.

WESTERN ORCHARDS.—*Correction.*—We regret that an error crept into the article on "A View of Western Orchards," on page 192. In the third column of that page, line 10, the words "would not bear comparison" should read "would not fear comparison," which, of course, is an entirely different matter.

NAMES OF PLANTS: *M. H. E. A.*, *Berberis aristata*; *B.*, *Ligustrum chinense*; *C.*, *Viburnum lantana*; *D.*, *Cotoneaster frigida*; *E.*, *C. orientalis*; *F.*, *Colutea arborescens*; *Roses*, 1 and 2, we cannot undertake to name florists' flowers.—*T. G.*, *Datura Stramonium* (the Thorn Apple), a native.—*R. C.*, *Hibiscus syriacus* var. *Painted Lady*.—*W. A.*, *Lonicera involucrata*.—*A. M.*, *Myrtus Ugni*, a native of Chili.—*J. S. C. 1.*, *Abies nobilis*; 2, *Sequoia sempervirens*; 3, *Cupressus Lawsoniana*; 4, *Thuja plicata*; 5, *Tsuga canadensis*; 6, *Cornus Kousa*.—*F. E. W.*, *Artemisia lactiflora*.

ONIONS DISEASED: *P. E.* The Onions are affected with disease caused by the fungus *Botrytis cinerea*, Pers. In the early stages the fungus may be kept in check by spraying with a solution of potassium sulphide (1 oz. of potassium sulphide in 3 gallons of water). As this does not kill the fungus already in the tissues it cannot be regarded as a cure, but it is a useful preventive measure, and unless it is resorted to the disease spreads rapidly, especially during damp, warm weather. Badly infected bulbs should be destroyed. The soil will be infected, therefore Onions should not be planted on the same ground for at least three years.

PLANTING FRUIT TREES: *Amateur.* We advise you to plant two-year-old trees in preference to maidens and to plant them from fifteen to eighteen feet apart each way.

TO PRESERVE CUCUMBERS: *T. A.* Cucumbers could be treated like other vegetables, for keeping, by sterilising. Clean the fruit and plunge them into boiling water to which has been added a small quantity of salt and a little soda. After about five minutes' immersion remove and plunge them in cold water. The skins, when cold, may then be removed. This treatment also keeps the flesh a good colour. Place the Cucumbers in sterilising jars, closely packed, and fill with water. After placing the caps of the bottles in position and making sure they are secure, place the latter in the sterilising vessel, and warm the water gradually to 190° to 212° Fahr., according to the size of the fruit, and maintain this degree of warmth from 2 hours to 2½ hours, again according to size. Thereafter remove the jars to a draught-proof place to cool. After two or three days, carefully test the caps of the bottles to make sure that they are perfectly airtight and secure.

WEEDS IN POND: *J. V.* Ascertain the amount of water contained in the pond by multiplying together the average length, breadth, and depth, and multiplying the result (in feet) by 6½, the approximate number of gallons in a cubic foot. This will give you roughly the number of gallons of water in the pond, and one pound of copper sulphate should be used to every 100,000 gallons. Break the copper sulphate into small portions, and tie it in a bag of loosely woven material, such as coarse sacking. Then tie the bag behind a boat and draw it along in the water in parallel lines about ten to twenty feet apart. The copper sulphate will not injure live stock if care is taken not to allow the bag to remain stationary in one part of the pond, but it would be as well not to allow animals to drink the water until twenty-four hours after the operation.

Communications Received. *A. D. C.*—*E. T. & S.*, *A. H. F.*, *G. W. W.*, *E. F.*, *G. M.*—*F. B.*, *H. G. W.*—*G. A. P.*—*H. E. Z.*, *J. McC.*—*A. J. P.*—*G. R.*, *E. M. B.*—*H. P.*, *W. K.*—*A. H.*, *G. F.*—*C. N.*—*H. G. F.*—*J. M.*—*Amateur*—*H. C.*—*D. R. W.*

MARKETS.

COVENT GARDEN, Tuesday, October 3, 1922.

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Adiantum deco-		Lily of the Valley,	
rum, doz. bun.	10 0-12 0	per doz. bun.	24 0-36 0
—cun-atum,		Marguerites, yel-	
per doz. bun.	6 0-8 0	low, per doz	
Asparagus plu-		bun.	2 0-2 6
mosus, per bun		Michaelmas Daisies	
long trails, 6's	4 0-5 0	per doz bun. . .	9 0-15 0
med. sprays . .	2 6-3 6	Orchids, per doz.	
short	1 0-1 6	—Cattleyas . .	12 0-18 0
—Sprengeri, per bun.		—Cypripediums	6 0-9 0
long sprays . .	2 6-3 0	Pelargonium,	
med.	1 3-1 6	per doz. bunch,	
short	0 9-1 0	double scarlet	10 0-12 0
Asters per doz bun.		Physalis per doz	
—White	2 0-4 0	bun.	8 0-12 0
—Coloured . .	2 0-4 0	Richardias (Arums)	
Carnations, per		per doz. . . .	6 0-7 0
doz. blooms . .	2 0-3 0	Roses, per doz.	
Croton leaves,		blooms . . .	
var. per bun.	2 6-4 0	—Frau Karl	
Chrysanthemum		Druschki . .	1 3-1 6
pink, per doz.		—Madame A.	
bun.	4 0-6 0	Chatenay . .	1 6-2 6
—bronze . . .	4 0-6 0	—Melody . .	1 6-2 6
—white . . .	6 0-8 0	—Niphotos . .	1 6-2 6
—yellow . . .	4 0-6 0	—Ophelia . .	2 0-3 0
—per doz. blooms		—Liberty . .	2 0-3 0
—white . . .	2 0-6 0	—Richmond . .	1 6-2 6
—yellow . . .	2 0-3 0	—Sunburst . .	1 6-2 6
—pink . . .	2 6-3 0	—White Crawford	2 0-3 6
—bronze . . .	2 0-2 6	Scabiosa caucasica,	
Fern, French per		per doz. bun	3 0-4 0
doz. bun. . .	1 0-1 3	Statice, per doz. bun.	
Gardenias, per		—mauve . .	4 0-6 0
box	4 0-5 0	—white . . .	4 0-6 0
Gladiolus Halley,		—yellow . .	4 0-6 0
per doz. spikes	1 6-2 0	Smilax, per doz	
—Scarlet, per doz.		trav.	3 0-5 0
spikes . . .	2 6-3 0	Stephanotis, per	
Heather, white,		72 pips . . .	3 0-4 0
per doz. bun.	4 0-10 0	Stock, double	
Lapageria per		White . . .	6 0-10 0
doz.	3 0-2 6	Sweet Sultan,	
Lilium . . .		white, per doz.	
—longiflorum .	4 6-5 0	bun.	2 0-3 0
—spectosum long		Violas, per doz	
per doz. . .	3 0-1 6	bun.	2 0-2 6
short	2 0-3 0	Violas, single . .	2 6-5 0

REMARKS.—Similar conditions of trade prevail as last week. Asters, Gladioli, and many other outdoor flowers begin to show signs of autumn; many subjects have been damaged by heavy rains and cold

weather, and are practically unsaleable. Chrysanthemums are much in evidence; there is an ample supply of coloured blooms. White Chrysanthemums are a better trade, and their prices are firmer, especially for disbudded blooms, the supply being slightly reduced. Many of the earlier varieties are getting over, but some fine exhibition blooms are now on sale. Stephanotis and Lapageria are almost finished for the season. A few Tuberoses and White Bouvardia are the newest arrivals. Other choice flowers include Lily of the Valley, Gardenias and a few Eucharis. Orchids are still a very uncertain quantity; Cypripediums are making their first appearance for the season. Lilies show no change in trade, and supplies of these flowers are sufficient for present requirements. Single Violets are more plentiful and in better condition. Trade appears to be more brisk in hardy foliage, such as Oak, Maple, Prunus and Physalis.

Fruit: Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Apples,		Lemons	
English, per bus.		—Murcia . .	18 0-20 0
—Stirling Castle	4 0-5 0	Melons	
—Warner's King	4 0-5 0	—Bronze . .	22 0-24 0
—Bradley's		—English and	
Seedling . .	5 0-6 0	Guernsey . .	2 0-6 0
—Worcester, half		Nectarines . .	3 0-18 0
bushel . . .	2 6-3 0	Nuts—Brazilis	40 0-44 0
—James Grieve	2 0-2 6	Oranges,	
—York Imperial	29 0-25 0	—S. African	
Nova Scotia . .	14 0-16 0	—Navel . . .	18 0-21 0
—Ribston Pippin	16 0-16 0	—Seedlings . .	16 0-18 0
Bananas, singles	11 0-15 0	Peaches, per doz.	4 0-24 0
—doubles . .	17 6-22 6	Pears, half bus.	
Blackberries, 12lbs	1 6-2 6	—Beurre Hardy	3 0-4 0
Figs, per doz. . .	3 0-8 0	—Beurre Superfin	3 0-4 0
South Africa . .		—Conference .	2 6-3 0
Grape-Fruit . .	18 0-20 0	—Calabasse . .	3 0-4 0
Grapes		—Souvenir du	
—Alicante . .	1 0-1 9	Congres . . .	3 0-5 0
—Black Ham-		—Pitmasdon .	3 0-4 0
burgh	0 10-2 6	—Hessle per bus.	4 0-5 0
—Cannon Hall .	2 6-6 0	—Californian, case	16 0-17 0
—Muscat . . .	1 6-6 0	Pineapples . .	2 0-5 0
—Almeria, barrel	10 0-18 0	Plums,	
Lemons		—Damsons . .	2 0-2 6
—Naples . . .	30 0-40 0	—Prunes . . .	2 6-3 0
		—President . .	8 0-10 0

REMARKS.—A rather better tone has prevailed during the past week, and in some things values have been inclined to harden. Choice fruits, such as Grapes, Peaches, and Figs, have sold fairly well, after a rather slack period. English Apples are in slightly better demand; large cookers are inquired for, and Worcester Pearmain if of good colour, slightly higher in price. Apples from Nova Scotia have, so far, been somewhat lacking in colour and have, in consequence, not sold freely. Plums are getting over and the few fruits of

President and Magnum Bonum arriving are realising satisfactory prices. Prunes and Damsons are, however, comparatively cheap. The Cucumber trade is better, supplies showing a slight expansion. Tomatos are a steady trade, and their values are being maintained, as the quantities of Dutch Tomatos are lighter and there are comparatively few Tomatos arriving from Jersey. Green vegetables are abundant and their prices very low. Ample stocks of Potatos are on offer and the prices are unchanged.

GARDENING APPOINTMENTS.

Mr. D. Wilmshurst, previously for eight years Gardener to M. F. YORKE, Esq., Hillbrook Place, Iwer Heath, Bucks, as Gardener to D. A. BEVAN, Esq., J.P., Burloes, Royston, Hertfordshire. (Thanks for 2s. for R.G.O.F. Box.—Eds.).

Mr. E. Belton, for the past two years General Foreman at Hole Park, Rolvenden, Kent, and previously for 18 months Gardener to J. H. MACKAY, Esq., East Ridge, Totteridge, Hertfordshire, as Gardener to H. SANDS, Esq., Beacon Hall, Benenden, Kent. (Thanks for 2s. for R.G.O.F. Box.—Eds.).

Mr. E. C. Pullin, for nearly four years Gardener to Mrs. TUBERNE, Coedardhyglyn Park, nr. Cardiff, as Gardener to SIDNEY HILL, Esq., Langford House, near Bristol.

Mr. Robert A. Hatton, who has been laying out the grounds at Coombe Green, Kingston Hill, for Major IAN BULLOUGH, has been appointed Gardener-Bailiff to the same gentleman at Drury Lane Farm, Red Marley, Gloucestershire.

Mr. Geo. Gilbert, for the past thirteen years and eight months Gardener to Mrs. HOLBECK, The Grange, Farnborough, nr. Banbury, Warwickshire, as Gardener to RONALD HOLBECK Esq., at the same place. (Thanks for 1/- for R.G.O.F. Box.—Eds.).

Mr. R. C. Anderson, as Gardener to Lady TATE, at Bodrhyddan, Rhuddlan, Flintshire.

Mr. Howard Grace, during the past month General Foreman at Belton Gardens, Grantham, and previously at Lambton Castle, Shipley Hall and Elvaston Castle, as Head Gardener to SIR EDWARD MOUNTAIN, Bart., Norbury Park, Dorking. (Thanks for 2s. 6d. for R.G.O.F. Box.—Eds.).

Mr. L. W. Apps, for the past eight years and nine months Gardener to the late SIR EDMUND and LADY LODGE, of Leonardslaw, Horsham, Sussex, as Gardener to JAMES GROVES, Esq., Heathfield Park, Sussex. (Thanks for 2s. 6d. for R.G.O.F. Box.—Eds.).

HORTICULTURAL DIRECTORY AND YEAR BOOK

The HORTICULTURAL DIRECTORY is to be republished for 1923, and revision forms have been sent to all gardeners included in the lists. Will any Head Gardener who has **NOT** received a form kindly fill up the form below, and return it to us in an open envelope (postage a halfpenny)? In this way a wrong or out-of-date entry which might otherwise remain in the new edition can be corrected.

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THE

Gardeners' Chronicle

No. 1868.—SATURDAY, OCTOBER 14, 1922.

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 50.9.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, October 11, 10 a.m. Bar. 30.1; temp. 66°. Weather—Sunny.

Celery growing in the United States.

During recent years the cultivation of Celery in the United States of America has been extended to an enormous extent, although within comparatively recent times Celery was considered a novelty in that country and found only on the tables of a very few. Mr. W. R. Beattie, of the Horticultural and Pomological Investigations Section, Bureau of Plant Industry*, states that commercial Celery growing in the United States finds its greatest development in the general region of the Great Lakes, in Florida, and in California. In Florida the crop is largely grown on "hammock" lands and the drained lake-shore areas of the counties of Orange, Manatee and Hillsborough. The soil is very similar in the Great Lakes region, although not so old in its formation. In California the crop is grown over a wide area. As the seasons in these districts vary, Celery is available for use over the greater part of the year. The earliest Celery is produced in northern New Jersey and southern New York, the Californian crop being available during the winter and the Florida crop during the early spring months. Beside the blanched leaf stems the seed of Celery is used extensively for flavouring soups and other dishes, whilst the fleshy root is often used in soups or cooked in small

* U.S. Department of Agriculture, Farmers' Bulletin, No. 1269.

portions and served with white sauce or "drawn" butter. The most successful growers in the north-eastern section manure their ground with from 1,400 to 1,800 pounds of high-grade commercial fertiliser, containing, as a rule, four per cent. of nitrogen, eight per cent. of phosphoric acid, and six or seven per cent. of potash. This is followed by one or two dressings of nitrate of soda or sulphate of ammonia during the growing season. The Celery growers of Florida frequently apply as much as 4,000 pounds of fertiliser to the acre. Most of the seed is imported, and an interesting fact, discovered at the Massachusetts Experiment Station, is that four-year-old seed yields plants with greater freedom from disease and is in many respects preferable to strictly fresh seed. It is estimated that there are 14,000 Celery seeds to an ounce, and that 21,000 to 60,000 plants are required to plant an acre, according to planting methods and distances. Plants comprising the late or main crop are grown in cold frames or in specially-prepared field beds. For the extremely early crop, the plants are, as a rule, transplanted into trays and grown in greenhouses or cold frames. It is found that the transplanting has a value in that the tap-root is broken, causing large masses of fibrous roots to form. The plants that remain in the seed bed send this tap-root far down into the soil, so that such plants form very few side roots and consequently do not transplant in the field so satisfactorily. They are sometimes grown on benches in greenhouses, and in this case when the plants are about one-and-a-half inches high, a knife is run beneath them for the express purpose of cutting off the taproot, six to eight days before the plants are to be set in the field. The usual method of planting is in single or double rows four or five feet apart, with the plants six inches apart in the rows. Where space is limited, the plants are set in solid beds eight or ten inches apart in each direction. As Celery is a moisture-loving plant, the crop is irrigated, and the three systems of applying water are (1) the overhead-sprinkler system; (2) the furrow or surface system; and (3) the underground or sub-irrigation system. Although blanching is largely practised by the common method of earthing, boards and specially prepared paper are also extensively used; the early Celery is usually blanched by means of boards or paper. Boards are held in position by stakes, and the tops are sloped slightly downward; the depth of the board is ten inches. After eight or ten days, when the Celery has grown so that the centre leaves are even with the tops of the boards, the latter are drawn together more closely and fastened in place by means of wire spanners. It takes from fifteen to twenty-four days to effect complete etiolation, and the boards are used several times during the one season. The paper used is waterproof, and about ten or twelve inches wide. The paper is unrolled along the rows and held in place by means of stakes, or more often by special wire brackets. The varieties most largely grown are Golden, Self-Blanching, Boston Market and Giant Pascal.

Dahlia Conference at Westminster.—A Conference on Dahlias, under the auspices of the National Dahlia Society, will be held in the R.H.S. Lecture Room, on Tuesday, October 17, at 4.30 p.m. Sir Frederick W. Keeble, F.R.S., will preside, and papers will be read by Mr. T. Hay, Superintendent of Regent's Park, on "Dahlias for Parks and Gardens," and by Mr. J. T. West, Brentwood, on "Exhibiting Dahlias." All persons interested are invited to attend the meeting, whether members of the National Dahlia Society or not.

Fruiterers' Company at the Mansion House.—The Master of the Fruiterers' Company made the customary presentation of fruit to the Lord Mayor on Thursday, the 5th inst. Subsequent to the presentation, the Lord Mayor gave a dinner at the Mansion House, the guests including the Master, Wardens, and Court of the Company.

Sale of the Millbank Orchids.—The second and final sale of the collection of Orchids brought together by the late Alderman William Bolton, Millbank, Wilderspool, Warrington, was conducted by Messrs. Protheroe and Morris, at Millbank, on Tuesday, the 3rd inst., and the two following days. In the sale of the first portion of the collection, in May, 10,000 plants were disposed of, and the remainder, comprising about 13,000 plants, with 16 extensive greenhouses, hot-water piping, a boiler, brickwork, and a large quantity of flower pots, have now been sold. Remarkably good prices were obtained for the houses and building material, but the Orchids realised comparatively low prices, ranging from five shillings to ten guineas per lot. The plants were, for the most part, in excellent condition, and many exceptionally fine varieties were amongst them, while a large number of home-raised seedlings from the finest parents were also included. There were also paintings of many of the plants at the disposal of purchasers of the first lots in which such plants occurred, on payment of five shillings for each painting, but upon the understanding that they were to be loaned for copying, if required, by purchasers of succeeding lots. Purchasers came from all parts of the British Isles, and there was a large attendance of specialists. This sale finally disperses one of the largest and most comprehensive collections of Orchids in the kingdom.

A Nut Growers' Association.—America boasts of a nut growers' society under the name of Northern Nut Growers' Association. The Society met at Rochester, New York, on September 7 and 8, when papers were read on the different phases of Nut culture: the improvement and utilisation of Nuts; and an explanation by Dr. R. T. Morris, of New York, of his method of grafting, based on surgical principles. Local nurseries and Nut orchards in the vicinity were visited, and a Walnut tree was planted in Highland Park. As showing the enthusiasm of the members, one pledged himself to obtain one hundred new recruits within a year, while ten others promised to bring in ten new members each in the same period.

Fungi on Royal Deeside.—The valley of the Dee, near the head of which nestles amid sylvan beauties their Majesties' highland home, Balmoral Castle, is rich in various species of mycetozoa and fungi. For some time past organised search parties have been at work over large tracts of woodland with the object of making a complete classification and detailed account of the mycetozoa to be found in the woods this year. Mr. Lawrence Ogilvie, M.A., B.Sc., The Botany School, Cambridge University, diagnosed the fungi, and the Rev. W. Cran, B.D., Skene, Aberdeenshire, no mean authority on the subject, lent valuable assistance. This year it was found there was a marked scarcity of the larger fungi, the great drought of 1921 leaving the ground extremely dry. Occasionally, however, bright patches of Amanita muscaria were found, but these were generally of poor size and badly eaten by slugs. The usual species of Milky fungi (Lactarius) were seldom seen, but the Chantarelles, Boletus, and Russula rubra were more frequently met, and the Small Puffball (Lycoperdon gemmatum) was not uncommon. In the beautiful woods of Crathes, owned by Sir Thomas Burnett, Bart., of Leys, Crathes Castle, were found in moist and shady spots, clusters of the bright Coral fungi (Clavaria), and a fine, grey one (Clavaria cinerea) was especially abundant there. On decaying wood species of Poria and Stereum were common, while beautiful growths of Stereum hirsutum decorated fallen logs with their pale orange brackets. One of the most conspicuous of fungi in the woods just now is the Birch Polypore (Polyporus betulinus), the beautiful snow-white, bracket-like fructifications of which seem to harmonise so delightfully

with the silvery bark of the decaying Birch trunks. The Black Spot of Sycamore leaves (*Rhytisma acerinum*) had evidently been exceedingly destructive this year, while on young trees the white mildew (*Uncinula aceris*) was much in evidence. Scarcely a Birch tree was found free from leaf rust (*Melampsoidium betulinum*). On Sycamore leaves the ravages of the gall-forming mite, *Phyllocoptes acericola*, were found on every hand, its presence betrayed by the premature reddish tints which the leaves had taken on. Alder leaves were ornamented with the globular galls of the mite, *Eriophyes laevis*. The mycetozoa, though more difficult to find, reward the searcher with a variety of form and colour sufficiently diverse to recompense even the impatient tyro. The acquaintance of many old friends was renewed this year among the myxomycetes, and several species were found which are regarded by the highest authorities as of rare occurrence in the British Isles. Among species fairly common to the district were found *Physarum viride* and *P. nutans*, *Didymium squamulosum* and *D. melanosperrum*, *Leocarpus fragilis*, *Stemonitis fusca*, *S. dactyloides* and *S. hyperopta*, *Comatricha nigra*, *Cribbaria argillacea*, *C. vulgaris* and *C. rufa*, *Tubifera ferruginosa*; *Trichia varia*, *T. decipiens* and *T. Botrytis*; *Arcyria cinerea*, *A. denudata*, *A. nutans* and *A. incarnata*. The quest was further rewarded by the discovery of a few rare species. In the woods of Finzean were found *Colloderma oculatum*, which was constituted a new genus and new species on the strength of a specimen gathered in Skene (near Aberdeen) in 1910. Another rare species, *Licea pusilla*, so far restricted to Scotland, was obtained in the woods of Corsedarder. *Cratichneumon* provided a specimen of the exceedingly rare *Physarum globuliferum*, which was recorded in Britain for the first time at Ballogie—situated some twenty miles farther up the Dee valley—in 1913.

Carlyle and Tree Planting.—In connection with the forthcoming sale of Keston Lodge, near Bromley, in Kent, it is of interest to observe that the Lodge and grounds were on several occasions lent to Thomas Carlyle by the then Lord Derby, and in a secluded part of the woodlands, shaded by Oak and Spanish Chestnut trees and surrounded by underwood of Azalea and Rhododendron, the great author did much of his work. A summer house to his memory was erected on the spot, and a suitably worded tablet attached to the building records the fact. When on his deathbed Carlyle planted a number of acorns from trees in the grounds of Keston Lodge in pots of soil which were taken to his house in Cheyne Walk by one of the gardeners. The adjoining Holwood Park, once the home of Pitt, the great statesman, with its Brito-Roman camp and Wilberforce Oak are well known to visitors.

The Value of Grading Apples.—Some interesting facts on the Canadian Apple trade with Great Britain were given by Mr. J. Forsyth Smith, Canadian Fruit Trade Commissioner in the United Kingdom, at meetings held in various fruit growing provinces in Canada during the past summer. Mr. Smith described the British system of selling on consignment, and referred to the advantage of buyers being able to see the fruits and judge of their grade, standard, quality and condition before buying. He stated that certain packs regularly sell in the United Kingdom markets at a premium of 7s. per box over others of the same grade. He referred to one outstanding instance of a barrel Apple packer who never fails to receive from 3s. to 5s. per barrel over the average market value for the same variety, and whose premium at times has reached 15s. Another packer of high reputation realised for his fruits of Baldwin Apples 60s. for No. 1 grade, 52s. for No. 2, and 45s. for No. 3 at a time when the market range for this variety was, No. 1 40s. to 51s., No. 2 37s. to 43s. and No. 3 30s. to 34s. Thus, for his No. 3 grade he was realising almost as much as other growers were for their No. 1 grade. The most popular Canadian Apples in our markets, in their order of merit, are, according to Mr. Smith, Jonathan, Newtown Pippin, Cox's Orange Pippin, Winesap, Spy, McIntosh, Spitzenberg, Wealthy, and Winter Banana.

Mr. Courtney Page.—Mr. Courtney Page, the Hon. Secretary of the National Rose Society, is a keen amateur gardener, and as such has acquired considerable reputation as an amateur rosarian who, during the past thirty years, has tested in his garden at Earlsdoms, Ridgeway, Enfield, most of the Roses put into commerce during that period. But it is chiefly as the secretary of the National Rose Society that Mr. Page has become famous. Before taking up the secretarial duties in 1914, Mr. Courtney Page already had a wide experience in the management of the Society, as he was a member of its Council and of its Exhibition and General Purposes Committees for many years previously. He occupied the secretarial position during the very trying war period, when, as in the case of so many other horticultural societies, the membership suffered considerably; indeed, at the end of 1918 the total membership of the N.R.S. had fallen to 3,800. Since then, however, largely due to the forward policy adopted by the Council of the National Rose Society, but in no small measure to the initiative and enterprise of Mr. Page, the Society has flourished in a most extra-



MR. COURTNEY PAGE.
(HON. SECRETARY OF THE NATIONAL ROSE SOCIETY.)

ordinary manner, until at present the membership is over 9,000, and new members are being added at the rate of about twenty per day. The exhibitions held by the N.R.S. are among the wonders of the horticultural world, and never before in the history of the Rose has the public had such an opportunity of seeing splendid Roses displayed in so delightful a way as on the occasion of the exhibitions at Regent's Park, Wolverhampton, and the R.H.S. Hall this year. No fewer than 14,000 people visited the exhibition held in Regent's Park, and it will be readily conceded that it is no small task to make suitable arrangements for such a wonderful show and for the accommodation of so many people, and these arrangements it falls to the lot of the secretary to make. The Rose is our national flower, and the National Rose Society exists to encourage, extend, and improve its cultivation, which it does, not only by means of its exhibitions, but also by its excellent publications, to which every member is entitled. The Society is extremely fortunate in having as its Hon. Secretary a gentleman who can bring to his office the ability and enthusiasm which Mr. Courtney Page possesses, and it is a pleasure to us to publish his portrait.

Distribution of Surplus Bedding Plants in the London Parks.—The surplus bedding plants at the London County Council parks will be distributed to the public between the hours of 9 a.m. and 11 a.m. on Saturday, October 14,

1922. Persons desiring to participate in the distribution should make personal application to the officer in charge at the various parks. Plants will not be handed to children under the age of 14 unless they present a note from their parents or teachers.

Allotment Society's Dinner.—In celebration of the passing of the new Allotment Act, the National Union of Allotment Holders is entertaining Sir Arthur Boscawen and other Parliamentary friends of the movement at dinner on the 25th inst.

Bulletin of the Chamber of Horticulture.—Though scarcely so interesting to the general reader as was the first issue, the newly published Part 2 of Vol. 1 of the *Bulletin* of the Chamber of Horticulture is in many respects more important than its predecessor. Mr. W. G. Lobjoit, the Controller of Horticulture, gives his impressions of horticultural conditions in the United States of America, and has some very interesting things to say about the flower trade and the horticultural Press of the United States. With regard to the latter, he observes "the vast area and the complex conditions existing in America have had an effect upon the horticultural Press. The horticultural publications of America are many and diverse in character; some of them very enterprising, some of them almost sensational, and many of them informative, but there is not, and there cannot, be any journal of unquestioned authority equally respected in all parts of the States, as is the case with several journals in this country." Articles useful for reference purposes include: "The Food Habits of Wasps," by Mr. E. B. Watson, illustrated; "Narcissus Culture in the Scillies," by Major Dorrien-Smith; a report of the proceedings of the International Commercial Horticultural Federation, "The Testing of Horticultural Seeds"; and "In Parliament," which is a record of Parliamentary matters of interest to the horticultural trade. There is also an appreciation and portrait of Mr. G. W. Leak, President of the Chamber.

Popularity of the Gladiolus in America.—At the American Gladiolus Society's exhibition, held in Kalamazoo, Michigan, in August last, exhibitors came from places a thousand miles apart. It is recorded that one specialist at Connecticut, Massachusetts, cultivates no fewer than thirty-eight acres of Gladioli.

The Late Mrs. Berkeley of Spetchley.—It seems very right and fit that the passing away of such a noted and successful horticulturist as Mrs. Berkeley of Spetchley, should receive more than passing notice in the pages of *The Gardeners' Chronicle*. Mr. J. T. Bennett Poë writes:—Cultivation of a very high order has been for years the feature of the vast herbaceous borders in her garden, where plants have been grouped to make a notable garden picture. The practical outcome of years of patient selecting and seeding her strain of Primroses has been the very fine exhibits at the spring shows of the R.H.S. in both 1921 and 1922, when the groups of plants and cut blooms were awarded silver medals. Great has been the demand for seeds of this remarkable strain, which produces blooms of great size and with a large range of very varied colours, and for the first time seed has been procurable this year. Soil and climate seem very suitable in Worcestershire for the Primula family, and the vigour and size of the plants shown at Vincent Square was much commented on. Narcissus, too, received her attention in cross-breeding for many years, and a successful result was shown last spring at Vincent Square, where a white trumpet variety received an Award of Merit. It was as beautiful a variety of the white trumpet section as any yet shown, being tall, strong, and of faultless form and colour. It was a pleasure to meet Mrs. Berkeley, a lady of charming personality, very gracious and human, and a privilege to be personally conducted around the garden she so deeply loved. Very remarkable was the development of the garden under her skilful care during the many years she resided at Spetchley. When she began to work on it the chief items of importance were the fine old trees in the grounds.

notably the Cedars sent there by Evelyn to Sir Robert Berkeley, which, happily, are still flourishing and in fine condition. Letters now in the British Museum from Sir Robert Berkeley to Evelyn refer to the Cedars here mentioned. During the war, when there was an endeavour to get people to grow garden produce on every available scrap of ground, Mrs. Berkeley persuaded the tenants and cottagers on her husband's estate to enter into the project, and so determined was she to make it a success that she bought a motor-lorry, learned to drive it, and used to go around in the early morning and collect the baskets of vegetables and take them to the market at Pershore, and seldom returned to Spetchley until one or, sometimes, two o'clock in the afternoon. Thus the growers had the full benefit of their labours. It would require much time and space to tell fully of the memorable work Mrs. Berkeley did in connection with the war, and the colony of some twenty to thirty Belgian refugees, housed in cottages and generally looked after until the armistice, and also of the entertainments, both at Worcester and at Spetchley, in aid of the funds for the disabled men of the Worcestershire Regiment.

Appointments for the Ensuing Week.—

Monday, October 16.—National Chrysanthemum Society's Floral and Executive Committees meet at R.H.S. Hall. Tuesday, October 17.—Royal Horticultural Society's committees meet; lecture by Mr. R. G. Hatton on "Fruit Stocks," at 3 p.m. Wednesday, October 18.—Hertford Horticultural Society's meeting. Thursday, October 19.—Manchester and North of England Orchid Society's meeting. Friday, October 20.—Paisley Florists' Society's meeting; Eastbourne Horticultural Society's meeting; Carnwath Chrysanthemum Society's show. Saturday, October 21.—British Mycological Society's combined foray with Ecological Society.

"Gardeners' Chronicle" Seventy-five Years

Ag.—*The Administration of the Allotment System.*—In most of the Rules for the guidance of allotment tenants that we have seen, there has been what we are very sure is a far too detailed statement of the obligations under which these tenants are supposed to lie. The men are, in fact, made children of: that species of wardhood, often condemned in these columns, in which some proprietors keep their tenantry, is exhibited in an excessive degree; the men are not treated as *men*, but as those whom, not only is it necessary to restrain on all sides, but to whom it is also necessary on all sides to point out the restraint which hems them in. And instead of feeling the entire independence—so far as this goes—of the man on whom, as he pays his rent in return for his occupation, there rests no obligation other than that which spontaneous respect or friendship imposes: the occupier of 40 perches of land is, if possible, taught, at all events he is told, that he owes much to his *Patron*, the owner of the field—a debt, indeed, which it becomes him by extra morality and submissive respect to acknowledge as plainly as possible. Not altogether a bad lesson either; but one which ought to be taught—not by rote from the conditions of his lease, but—by the experience during years of his landlords' conduct. Tell the man in the *lease* that it is wrong to get drunk, to steal, to work his ground on the Sabbath, to curse and swear! Do you think that he does not already know all this? Bind him down not to trespass on his neighbour's land or take his goods! Do you not think that by interfering in this way between them you lower them to the status of children, or of imbeciles unable to take care of themselves? We submit that your relations to your allotment tenantry—as to all your other occupying tenants—are two-fold, embracing that of Landlord, and, apart from this, that of "*Neighbour*."—*Gard. Chron.*, October 16, 1917.

Publications Received.—*Textbook of Landscape Gardening.* By Frank A. Waugh. Illustrated. Chapman and Hall, Ltd., 11, Henrietta Street, W.C.2. Price, 25s. net. *Plant Materials of Decorative Gardening: Winter Botany.* By William Trelease. Price \$1.00 and \$2.50 respectively.

NOTES FROM WISLEY.

In most plants the beauty of the flower exceeds that of the fruit, and this is essentially true in the case of the Rose. It is interesting, therefore, to come across Roses which have been planted for the brilliant effect of their fruits. A number of these are to be seen at Wisley on the side of a path by the river, and although the majority are as yet small they are fruiting well. One of the most striking is *Rosa Sweginzowii* (figured in *Gard. Chron.* of Sept. 2, p. 135), which has deep red fruits similar in shape to those of *R. Moyesii*, and handsome purplish foliage. The fruits of *R. pomifera* are fuller and darker in colour than those of *R. Sweginzowii*. They are also hairy and present the appearance of ripe Gooseberries.

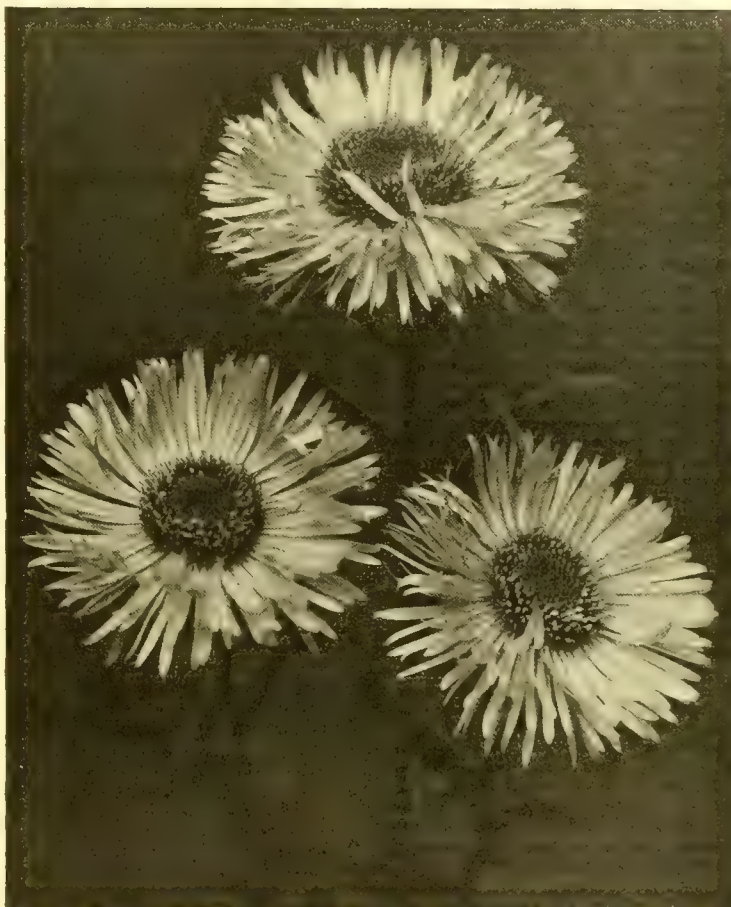


FIG. 88.—ASTER BARR'S PINK: R.H.S. AWARD OF MERIT, OCTOBER 3 (SEE P. 211).

The autumnal garden value of plants bearing lightly coloured fruit has become more and more recognised with the introduction of new species and varieties of *Berberis*, *Cotoneaster*, *Viburnum* and other plants, many of which can be seen and studied at Wisley. Many Japanese Quinces are colouring their aromatic fruits, such as *Cydonia Sargentii* and *C. Maulei*, from which good jelly may be made. The low growing *Gaultheria Shallon* is also in fruit. The berries are edible but not very pleasant to the taste. When this plant was introduced it was thought that it would be popular as yielding edible fruit, and although it has not become so its value as a wild-garden plant has been appreciated.

Colchicum speciosum has for some time been covering the ground around the trees of the lower walk assisted by very large numbers of *Crocus nudiflorus*. Many species of *Crocus* are also in flower in the alpine frames such as *C. zonatus*, *C. cancellatus albidus*, *C. speciosus* and *C. s. Aitchisonii*. The last-named is of a delicate colour, approximately that of the pale blue *Iris stylosa*.

In the rock garden *Gentiana Farreri* is very economical with its flowers. Quite a number of blooms are, however, to be seen on *Gentiana Pneumonanthe*, and this particular specimen observed is the less common upright form. The clear, pink *Geranium Endressii* continues to flower and seems quite happy even in shade. It is kept company by the oval-flowered *G. Wallichii*. Other late-flowering plants are *Polygonum vacciniifolium* and *Spenceria rammalana*, which came through last winter quite satisfactorily.

Aster Amellus Little Gem is not too large for some parts of the rock garden, as it grows about a foot high. Among the larger varieties of this section and suitable for the herbaceous border, *King George* is one of the best. Many species of *Asters* are flowering well now, such as *A. acris*, of which a good variety is *dracun-*

culoides. A handsome pink-flowered species is *A. Wienholtzii*. It is worthy of note that the old *A. Thompsonii*, which is now being almost entirely supplanted by newer kinds, has been flowering steadily since mid-July and has been free from disease.

Aster mildew has been prevalent this year, starting at the time of the early drought. *Aster "wilt"* has also been taking its toll. This is caused by a fungus which attacks the base of the stem and stops the food supply. A satisfactory remedy has not yet been discovered but experiments are still in progress at Wisley and it has been found that the disease is not perpetuated when plants are propagated from healthy cuttings.

Some of the varieties of the *Novi Belgii* *Asters* have become naturalised in the field near the herbaceous borders, prolonging the succession of flower there, and following on after the *Harebells*. The latter have been very beautiful and made a very fine show for wild plants, coming up after the grass had been scythed in June. *J. E. G. White*.

The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Cypripedium.—Cypripediums of the winter flowering section are sending up their flowers and some of the earliest varieties are already in bloom. The scapes should be neatly staked as soon as they are long enough, as it is a most difficult matter to get them into position again if they fall over the sides of the plant, and the stalks become twisted. When properly staked, the flowers may be seen to the best advantage, and the stalks being straight, the flowers may be used in a cut state for indoor decoration, for which, owing to their long lasting properties, they are admirably adapted. Plants of the summer flowering section, of which there are many very desirable and beautiful varieties, may, should they need it, be repotted when they have passed out of bloom. The usual compost advised from time to time for these plants should be used, and it is most desirable if the best results are to be attained, to attend regularly to the repotting, using the best materials obtainable.

Dendrobium.—By this time the whole of the members of the deciduous section of Dendrobiums, both species and hybrids, should have completed their growths. Those which produce their flowers early in the new year should be induced to rest for as long as possible, as without sufficient rest the succeeding growth is unsatisfactory. Some kinds are later in completing their growths, but as soon as this is accomplished they should be removed to the resting house, where the drier and more airy conditions will help to mature them, and enable them to produce an abundant crop of flowers. The completion of growth in these plants is easily seen by the last leaf of each pseudo-bulb being fully developed. The plants should receive water at the roots in much less quantities, but sufficient should be given to keep the leaves and roots in a healthy condition. Shrivelling must not be allowed under any circumstances, and premature ripening must be avoided. The withholding of water, also the reduction of temperature, should be gradual, as should the foliage of the plants suffer during the resting season the plants will not start into growth in the spring so vigorously as they ought. Any Dendrobium plants that are still growing, and any that have made a secondary growth, should receive liberal treatment, and be induced to reach the resting stage as soon as possible.

THE FLOWER GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

Bedding Plants.—With the arrival of frost it will be necessary to give consideration to the question of the dismantling of the summer bedding scheme, and note should be made of the plants that are to be retained during the winter. Such plants can then receive first attention when the work of clearing the beds commences. The work of lifting and storing should be well advanced by the end of the present month, with a view to completing it before November, for, after the damp summer, growth generally is tender and sappy, and the plants will be more susceptible to injury from slight frost than usual. Agapanthus, Fuchsias, Lantanas, Pelargoniums, Heliotropes, Plumbagos, Streptosolens, etc., should be lifted early. Plants that have been plunged in their pots should have the roots that have grown out of the pots trimmed, and the receptacles well washed free from soil. After the plants have been pruned back to the hard wood, they should be stood in a cool house or pit, where they may easily receive attention, it being necessary to afford them occasional syringings on fine days, until such time as severe weather sets in. Other plants should be potted and treated similarly, using pots of as small a

size as will just accommodate the plants. Various other plants for winter storing will also require attention. Those of *Lobelia cardinalis* and its hybrids should be cut back, lifted from the beds, the roots placed in boxes filled with good compost and stored in a frost-free place for the winter. *Dahlia* tubers should also be lifted and stored in sand. *Gladiolus* corms should be dried off for storing, and *Salvia patens* lifted and potted for placing in frames. Some prefer to leave *Lobelias*, *Dahlias*, *Gladioli*, *Kniphofias*, and other somewhat tender, tuberous-rooted plants, in the ground during the winter, and this may safely be done on light, warm soils, but they should have a deep covering of ashes placed over them to ward off as much frost as possible.

Echeveria.—At Aldenham we carefully sort the *Echeverias* used as edgings to beds and borders into large and small specimens, clean off any damaged or decayed foliage, and then box the small ones and winter them in a cool house. The larger plants are set in soil against a greenhouse wall to form a bank that is easily covered during severe weather. Mats are sufficient during average frosty periods, but in very severe weather additional covering, such as straw, Bracken, or similar material should be used as well as the mats.

Carnations and Pinks.—Early layers of Carnations and Pinks that are well rooted should be severed from the parent plants and placed in 60-sized pots, using a compost of good loam, a small quantity of leaf-mould, and a little fine mortar rubble. Place the plants in a cold frame, which should be kept close until they have become established, and spray them lightly on fine days.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

Succession Vineries.—Where the foliage is changing colour, the vines may be washed with the hose, and the inside borders watered with soft water if it is available. Inside borders in late summer frequently become a little too dry, especially after a long drought, and, after the vines have been cleared of the bunches, this is apt to be overlooked. When roots and leaves feel the want of water, the vines suffer. So long as the leaves retain their vitality and the house is freely ventilated, there is no danger of giving inside vine borders too much water.

Late Grapes.—Alicante and other late Grapes intended for autumn use should now be fully ripe, but some time will elapse before they are at their best for eating. This Grape, like Lady Downes, pays for being kept in a dry, fairly warm house until the vines are nearly leafless. The weather lately has not been favourable to this treatment, and fire heat should be used until the foliage shows signs of changing colour. These vines, being strong and late growers, will have made late laterals, but the time has arrived for shortening these to allow air to circulate freely about the vines. The borders, too, should be examined carefully, and, if found to need moisture, select a suitable day and give sufficient tepid water to make the whole of the soil moist.

Muscat Grapes.—Muscat Grapes are now fairly ripe and well coloured, and the temperature of the vinery may be reduced by degrees, reducing the amount of atmospheric moisture in proportion. These grapes being subject to damping, the house should be kept dry, and watering done only on bright days in the early morning. Although light and sunshine favour the colouring of the berries, the laterals should not be too freely reduced, especially where the foliage is thin and faulty. Mrs. Pearson is an excellent white Grape for use after Christmas. Like the variety Lady Downes, it requires plenty of time to mature, and, when well finished, the berries, which never crack, are superior in flavour to any other white Grape, except Muscat of Alexandria. The vine is a strong grower and crops freely.

THE KITCHEN GARDEN.

By JAMES E. HATHAWAY, Gardener to JOHN BRENNAND, Esq., Baldersby Park, Thirsk, Yorkshire.

Tomatoes.—Sow a batch of seeds now to raise plants for cropping in early spring. The plants will succeed best in a light, sandy mixture in small pots, which should be placed close to the roof glass to prevent them becoming drawn. The temperature should not be higher than 65°. Guard against over-watering the soil.

Rhubarb.—Crowns for early forcing should be dug up, exposed to the weather for a few days and afterwards placed in the Mushroom house, or, if such a house is not available, under a greenhouse stage or in a cellar. The crowns should be placed on the ground and a mixture of litter and leaves placed between each. Keep them moistened regularly by means of the syringe.

Chicory and Dandelion.—Lift a batch of these plants for an early crop of blanched leaves. Place the roots in boxes or in pots and stand the receptacles in a dark, cool place, for if these salads are forced hard they become coarse. Keep the plants well supplied with moisture. The remainder of the crop should be left in the ground till required for forcing.

Box-Edging.—The present is a suitable season for replanting Box-edging in the kitchen garden, carrying out the work as previously recommended.

Winter Spinach, Lettuce and Cabbage.—Transplanting of Spinach may still be done to make good any plants that have failed. Lift the plants carefully and make them firm in the soil when planting. The plants in the permanent rows should be thinned to 6 inches apart, and kept well dusted with soot and lime. Winter Lettuce should be given similar treatment. Complete the work of planting Cabbages.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir C. NALL-CAIN, Bart., The Node, Codicote, Welwyn, Hertfordshire.

Francoa ramosa.—These plants having passed out of flower may be attended to at the roots. In these gardens this plant is grown in various sized receptacles from pots 3 inches in diameter to those of 12-inch size, and plants that have been grown in the smaller pots will now be potted into larger sizes. This plant gives the best results when grown in a restricted root space, therefore in repotting allow for only just sufficient room to enable a rammer to be used between the plant and the pot to consolidate the soil. Cuttings may be inserted now, and these should be taken with a heel from the base of the old plants; they will root readily in a frame from which frost is excluded. The *Francoa* may also be propagated from seed, but I much prefer cuttings taken from a reliable strain.

Bouvardia.—Bouvardias that have been given cool treatment to retard their flowering season should be removed to a house having a warm temperature. Although Bouvardias will flower in a fairly warm greenhouse, much better results are obtained when they are grown in an intermediate temperature. Bouvardias are gross feeders and as their receptacles are well filled with roots they will need frequent applications of liquid manure alternated with a concentrated fertiliser to produce good flowers in quantity. Mite, also green aphid and white fly are sometimes troublesome to these plants, but much may be done to keep these pests in check by frequently fumigating the house.

Cyclamen.—Where a quantity of these useful plants have been raised from seed sown some fifteen months since, some of the more forward plants may be placed in a greenhouse having a minimum temperature of 50°. The plants should, if possible, be arranged near the roof glass and for a short time shaded from bright sunshine. Where it is found that the receptacles are well filled with roots, a sprinkling of fertiliser, used according to directions given by the maker, will be found very beneficial to the plants and will greatly improve the size of the

flowers; it will also favour free growth. Keep the surroundings of the plants moist. Seed sown as advised in a previous calendar has now germinated, and to encourage the seedlings to make sturdy growth they should be stood near the roof-glass in a house having a minimum temperature of 50°.

Zonal Pelargoniums.—Plants that have been grown in cold frames to produce flowers in the autumn and winter should now be placed in a light, airy house or pit, where a little fire-heat is available, to keep the atmosphere dry and buoyant, otherwise the flowers will be found to damp very badly. After housing the plants exercise great care in watering, and do not use strong stimulating manures, which would tend to produce soft growth.

Cineraria.—Plants comprising the late batch of Cinerarias, growing in small pots, may be transferred to larger receptacles. After repotting they should be returned to a cold frame, with a layer of ashes at the bottom. Damp the plants overhead for a short time, but when they have recovered from the disturbance caused by repotting, damping should be discontinued. It will be advisable to have some protective material at hand to cover the frames in the event of frost.

Calceolaria.—Small plants of Calceolarias that have filled their receptacles with roots may be placed in their flowering pots. Use rich, open compost. The plants may be grown in a cold frame where protection can be given in the event of frost. Watering should always be done in moderation. Green-fly is sometimes troublesome to Calceolarias, but if the plants are sprayed occasionally with Quassia extract the foliage will be kept free from this pest.

HARDY FRUIT GARDEN.

By H. MARKHAM, Gardener to the EARL OF STRAFFORD, Wrotham Park, Barnet.

Filberts and Cob Nuts.—As soon as these Nuts part freely from the branches and the shells are of a somewhat brown colour they may be gathered when perfectly dry and stored for winter use. The atmosphere of the store should not be too dry and warm, as this would cause the kernels to shrivel. I have stored Nuts in dark cellars in boxes and large pots very successfully, the Nuts keeping exceptionally plump and crisp for many weeks. Good varieties are Kentish Filbert, Pearson's Prolific, Prolific Filbert and Kentish Cob.

Strawberries.—Plants that were lightly cropped this season are developing fine, sturdy crowns, and the foliage of several kinds is exceptionally strong and robust. See that the beds are kept free from weeds, and remove all runners as fast as they appear. Each variety should be correctly named and worn-out labels renewed if necessary. Runners that were raised and planted early are looking very satisfactory and have made good headway; they will need attention, and any weeds springing up amongst them should be destroyed at once to enable the plants to ripen their crowns fully before the end of the season. Beds that have been neglected should receive prompt attention. Remove all runners, also a few of the outer leaves, and fork lightly between the rows, afterwards applying a mulch of decayed manure as near the plants as possible. This will act as a protection to the roots in severe weather, and also assist growth.

Gooseberries and Currants.—In order to have a sufficient stock of healthy, young fruitful bushes, either for filling gaps in the rows or for making new plantations, sufficient cuttings should be rooted annually to meet the requirements of the garden. Cuttings of both Gooseberries and Currants may be made at once and inserted in suitably prepared beds. Select medium sized, firm shoots, take out some of the lower buds and insert the cuttings four inches deep in ground prepared for the purpose. Plant them in rows 14 inches apart and six inches asunder in the rows. Make the soil firm and keep the beds clean and free from weeds. In two years, with good attention, these should make good plants, useful for a variety of purposes.

HISTORY OF THE MOSS ROSE.

I AM reluctant to encroach upon your valuable space, after all I have had to say upon this subject; but it is agreeable to find that the Rev. Joseph Jacob (p. 183), in the course of a little independent investigation, has come across "a poser."

Les Roses by Jamain and Forney is the modern source from which Major Hurst has drawn some of the untrustworthy matter in his several articles criticised by me, so that Mr. Jacob need not be surprised at the parallel. Why does Mr. Jacob inquire for a 1746 edition of *Le Jardinier Fleuriste*? Is he quite sure that there is one? Because I am not. He tells us that he possesses the 1742 edition, and that in it there is no mention of the Moss Rose. In my library there are the 1706 and the 1776 editions, and in neither is there the slightest mention of the Moss Rose nor of the story of its

Those published in Paris are dated 1703, 1719, 1738, 1742, 1754, 1763, 1764, 1768 and 1776. In Amsterdam two dated 1706 and 1708 were published. In Rouen, also, two dated 1787 and 1792. In Avignon one edition appeared as late as 1821.

Mr. Jacob will, therefore, see that Jamain and Forney's supposed edition of 1746 wants finding, just the same as one of the places in Normandy where they say, and Major Hurst says so too (*R.H.S. Journal*, vol. xlvii., Pt. I., p. 32) that the Moss Rose was grown in 1746. I mean *Messin*. Will some kind reader skilled in French geography be good enough to enlighten us where this place is?

During the whole of my forty years' research work in horticulture I have never yet, in any subject in which my interest has been aroused, felt the need to so great an extent of the apostolic injunction "Prove all things, hold fast that which is good," or, it may be added, true. C. Harman Payne



FIG. 89.—SCUTELLARIA BAICALENSIS COELESTINA.

introduction into Normandy, which Major Hurst relates, without the slightest foundation, is to be found in *L'Ecole du Jardinier Fleuriste* (1746), an edition which is non-existent. On the fly leaf of my 1776 copy of *Le Jardinier Fleuriste*, a different work altogether from that just mentioned, is a pencil note made by me some years ago. It reads, "practically a reprint of the edition of 1742. Contents the same. Title down to the imprint the same.—1742 larger print, 514 pages." It should be mentioned that the later edition, being in much smaller type, contains only 421 pages.

Mr. Jacob appeals to the possessor of a 1746 edition of *Le Jardinier Fleuriste* to enlighten him on the questionable point. How does he know there is such an edition? Simply because he, like Major Hurst, has assumed that the passing reference, in the short paragraph on the Moss Rose, by Jamain and Forney (p. 57) is true. I do not believe that there is such an edition as a 1746 one—and if there be, that it will contain an account of the Moss Rose any more than Mr. Jacob's 1742 edition or my later one of 1776. Most of these old French so-called editions are mere reprints, and do not vary to any appreciable extent.

To attempt to prove a negative is, of course, not a very satisfactory task, but I have traced all the recorded editions of *Le Jardinier Fleuriste* that I can, with the following result:

THE ALPINE GARDEN.

SCUTELLARIA BAICALENSIS COELESTINA.

ALTHOUGH not of recent introduction, this plant is one of the damnest of the Skell-caps.

The flowers are of a lovely pale mauve, and they are abundantly produced on stems of about twelve to fifteen inches in length through June and July. The plant is quite hardy, and it revels in a compost of turfy loam and crushed mortar rubbish, planted in full sun. As the flower spikes appear a few twigs should be placed about them as supports, to prevent them from being blown about. It resents being moved from the open ground, and should therefore be planted where it is required to become established. The plant illustrated (Fig. 89) was exhibited by Mr. Allgrove at the meeting of the Royal Horticultural Society on August 22 last.

GALANTHUS ELWESII.

ELWES'S Snowdrop is exceedingly variable, and those who wish to obtain a good type of the plant should buy bulbs, which have been grown in this country, from a reliable dealer, who will guarantee that the form is a good one. Numbers of names have been given to varieties from different districts, but the Cassaba neighbourhood appears to have given us a superior type. S. Arnott.

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ACCLIMATISATION.

THIS very familiar word has been little in serious use for a long time. It has been used, unfortunately, with very different meanings. It may mean merely to naturalise or it may mean a physiological alteration of constitution by which a plant or animal can flourish in a climate which before the alteration it could not endure. Its use appears to be similarly indefinite both in France and Germany, with the addition that in France even the abstract and non-living, as, for instance, a custom, may be spoken of as acclimatised. For us, since we have the word naturalisation in extensive and correct use, there should, perhaps, be only one correct meaning, viz., the physiological alteration of constitution by which a plant can flourish in a strange climate. With this meaning we have something before us that must be of serious significance, and after years of neglect it may be well to consider our position.

From the little or nothing that we seem to expect from it the question may well arise whether there is such a thing as acclimatisation. I have thought that it does not go very far, for if it did there could hardly have been much dispute as to fact; it ought indeed to be much in evidence, and we might well expect that certain plants would be guaranteed to a certain degree of attained hardness. I am convinced, however, that we have to do with a reality, but chiefly, I think, under artificial selection, for in nature the geographical distribution of plants does not appear to have been much modified by its agency. There has been the smallest amount of "creep" from one climate to another, though I am aware of the fact that there is a difference in the hardness of a plant, whether it comes from a northern or southern habitat, and this might result from natural selection as a plant extends its range.

Darwin appears to regard acclimatisation as chiefly belonging to the sphere of human agency, but he remarks, "if it be true that all the species of a genus are descended from a single parent form, acclimatisation must be readily effected during a long course of descent."

We have an infinite number of examples of naturalisation both in this country and in others, and although it is quite a different thing a few examples may be referred to by way of illustration. In Australia, for instance, Opuntias have become a nuisance; but they had, I believe, no laboured difficulty in getting acclimatised. They found a climate and conditions exactly suited to them, and so increased with full speed from the first. So it is, I believe, in the case of a num-

ber of plants and animals that have found a home in the Antipodes. It seems not unlikely, indeed, that plants would die out rather than acclimatise in an unsuitable climate, though, if able to exist long enough they might become acclimatised. Darwin writes in his *Origin of Species*: "The conditions of life are nearly the same, so that a multitude of European animals and plants have become naturalised in America and Australia."

The naturalisation of plants in Britain is an interesting study, but it is never spoken of as acclimatisation. The great vigour of Anacharis, when first introduced from America, was probably the same in character as the increased vigour of certain subjects like Watercress when established in New Zealand. It would be interesting to know whether this is still as vigorous as ever in that country. Anacharis does not

the exception of two, which are now the chief representatives of this tree in the Cambridge garden. From these it is easy to believe that if they bore seed a type of superior hardness could be raised. It is interesting that Darwin mentions a very similar example of selection by cold in the case of a bed of young Araucarias. Again, at Cambridge, in the same winter, some of the trees of Evergreen Oak were killed to the ground, while others were quite uninjured, and this I have always attributed to the locality whence the trees originated, for it is native from the middle of France to the Mediterranean region where temperature is much higher. If this is the correct explanation, it might mean that there was a natural acclimatisation from an original ancient centre, either north or south, or it might be a case only of variation from seed, as in Deodar and Araucaria.

For illustrations, and for a few special remarks, we may best turn to Darwin's *Variation of Animals and Plants under Domestication*, which has been described as a storehouse of information. A section of chapter xxiv, vol. II., is devoted to the subject of acclimatisation, and I have been interested to find that all regarded as belonging to it comes under the definition I have given, though Darwin includes the short-season kinds of Maize, which I have looked upon as still fairly tropical, from the fact that a good season is needed for their success in this country. He definitely states that the production of early flowering and early seeding varieties deserves to be considered as one form of acclimatisation. It is a statement to notice that we can have "some degree of acclimatisation in the individual, independently of the production of new varieties by seed," the evidence for which is that Vine plants taken to the West Indies from Madeira are said to succeed better than plants brought directly from France. We may be quite sure, however, that effective acclimatisation can be attained only by raising from seed and selecting those plants that carry the variation of greater hardness. This, indeed, is evolution—first of all, variation, without which nothing can be done, then the survival of the fittest. Darwin says: "I am aware that the attempt to acclimatise animals or plants has been called a vain chimera," and he adds that "no doubt the attempt in most cases deserves to be thus called if made independently of the production of new varieties endowed with a different constitution."

It is shown, as in the case of the Kidney Bean, and as I have mentioned in the case of the Deodar, that plants from seed do vary in the degree of cold they are able to stand. Darwin certainly did believe in the fact of acclimatisation, (once or twice he uses the word naturalisation apparently to mean the same thing) but he does not seem to have thought that it had been carried very far. He writes: "As no single instance has been recorded either with animals or plants of harder individuals having been long and steadily selected, though such selection is admitted to be indispensable for the improvement of any other character, it is not surprising that man has done little in the acclimatisation of domesticated animals and cultivated plants." Nevertheless he gives many instances of interest which seem to demonstrate the fact of acclimatisation, even if it has not gone very far. It is well known, he says, that of almost every plant long cultivated varieties exist which are endowed with constitutions fitted for very different climates, and numerous examples of this are given.

Many plants have become suited to the climate of America, and in the case of Apples not one will succeed in England [?—Eps.]. It is interesting that Mignonette, Sweet Peas, Turnips and Carrots, succeed in India from seed saved there, but not so well from seed imported from Europe, and we are reminded that acclimatisation refers to hotter as well as to colder climates. It was found by Prince Troubetzkoy that of several kinds of Pear planted near Moscow, the *Poire sans Pepins* was the only one that could stand the cold of winter. The Forelle Pear flowers early, and the flowers can stand a frost which kills the flowers of all other kinds. It is unlikely that these Pears had an origin differing from that of other Pears. Oranges in Italy appear to have made them-



FIG. 90.—CIRSIIUM ERIOPHORUM (SEE P. 225).

now cause the blocking of streams as it formerly did, but this may be due to the need of reproduction from seed, which cannot take place, if, as stated, there is only the male plant in this country. It is well known, however, as Darwin, I believe, states in his *Origin of Species*, that "slight changes in the conditions of life are beneficial to all living things."

In the Cambridge Botanic Garden I have myself observed several facts which are not recorded as evidence, and which appear to have a bearing upon the subject of acclimatisation. The Soya Bean, for instance, is usually regarded as tropical, but I had one variety which reproduced itself for years, like any hardy annual, and in some seasons obviously could produce a very fair crop. An illustration of a plant in fruit appeared in *Gard. Chron.*, January 26, 1918, p. 38. This variety, I believe, is grown in the north of China, and it is, of course, only another example of an anciently cultivated plant which has varied to suit more or less differing climates. Another case to place on record is that of a large bed of many Deodars raised from Indian seed, all of which were killed in the severe winter of 1879-80, with

selves a home there as soon as they were raised from seed instead of being grafted. The Peach apparently in spreading during the last 2,000 years over the middle part of Europe, must have become much harder. The Irish Yew in New York is quite hardy, while the common Yew is cut down. The former must have been a seedling from the latter, since it was found in the mountains above Florence Court. Of the Sweet Potato there are varieties suited for colder and for warmer climates. French Beans in May, 1836, are recorded as killed, with the exception of one in thirty, and in Darwin's own garden Scarlet Runners have been killed with the exception of a dozen in 390.

Sufficient has, perhaps, been referred to, and the question may now be asked whether the possibilities of acclimatisation amount to anything of practical value. If there are possibilities of any value, it is surely time that experiments were carried out in a systematic manner. We are precisely where we were when Darwin wrote, and his words quoted last above stand as a live indictment of present-day neglect. In conclusion, it may be said, in a word, that acclimatisation does not consist in finding out how to manage a plant or animal under strange conditions, as some seem to have thought. It consists in the alteration of habit or constitution in the plant or animal itself, so that it is adapted to the strange conditions. *R. Irwin Lynch, V.M.H.*

PALMS OF THE RIVIERA.*

A FEW individuals are found here and there in Riviera gardens of a Palm which very much resembles *Livistona australis*, but is readily distinguished from that species by its leaves, which have incisions reaching almost to the petiole, and which hang down around the stalk in a way which reminds me of certain brooms made of long strips of cloth. This Palm was always known as *Copernicia cerifera*, and it was introduced about the same time as *Livistona chinensis* and *L. australis*, which explains why large specimens exist here. I was always perplexed and doubtful as to the identity of this Palm, which does not produce the least wax, while *Copernicia cerifera*, as its name indicates, does produce wax, the latter forming a coating on the leaves and is scraped off to use for making candles.

I sent materials of this Palm to Prof. Beccari, who found that it was not a *Copernicia*, but an undescribed species of *Livistona*, and he named it *Livistona decipiens*. Prof. Beccari gave me, at the same time, an illustration of the plant, which well shows its habit, and the bases of the dead leaves nearest the lowest part of the trunk, while the middle part of the stem is clear of such. He regarded the presence of these leaf bases as a useful character for distinguishing the species, but I think that I can give a very simple explanation of their presence only on the lower part. When these leaf bases have been soaked by rain, which sinks down from the top of the tree, being slowly conducted towards the trunk by the position of the petioles, they are easily pulled off, while when they are dry, they can only be detached with the greatest difficulty. A gardener passing this Palm just after rain would be likely to pull off the dead leaf bases which are wet, but the lower ones, which the rain has not reached, are too difficult to detach. Thus they are left and perhaps never removed, and we have the curious appearance of a Palm trunk without bases of dead leaves on the younger part, but retaining them on the lower and older part. In confirmation of this simple explanation I have found instances of this species with the trunk free of all bases of dead leaves right down to the ground, and I may also add that quite lately I saw in a garden a very old specimen of *Livis-*

tona australis, on which the bases of the dead leafstalks existed near the ground, while for many metres high above them the trunk was quite clear. Thus the character in question, which Prof. Beccari gave as distinctive of *Livistona decipiens*, is not a reliable one. The leaves, however, are so characteristic in shape that the species is easily recognised, at least when not very young. *Livistona decipiens*, the habitat of which is up to now unknown, probably comes from Australia. It is as hardy as *Livistona australis*, and though it is less ornamental than this last it merits a place in gardens by its rather curious appearance, where variety is sought for.

Livistona Mariae, F. Miel, another Australian species, is of very great interest, on account of its red leaves, a most rare character in Palms. I never saw large individuals of this species, which, if I am not mistaken, does not exist in any Riviera garden, except my own. Young plants have proved quite hardy, not hav-

measured just three feet in length, and the tallest plants, over five feet in height, were extremely picturesque; particularly as the underside of the leaves is white and cottony, and the veins are nearly white. The leaf-segments alternately point upwards and downwards, and each ends in a long sharp spine. Well-grown globose flower-heads are seven inches in circumference, but the purple flowers do not much exceed the shaggy involucre bracts, with their slender recurved spines. The plant is therefore difficult to handle, and yet Hooker says, in his *Students' Flora*, that "young parts are eatable as salad and cooked."

This Thistle is frequent in Somerset, and especially on the Lias (it grows finely on the Liasic Polden Hills, between Street and Bridgewater), and on the Keuper Marls and Oolite. Indeed, the first British record, of Lobelius, in 1570, spoke of it as *Frequens hœc in Anglia collibus strigosis Sommereti*. It is very rare, in west Gloucestershire, but appears in most



FIG. 91.—*VIBURNUM DAVIDII*: FRUITS TURQUOISE BLUE. R.H.S. AWARD OF MERIT, OCTOBER 3. (SEE P. 211).

ing suffered even by the severe frost of December, 1920. If the quite distinct purplish-red colour is retained when the Palm reaches the adult stage, I should consider it a most important acquisition. If I am well informed, this species is very rare in its native country, Australia, and menaced, as are many other interesting plants, by extinction. It would appear to be very desirable that it should be propagated in gardens before it is too late. *Dr. A. Robertson Proschowsky, Jardin d'Acclimatation, Les Tropiques, Nice, France.*

CIRSIIUM Eriophorum, SCOP.

THE photograph of the Woolly-headed Thistle (Fig. 90), was taken on August 21, on a steep slope of rough pasture resting on Lower Lias above the Chew valley, between Bristol and Bath. There, and on the plateau above, this handsome biennial Thistle is abundant, and is associated with Teasels and other attractive plants. The actual slope, where many hundreds of rosettes of root-leaves and some 150 flowering spikes, three to five feet high, adorned the landscape, was also dotted with small bushes of Hawthorn.

The largest of the root-leaves of the *Cirsium*

of the English counties from Durham to Somerset and Kent. It is not recorded from Scotland or Ireland.

On the Continent the Woolly-headed Thistle occurs in most of the central and southern countries, and extends north to Belgium. But it is very polymorphic, many varieties, and at least one hybrid,* being named; and it would seem that the English form is peculiar,** for Prof. Petrak, of Czechoslovakia, much wanted forty English specimens for his *Cirsiotheca*. These I have succeeded in drying, and shall shortly send to him.

On cutting the heads in two it was desirable to immediately poison them with corrosive sublimate and camphor in methylated spirit, and to add a copious supply of naphthaline to the dried sheets. The stout, furrowed stems of this Thistle not only contain much pith, but they possess extremely strong fibres. Probably, however, the very prickly nature of the plant would tend to make it unsuitable to grow for commercial purposes. *H. Stuart Thompson, Clifton.*

* The hybrid recorded by Rouy in *Flore de France* is with *C. arvense*, but I believe one of my Somerset specimens is crossed with *C. nutans*. It may also hybridise on the Polden Hills with *C. lanceolatum*.

** It may be added that Dr. Petrak, in his Monograph on *Cirsium*, refers to the English *C. eriophorum* as sub. sp. *anglicum*. *H. S. T.*

* The previous articles by Dr. Proschowsky were published in our issues for May 1, June 12, July 10, September 4, November 29, December 18, 1920; March 12, April 30, June 11, October 8, November 19, 1921; January 21, February 11, April 1, June 17 and July 29, 1922.

CHINESE TREES AT ALDENHAM.

(Continued from p. 166.)

PYRUS: In order to differentiate between the various sections that form the *Pyrus* group I have, in dealing with Mr. Wilson's introductions, abandoned the American practice, under which they were determined, of according specific right to such as *Sorbus*, *Malus*, etc., and followed the lines employed at Aldenham, whereby the term *Pyrus* is reserved for the true Pear section, and certain hybrids, the Mountain Ash or Rowans being referred to as *Pyrus Aucuparia*, Whitebeams as *Pyrus Aria*, the Crab Section as *Pyrus Malus*, whilst the term *Pyrus Sorbus* is reserved for the true Service Tree representatives. There are three other small sections known as *Micromeles*, *Eriolobus* (closely allied to the *Malus* group), and the *Chokeberries* which are placed in the section *Aronia*. This system, whilst grouping the different sections under their generic name of *Pyrus*, has the advantage of distinguishing each section by the adoption of what may be referred to as a subgeneric name. Reference to *Docynia* exhibits the only case where I have thought advisable to depart from this procedure.

Amongst the many species and varieties of *Pyrus* collected in China by Mr. Wilson the following are worthy of special mention:—

PYRUS CALLERYANA: This species was known long prior to Wilson's journeys, but a specimen at Aldenham, now 20 feet high, was raised from seed collected by him. The spring colouring of the young foliage is very pleasing, and is enhanced by the clusters of white flowers.

PYRUS PASHIA: Like the preceding, this species has been long in cultivation, but the Aldenham specimens, now 20 feet high, are from Mr. Wilson's collecting. It is a very pretty Pear, with white or rose-coloured flowers, the beauty of which is much augmented by clusters of deep red stamens.

PYRUS AUCUPARIA CONARDINAE: 14 feet. This is a very effective Mountain Ash, the leaves of which are snowy-white on the underside, and the freely-borne fruit, coloured scarlet to golden-red.

PYRUS AUCUPARIA SARGENTIANA: The Aldenham specimen is 7 feet high, and gives promise of making a fine tree. Even when leafless the strong branches and rich brown buds are conspicuous. It is described in *Plantae Wilsonianae* as being a remarkable species, and one of the most beautiful of the whole genus. The large corymbs of small, red fruits are very striking, resembling those of *P. A. Harroviana*, which though also very attractive, has not done well at Aldenham.

PYRUS AUCUPARIA SCALARIS: 8 feet. This is a very distinct Mountain Ash with fine red fruits and deeply-cut foliage, and proves a close competitor in beauty with its two near relations which follow immediately.

PYRUS AUCUPARIA SUBARACHNOIDEA: 10 feet. This is unquestionably one of the most distinct and beautiful of newly-introduced Chinese trees. It develops large corymbs of small, pearly-white fruits, and is of great interest when they are ripe.

PYRUS AUCUPARIA VILMORINII (Syn. *P. foliolosa*): This *Pyrus* was originally sent to France by the Abbé Delavay in 1889, and is justly considered by Mr. Bean to be one of the most elegant species introduced in recent years. It is particularly attractive when in fruit, the berries being of a distinct, rosy-red colour, which whitens as they become fully ripe.

PYRUS MALUS PRATTII: 10 feet. A very distinct species, appertaining to the Crab Section, with white flowers and red fruits.

PYRUS MALUS PRUNIFOLIA VAR. RINKII: A very interesting Crab which has been long known in cultivation, but was discovered in a wild state by Mr. Wilson in Central China. When grown in standard form it is particularly good, and a specimen at Aldenham, 14 feet high, with a

girth of one foot, is an ornamental tree of great merit.

PYRUS MALUS THEIFERA: 12 feet. One of the most attractive of spring-flowering trees; the beauty of the large Medlar-like, blush-pink flowers is intensified by the colour of the young leaves as they are unfolding.

PYRUS MALUS TRANSITORIA TORINGOIDES: 12 feet. This is a handsome tree with pretty foliage, a little resembling that of the common *Crataegus oxyacantha*, though larger and more deeply cut. The flowers are not particularly showy, but the bright red fruits, in size and colour like a White-heart Cherry, are produced in abundance, and make a charming display.

PYRUS MALUS YUNNANENSIS: 15 feet. This, which is also known as *Pyrus Veitchii*, is a handsome tree, with numerous corymbs of white flowers that are succeeded by red fruits.

PYRUS MICROMELES MEGALOCARPA CUNEATA: 6 feet. The fruits of this tree are described by Mr. Wilson as being russet-green in colour. It belongs to the section of this great genus, which was formerly separated under the name *Micromeles*, and in common with others of this type has the fault of coming into leaf too early, in our changeable climate, and so suffering from late frosts.

PYRUS MICROMELES FOLGNERI: 12 feet. A very pretty tree, with somewhat pendulous branches and dark green leaves. It bears large corymbs of white flowers, which are succeeded by quantities of bright red fruits.

PYRUS MICROMELES CALONEURA AND **PYRUS MICROMELES MELIOSMIFOLIA** are two other members of the same section as the last two mentioned. The former is now a shapely specimen, 12 feet in height, and is chiefly remarkable for the light reddish-brown tone of the expanding foliage. It develops numerous white flowers which are borne in corymbs, and these are followed by interesting, brown-coloured, Pear-shaped fruit. As the varietal name implies, the foliage of *P. m. meliosmifolia* bears a distinct resemblance to that of an entire-leaved *Meliosma*, and, like the preceding, the colouring of the young foliage is very attractive in spring. The plants at Aldenham are 8 feet tall.

RHUS VERNICIFLUA: Generally known as *R. vernicifera*, the "Chinese Lacquer Tree" has proved, when grown from Mr. Wilson's seed, to be a very hardy and fast-growing tree. The Aldenham specimen has reached a height of 25 feet and has a girth of 27 inches. The old form from Japan was tried and failed at Aldenham, but Wilson collected seed at much higher altitudes, and the plants raised from his seed have proved quite immune from damage by frost. *A. E. Thatcher*.

COLONIAL CORRESPONDENCE.

AN EXPERIMENT WITH LATE-FLOWERING CHRYSANTHEMUMS.

REMEMBERING that many of our deciduous shrubs give a wealth of flower without at the time having any foliage, it occurred to me that the same thing might happen with the *Chrysanthemum*, and last year, about the latter end of October, before lifting the two dozen or so late-flowering varieties which had been grown in the open ground all the summer, I picked off all their leaves, lifted the plants carefully, and replanted them in the border of a greenhouse, where they got midday and afternoon sun. The plants were sprayed three times, watered very sparingly, and left pretty much to their own devices. They began flowering about the middle of November, and continued—some of them—up to the third week in January of this year. The flowers were normal in size and colour, and almost as plentiful as if they had been grown on pot plants and better in every way than any previous attempts of mine had been in connection with lifting and trying to keep the foliage on.

It may be unnatural to remove the leaves of herbaceous perennials, but I think in the case of the *Chrysanthemum* the stems, stipules and bracts contain enough energy and are suffi-

ciently green to bring the half-developed flower-buds to perfection. No doubt those in question were helped by the sun heat they had for a short time, with the rest of the 24 hours cool, and sometimes a little frost. These are the conditions under which many of the deciduous shrubs flower in the early spring. Those who have no time to bother with growing *Chrysanthemums* in pots may by this plan have cut flowers for the house all the early winter months if they have a glasshouse from which the severest of the frosts are kept out. *G. Fraser, Udeulet, E.C.*

INDOOR PLANTS.

ASPARAGUS.

Few plants are more useful or popular for supplying foliage for all kinds of decorative purposes than the greenhouse members of *Asparagus*. As decorative foliage plants they have largely taken the place of *Adiantums* and other Ferns on account of their lasting properties. At the present day one or two species of *Asparagus* are grown by tens of thousands for the market as pot plants, and in many nurseries whole houses are devoted to them for supplying cut foliage to the florist for all kinds of decoration. Certain species are much more in demand than others. *Asparagus plumosus*, commonly known as the *Asparagus Fern*, may be considered the most useful and best on account of its value and uses as cut foliage, whilst as a pot plant it is also valuable; it may be planted out in a warm greenhouse, or conservatory with a moist atmosphere, against a back wall, or trained up pillars.

When in good condition it will make growths 10 feet to 12 feet in length in one season, and is much in demand for the making of shower bouquets, as trails of greenery in floral designs and for other purposes.

It requires to be grown in a moist, warm house in rich turfy soil; free drainage is essential and plenty of root room. When well rooted the plants may be given liquid manure once a week during the summer.

This *Asparagus* does not do well in a low temperature; in too cold a house it loses its beauty and is of no further use. *A. plumosus nanus* is a dwarf variety of the popular *A. plumosus*. Its Fern-like foliage is light and refined, its shade of green so soft and bright, and there is no other plant that can be compared with it.

The plant makes dwarf, compact shoots about 12 inches to 15 inches high; the frond-like growth is rather flat. As a table plant, or when grown in small pots, for the decoration of small vases, it is invaluable, lasting fresh for a considerable time.

A. myriocladus is a very distinct species, with long, erect, light green, feathery fronds of great substance on stiff stems, an admirable plant for pot culture.

A. Sprengeri is a charming species and most useful for all kinds of decoration on account of its long, light sprays, with short branchlets, producing a profusion of elegant sprays 4 feet to 6 feet in length, of a vivid green hue. The plant is a rapid grower and does well in pots or baskets. Suspended from the roof rafters it is unsurpassed in beauty, with its long trails of foliage hanging gracefully down for several feet. It is a most popular plant of great durability, and the shoots will last fresh many days after being cut. It is fairly hardy, and will withstand a low temperature during the summer, which makes it invaluable for suspending in baskets in a cool conservatory, large hall, dwelling or room. *A. Sprengeri compacta* is a remarkably pretty basket plant. In some respects it is an improvement on the type in producing a profusion of elegant sprays, 24 inches to 30 inches in length, which impart a dense habit to the plant. It is a very useful addition to the list of subjects for growing in suspended baskets, and is equally suitable for pot culture.

A. racemosus, a climbing species of elegant habit, is admirably adapted for covering pillars, or trellis work in a conservatory or warm greenhouse. The slender branchlets and sprays of glossy green foliage are very effective.

A. crispus (syn. *A. decumbens*) has long

branches of dark green, delicate foliage, and a drooping habit that makes it specially suitable for growing in hanging baskets.

A. tenuissimus is a charming contrast to any of the others, having a light green colour and delicate appearance. It is invaluable as a pot plant for table or other decoration. It does well planted out against a damp, moist wall, with the young growth fastened as closely as possible to the brickwork, when it will take root at every joint, and form small plants which look very effective, and are always greatly admired. There are other species and varieties, but those described are the best for general purposes.

All the species of *Asparagus* may be increased by divisions of the roots in the spring, or by seed sown early in heat. The seedlings, if grown on in moderate heat during the summer, will make good plants by the following season. They do well in rich soil; when well rooted watering with liquid manure once a week during the summer is beneficial to them. They need plenty of moisture and shade from the hot sun. They may be grown in a house having a winter temperature of 55° to 60°. The summer temperature should be 65° to 70°. Artificial warmth is not needed during hot weather, provided the house is kept moderately warm.

Myrsiphyllum (*Smilax*) *asparagoides* is allied to the *Asparagus* and makes an excellent climbing plant, with slender, graceful, bright, glossy green sprays unequalled for festooning, or for use in bouquets, and as trails for table and other decoration. Sprays may be cut 4 feet to 6 feet in length when the plant is grown in a warm house with moisture, and trained against a damp wall or up pillars.

M. asparagoides myrtifolia is a pretty, Myrtle-leaved variety. It grows very rapidly when planted out, and produces sprays freely. The foliage is of great durability and will last fresh for several days after being cut. Both are increased by divisions of the roots, or by seed sown in a warm temperature in spring. *John Heal, V.M.H.*

KNIPHOFIA GRACILIS.

THE *Kniphofias* are picturesque and noble plants, popularly known as the "Torch Lily," "The Flame Flower," and "Red Hot Poker" plants. They were formerly classed as *Tritomas*, and are sometimes met with in gardens under this name.

Since their introduction during the 18th century from the Cape of Good Hope vast numbers have been added to the list, and during the past ten to twenty years many magnificent varieties have superseded the older kinds, in both large and small flowered sections. The latest introduction are those of the *K. gracilis* group, a small-flowering race that will revolutionise all previous introductions when known, and used extensively for rockeries. They form a group of many shades of colour, and flower in unbroken succession from the end of June until quite late in the year. At the time of writing, September 23rd, plants are in flower in abundance, in shades of citron, yellow and tones of gold to bright scarlet and coral. They are charming as cut flowers for the table or any form of decoration, and make a beautiful display when mixed with a little of their own Grass-like foliage. The flower scapes are not so large as in the statelier types, but what they lack in size is richly compensated for by the more floriferous character of this type, for the plants continually throw up, in rapid succession, numerous scapes from 2½ to 3½ feet tall.

It is a common occurrence to count 20 to 50 flower spikes on one clump, and their graceful Grass-like foliage adds considerably to the general effect. When planted in groups of 6 to 12 plants, and from 9 inches to 12 inches apart, they will quickly form effective clumps, and when intermittently grouped amongst low-growing shrubs, or clumps of *Aconitums*, *Delphiniums*, *Spiraea venusta*, *Pannas Grass*, or other taller growing subjects backed by such plants, they lend great charm to the landscape; clumps may also be planted on lawns, or in any part of the garden where colour is required to be

visible at a long distance. If planted on the lawn such plants as *Erigeron Elsie*, *E. Edina*, *Violas*, *Epimedium* or other dwarf-growing plants, may be used as an edging or ground-work, which considerably adds to the general effect.

An open situation, with a good, deeply dug, sandy loam, and well-drained soil suits these plants admirably, and they should be transplanted in the spring. Should the weather of winter be severe all the covering or protection necessary is a few Bracken leaves.

A few of the better forms of *Kniphofia gracilis* are *Golden West*, rich golden self, very free,

Sovereign, golden yellow, very showy, 3 feet; *Alaska*, rich canary yellow self, very free, 3 feet; *Jaune Supreme*, deep orange yellow, 3 feet; and *Golden Spire*, rich yellow, very free, 3 feet. *W. Logan*.

GLADIOLUS PRIMULINUS GELYCE.

As is well known, the type of *Gladiolus primulinus* is a small yellow flower, spaced rather widely apart on a slender stem. Many of the hybrids described as yellow are much paler than the type, and even run down the range to



FIG. 92.—GLADIOLUS PRIMULINUS GELYCE.

2½ feet tall; *Chrysolora*, dark lemon yellow, orange tipped, 3 feet; *Daybreak*, yellow flushed green, with orange tip, 2½ feet; *Solferino*, a beautiful guinea-golden yellow, with a transparent-like effect, very effective, 2½ feet; *Coral Queen*, pretty coral red, very attractive, 2½ feet; *Prince of the Netherlands*, long, tapering spikes of translucent orange scarlet flowers, very distinct, 3 feet; *Defiance*, brilliant scarlet, 3 feet; *Orange Queen*, deep orange yellow, compact rounded heads, very distinct, 3 feet; *Victorine*, a pretty, rich orange yellow, very free, 3 feet; *Sunset*, orange scarlet with translucent-like appearance, very effective, 3 feet; *Nymphs*, brilliant orange, passing to a bright red, 3 feet; *Scarlet Prince*, rich scarlet shading to orange, 3½ feet; *Lady Hillington*, sulphur yellow, top half orange red, large, tapering flowers, 3½ feet;

cream; further, most of them have markings, more or less pronounced, of scarlet, red, maroon, and even brown. Two new yellow varieties were recently shown at the R.H.S. fortnightly meetings—*Butterboy*, which received an Award of Merit, and *Gelyce*. The former is one of the largest and finest I have yet seen, but it is paler than the type, and has a fine dark line on the inferior petals. It is not butter yellow, as generally understood. *Gelyce*, which is illustrated in Fig. 92, is not so large as *Butterboy*, but is the purest yellow I have yet seen, and has no marking whatsoever. The flowers, which are borne on a tall spike, are rounder than those of the type. Both are strong growers, and when stocks have increased should be in great demand. *Smilax*.

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(Continued from p. 204.)

ENGLAND. S.W. (continued).

GLOUCESTERSHIRE.—The fruit crops generally are good, excepting Apricots and Peaches. Apples are exceptionally good. Trees of Bramley's Seedling, Newton Wonder, Allington Pippin, and Lane's Prince Albert are carrying very heavy crops. Beauty of Bath was also very good, but was quite a month later in ripening than last year. Small fruits, and especially Gooseberries, were all plentiful. Strawberries were a good crop, but smaller in berry than usual. We have a big crop of Damsons, also Filberts. Pears, with the exception of Williams' Bon Chrétien, are poor. *A. B. Smith, Balminton Gardens.*

—Fruit trees and fruit gardens never presented a more beautiful appearance in my experience than in the spring, due, of course, to the splendid maturation of the wood in 1921. Apples are promising an average crop of first-rate quality. Pears set freely, especially on espalier trees and trees in the open. Pear trees, on walls, owing to their earlier flowering, suffered a little from frosts, but are bearing good, average crops. There were heavy yields of culinary Plums, but dessert varieties were rather light. Small, soft fruits were rather below the average, excepting Strawberries, which gave a heavy and good crop, and Raspberries, which were plentiful. Our best variety of Strawberry is Laxton's Bountiful. Peaches, Nectarines, and Apricots were disappointing, which is accounted for by the fact that sharp frosts and snowstorms prevailed at the time of flowering. Our soil is a light, sandy loam, overlying limestone. *Frank J. Clark, Westonbirt Gardens, Tetbury.*

—The Apple crop is a good one; 3½ inches of rain that fell from July 1 to July 8 did wonders. Raspberries and Loganberries quickly responded to it. Apples, Pears, and Plums are satisfactory. Filberts are wonderfully good. These trees, of which we have a hundred or so, were neglected during the war and became much overgrown. They were cut down about three years ago, and are now good, dwarf bushes well laden with fruit. Walnuts appear to be bountiful. There is also a heavy crop of Beech mast. Our kitchen garden is on the old red sandstone, and through continued cultivation and dressings is rich in humus. *John Banting, Tortworth Gardens, Falfeld.*

—The Apple crop is rather patchy in this county, but there is a fair average crop on the whole. Blossom weevils and caterpillars have done much damage in some places. The Pear crop is a fair average one, but not so heavy as was anticipated. Plums were a good crop, especially the variety Pershore. Blaisdon Red was a varying quantity, and other varieties are, on the whole, good. Victoria Plums are suffering badly through silver-leaf disease. Gooseberries suffered early and severely through American Gooseberry mildew, in spite of dry conditions. The crops of Black Currants in the county are being reduced considerably through "reversion." Strawberries have done well. *G. H. Hollingworth, Shire Hall, Gloucester.*

—The cold weather during spring retarded the blossoming period advantageously until May. The trees, generally, were heavily laden with bloom, but, fortunately, only a moderate amount of fruit set, and, in spite of Apples dropping freely, enough remain to form good specimens. Owing to cold, sunless, wet weather, Cherries were not so good flavoured as they should be, whilst Strawberries were more acid than usual. *George H. Emmett, Lindore Gardens, St. Briavels.*

—Plums were on the small size, and especially the varieties Early Prolific and Pershore. One thing very noticeable is the average crop of Blenheim Pippin Apples, which we get only every other year. Gooseberries and Red Currants were very good. Black Currants were under the average yield, as a

lot of the bunches tailed off. Raspberries and Loganberries were very good. Plums Early Rivers, Czar, Pershore Yellow, Black Diamond, Cox's Emperor, and Magnum Bonum were very plentiful. Cooking Apples are an average yield, but dessert sorts are under. Pears Red Lammas, Williams' Bon Chrétien, and Pitmaston Duchess are under the average yield, but of good quality. Our soil is very good for dry seasons, and does not get waterlogged in rainy weather, but it is difficult to work for a day or two after rain, as it gets sticky. It is on rotten-stone and rock, but the top soil is over 2 feet deep, and so, of course, retains moisture. *J. Osmond, Ebrington Hall Gardens, Campden, Glos.*

HEREFORDSHIRE.—The fruit crops generally are good, and the trees clean and healthy. Apples, Pears, and Plums are heavily cropped, and the trees are free of insect pests. Strawberries were a good crop, but, owing to the spring drought, the berries were on the small side. Nuts are a heavy crop. *Thos. Spencer, Goodrich Court Gardens, Ross.*

—The Apple crop is good after the bumper year of 1921, and much better than could be expected. Pears are an enormous crop. The trees are laden with fruit. Plums are also plentiful, and all other stone fruits, especially Damsons, are a heavy yield. Small fruits have been good, especially Strawberries and Raspberries. The soil is somewhat heavy in texture. *W. G. Crooked, Kentchurch Court Gardens.*

—Some Apple trees which bore heavily last year have fair crops; others had not a single blossom. On the whole, the blossom was good, but the nights were chilly in spring and rather unfavourable to the fruits setting well. The quantity of Pear blossoms was very exhausting to the trees, and comparatively few fruits set, and the weather was not very good at setting time. Plum trees produced an abundant amount of blossom generally, and a fair number of these set fruit. There is some leaf curl following aphid attack. Red Currants did not set very freely, and were a short crop in comparison with other years. The weather was bad. Gooseberries set well. Sawfly and Abraxis grossulariata have not been troublesome on the bushes. Some Black Currants "tailed off," but we had a fair crop. Strawberries were badly affected by the drought. *H. E. Durham, Dunelm, Hereford.*

(To be continued.)

MARKET FRUIT GARDEN.

HOPE of a spell of fine autumn weather in which to get the plantations clear of weeds has almost disappeared. There was no chance to do any hoeing or horse cultivation during September, for rain fell on eleven days, the total amounting to 2.96 inches. Altogether it was a very unpleasant month, cold and wet, with a gale on the 16th, and a severe thunderstorm with heavy rain on the 23rd, both of which took their toll of the Apples and Pears.

FRUIT IN A WET SEASON.

The effect of the sunless season is seen in lack of colour in Apples, particularly late varieties. In this respect the fruit is much superior from grassed orchards, which generally score in a wet year. The grass causes earlier finishing of the fruit; and colour comes with maturity. One naturally expects size in a wet season, but it is curious how varieties differ. With me, fruits of Lane's Prince Albert are extra large, but Bramley's Seedling are rather small. Cox's Orange is much smaller than it was last year, when it reached an astonishing size almost everywhere, seeming to revel in the drought. No doubt it is warmth that is lacking this season. On the whole, however, Apples are larger and of better quality than they were in 1921. Even Worcester Pearmain is worth eating. Pears, on the other hand, though large, are lacking in flavour.

Fruit trees are losing their leaves much earlier than they did last year; so little further development of the fruit can be expected. The

heavy crops of Cox's Orange Pippin, Allington Pippin, Blenheim Pippin, Bramley's Seedling, and Newton Wonder are yet to be gathered; and the market offers no temptation to proceed with the work before it is absolutely necessary.

FIRST EXPERIENCE OF BOXING.

Worcester Pearmain is generally a popular Apple with the public, but this year it has sold very slowly. I found, as anticipated, that boxing helped greatly in the disposal of a heavy crop of this variety. Prices were by no means sensational, even for fine Worcesters in boxes, but they did sell readily at 2s. to 3s. a bushel more than in half-sieves. I doubt if this difference in price is enough to make boxing pay; but there is great satisfaction in placing the fruit on the market in such attractive form.

I found the process of boxing much easier to learn than I expected. Anyone who starts with a grasp of the theory of the business should pack quite well after half a day's work, though he will be some time in gaining speed. Even the separate wrapping of each Apple in tissue paper, to which people are apt to demur, proves quite a simple matter if a rubber stall is worn on the middle finger of the left hand to facilitate picking up the paper; and it certainly helps matters by making the Apples lie just where they are put in the box.

Beginners should note that in Covent Garden, at any rate, only large fruit is wanted in boxes in a season of plenty. Worcesters, for instance, were not appreciated under 2½ inches in diameter, and they sold much better if over 2½ inches, or not more than 175 to the bushel box. Enormous specimens, which went only 138 to the box, and seemed really too big for dessert, made the highest prices.

A NEW GRADER.

The greatest help in boxing Apples is to have the fruit accurately sized in advance. It is possible to box from a mixed sample, but it is much slower and more difficult. On a small scale the fruit can be sized by hand, but on anything like a large scale this becomes a tedious and expensive process. A mechanical grader, even if it does not give perfect results, is certainly a great help and labour-saver. The machines at present available occupy a lot of space in the packing house and are expensive. I recently had the opportunity of inspecting a new grader which is free from these objections. It is the invention of a practical fruit-grower, Mr. F. B. Purchas, of Hitchin, and works on an entirely new principle. The Apples are fed from a hopper on to rotating discs bored with holes of various sizes. There are two of these grading discs, one above the other, with a padded disc below each for catching the graded Apples and distributing them to their respective collecting trays. The machine works easily and smoothly, and delivers the Apples in five grades without injuring them in any way. It is, indeed, quite capable of dealing with Tomatos, which are much more tender. It is expected that this new grader will form an interesting exhibit at the coming Imperial Fruit Show, and that it will shortly be placed on the market.

APPLE CRIMSON BRAMLEY.

A few trees of this variety are bearing a light crop for the first time this year. In spite of the sunless season the fruit is entirely covered with deep crimson, and is most attractive. In every particular, except colour, this Apple is identical with the ordinary Bramley, from which it originated as a bud sport. Market growers have planted it to some extent; and those who are planting new orchards might be well advised to choose the crimson form of Bramley. Its brilliant colour can hardly fail to give it preference with the public.

MARKETING DIFFICULTIES.

This is a small country, but it is almost impossible to send fruit from one end of it to the other, owing to high railway rates. London is usually the worst market of all, especially during the summer months, when people are on holiday. The northern markets have been much better this season; but they are quite out of reach of a southern grower. I inquired the owner's risk rate for Apples in ton lots by goods train from my station to Glasgow, which is a

good market for graded fruit. It is £4 18s. 3d. per ton! I have no doubt that an American grower can get his Apples on to the Glasgow market for much less. Midland and eastern counties growers are in the best position for marketing, as they are within about equal distance of London and the northern towns. We have some good seaside markets in the south, but they are easily glutted, and they are busy for a short season only. Anyone who thinks of starting fruit growing should get within reach of northern markets, and leave Covent Garden out of account altogether.

LIVE STOCK IN ORCHARDS.

Visitors are always surprised that I do not run live stock of some kind in my grass orchard, but they do not satisfy me that it could be done without injury to the trees, which have stems only 3 feet high. Sheep would keep the grass down and do the land most good, but they would probably reach up into the trees after the leaves if they did not gnaw the stems. Pigs are open to the objection that they root about and leave the land very rough. Poultry need a great deal of attention and do not keep the grass down. Then with any stock there is the difficulty of finding another run for them whenever spraying is in progress. I believe it is best to keep to the present plan of mowing the grass and letting it lie on the surface, though I am quite open to be convinced to the contrary by any grower with experience of stock in an orchard of low half-standards.

NO WASPS.

I have never known a season so free from wasps. A store of carbon disulphide was laid in ready for destroying the nests, which are often very numerous on this farm; but not a single nest has been found. When there is a plague of aphids we are generally told that it serves us right for killing off the wasps; but this year we have no aphides to speak of and no wasps.

Several correspondents mention the killing of queen wasps in the spring; but it is not a fact that the vast majority of the wasps taken at that time and exhibited at country flower shows are not really queens at all, but drones that have been in hibernation? There were hundreds of these so-called queens amongst my trees in the spring; yet we had no nests. *Market Grower*.

FRUIT TREE GROWTH IN 1922.

THE differences in the two seasons of 1921 and 1922, recalled by *Market Grower*, in your issue of September 16, bring forward an interesting problem. In the course of several visits to fruit plantations, I was impressed by the exceedingly healthy growth of all fruit trees, which is not always the case in a wet season. It seems to me probable that fruit trees, judging not only by the amount, but more especially by the health, of their growth, are benefiting more this year than last from the abundant sunshine of 1921.

Also, since growth is practically proportional to the supply of nitrogen so long as that supply is below the maximum required by the plant, and as the sun is well known to favour the work of the millions of nitrifying bacteria in the soil, besides being detrimental to the life of protozoa, which feed upon these beneficial bacteria (protozoa are killed by a relatively low temperature and are entirely absent from the soil at a temperature of 100° F.), probably an excess of nitrogen was stored in the soil, and fruit trees were able to draw on an available supply directly conditions became favourable for growth, and, in this way, were able to get ahead of pests and go right on without a check. This steady growth must have meant that a large supply of food was manufactured, and this again must have had a great effect on the development of the fruit.

Likewise *Market Grower* says—one would expect fungous diseases to be especially prevalent owing to the wet season, but here also, is it not likely that the effects of last year's sun have lasted over till this year, and that the different fungi have not yet recovered from "sun-shock"? *Pip Pin*.

WART DISEASE OF POTATOS IMMUNITY TRIALS.

At the testing station of the Scottish Board of Agriculture, at Philipstoun, West Lothian, which was established three years ago, a public demonstration of the results of the immunity tests carried out there this season was held on the 28th ult., the demonstrators being Mr. T. Anderson, of the Board's Testing and Registration Stations, and Mr. A. Millar, of the Registration Station.

As was the case last year, the tests this season were carried out on single tubers, and also on six tubers of each kind, the former, which do not qualify for the official certificate of immunity, being for the purpose of assisting breeders to eliminate seedlings which were not immune, and thus obviate waste of time in pursuing their further cultivation. Of these single tubers 567 were being tested for the first time, while 267 of those found to be immune last year were again under observation. The 45 varieties which proved to be immune last year under the official immunity test were again under observation, and 58 varieties were under test for the first time. In addition to these there were 42 German varieties and a French one under test. The test is a severe one, as, in addition to the infection already in the soil, each individual tuber is infected at the time of planting.

Referring to the general results, Mr. Anderson explained that in the single tuber tests numbers of pedigree seedlings of both immune and non-immune varieties were included, both from selfed and crossed plants, the object being to obtain a knowledge of the probable percentage of immune types which might be expected in either case. The most of the plants seemed to be genuine seedlings, but occasionally standard varieties appeared, which no doubt were accidental plants from tubers left in the ground. Of these single tubers at least 50 will qualify for inclusion in next season's tests.

It was found that selfed immune varieties produced a large number of immune seedlings, and that in many respects these reproduced the characteristics of the parents, and that in a few cases, as, for example, Ally, Abundance, and Templar, they were indistinguishable from the parents, and showed a high percentage of immune individuals. One series, the result of crossing a non-immune with an immune variety (President × Flourball), showed about 40 per cent. of immune individuals after a two years' test, but by crossing two immunes (Majestic × Flourball), a percentage of 70 to 80 of immunes was obtained. Seedlings of Up-to-date × Majestic also showed a fair proportion of immune types.

In the official immunity tests, for which six tubers of each variety are required, the results were disappointing, and indicated that raisers required the guidance afforded by the single tuber tests. Of the new and distinct varieties tested for the second season, 38 were found to be free from disease, and of those tested for the first time 16 were free from and an equal number susceptible to the disease. Numerous Continental varieties were also tested, some of which were free from the disease.

An inspection of the plots showed that some varieties had done much better than others. Dunvegan seemed to be a very poor cropper, and the haulm was affected with mosaic disease. Katie Glover (second early) showed a large yield, but of rather under-sized tubers. Majestic (early main-crop) produced a good crop of tubers of large size, while in Crusader the haulm seemed to die down too early, before the tubers were full grown. King Edward (non-immune) had done well, and Roderick Dhu showed a heavy crop of full-sized tubers. Field Marshal (non-immune) proved an excellent cropper, but some of the older varieties, such as Cardinal, Fortyfold, Pink Eye, Buchanan's Beauty, Ashleaf, Kerr's Pink and Golden Wonder were producing quite as good crops as the majority of the new varieties. Among those undergoing trial for the second season the most promising were P., Ardnell Rose, Achievement, Dreadnought and East Neuk.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

The Dunkeld Larches.—Mr. A. D. Richardson has misrepresented my remarks in the *Gard. Chron.*, and also Grigor's *Arboretum*. I therefore ask who was responsible for the publication of the Rev. James Headrick's report in 1813? Grigor states that the Rev. James Headrick published a report in 1813, and that he saw three large trees growing near the mansion house of the Lockhart of Lee. I completely fail to see that this is a legend. I think it is essential that some of this author's points are made clear. There is not the slightest doubt but that many of the accounts and reports of the Dunkeld, Menzie, Blair and Dalwick Larches do not agree, and Grigor states this in his *Arboretum*. Loudon's *Arboretum et Fruticetum Britannicum* must therefore be unreliable, especially as Grigor's work appeared nearly 30 years later, and states the above. The pointless criticism which Mr. A. D. Richardson refers to on p. 189 is also misleading. It is not mine, but the publication I referred to. It is very essential to be correct on these points if one is to gain knowledge and unravel some of the inaccuracies of past authors. *Mark Mills*.

Collerette and Collarette.—Whilst I do not doubt that the word "Collerette" was originally applied to the ugly little Dahlias so-called, it is idle to say that "there is no such word as 'Collarette' in the English language." Had C. H. P. (p. 183) consulted a few dictionaries before making that statement he might have thought better. It is given in Funk and Wagnall's *Standard Dictionary* and also in Cassell's *English Dictionary*, in both cases with, no doubt, its original meaning; a collar, or a little collar, for ladies, in which sense it is still used. I suppose it was considered necessary to adopt a fresh word to describe Dahlias with a little collar, rather than use a word already in use in English—with precisely the same meaning as the French one, which has no more to do with Dahlias than the other! *C. N.*

Autumn Show at Holland Park Hall.—It is to be hoped that this great show was financially successful, so that the Council of the R.H.S. may be able to continue it for a series of years. So far as the show itself was concerned, there can be but one opinion, viz., that it was a huge success in every way. Of course, there may on future occasions be improvements here and there, but it must be remembered that this was a first effort in a strange place. The hall is not so suitable for exhibiting flowers as the one at Vincent Square, but then it was not built for this purpose; but, given fine weather, as on the first day of the show, no one will complain. It would be no easy task to decide which was the outstanding feature of the show. To me everything was good. Fruit was much better in quality than I expected to find it, and there was high colour in the Apples, and the size was good, whilst most of the fruits were free from blemishes. Hardy flowers were very fine, and few could have expected to find such an array of Lupins as was to be seen in several of the exhibits. Pot fruit trees have seldom been shown in better condition or more heavily laden with clean, full-sized fruits. Groups of plants like that of Messrs. J. Cypher and Sons are seldom seen at the London shows, and this firm deserves the thanks of London people. Carnations, particularly those from Mr. Engelmann, were excellent indeed, and so I could go on. Mr. H. J. Jones's Chrysanthemums were fine, but the exhibit which appealed to me as an outstanding feature was Mr. E. Becker's vegetables. The competitive exhibits in the gallery were excellent, and were the more interesting as coming from amateurs. Displays of Orchids are always fine and indispensable at a show of this kind. My only object, however, in sending this note is to encourage the Council of the R.H.S. to "carry on." The old fruit shows were fine, but became monotonous; this Holland Park Hall Show was an immense improvement on anything yet done at this season of the year. *T. E. Arnold, Cirencester Park Gardens*.

SOCIETIES.

ROYAL HORTICULTURAL.

Exhibition at Holland Park Skating Rink.

(Concluded from p. 216.)

VEGETABLES: COMPETITIVE CLASSES.

COMPETITION was very keen in the vegetable classes, and practically all the exhibits reached a high standard of excellence. The collections attracted a considerable amount of well-deserved admiration from the visitors.

The Sutton Challenge Cup, offered for the best 12 distinct kinds, was won by Mr. T. M. JONES, 3, Bank Buildings, Llandilo, with a particularly meritorious exhibit, in which every item was of first-rate quality. His varieties included Autumn Giant Cauliflowers, selected Ailsa Craig Onions, Black Beets, The Bishop Potatos, Prize-taker Leeks, Gladstone Peas, Prize-winner Runner Beans, Gem Brussels Sprouts, and Aldenham Pink Celery. Sir CHARLES NALL-CAIN, Bt. (gr. Mr. T. Pateman), The Node, Welwyn, was an exceedingly good second, and he had superb examples of Red Elephant Carrots, Michaelmas White Cauliflowers, and Tender and True Parsnips. CHARLES V. SALE, Esq. (gr. Mr. R. Learmouth), Aston Rowant, Oxon, won third prize.

The R.H.S. Vegetable Cup was offered for 9 distinct kinds of vegetables of the size and quality most acceptable for table use, and it was won by W. H. MYERS, Esq. (gr. Mr. G. Ellwood), Swanmore Park, Bishop's Waltham, with a well-nigh perfect collection. He included Early Giant Cauliflowers, Duchess of Albany Peas, Champion Horn Carrots, Best of All Runner Beans, Sutton's Globe Onions, and Stirling Castle Potatos. Mrs. JENNER (gr. Mr. H. Wheeler), Wenvoe Castle, Cardiff, who won the second prize, had excellent examples of Scarlet Intermediate Carrot, Gladstone Pea, and Standwell Cauliflower. R. C. STAPFYLON, Esq., Headlands, Berkhamstead, third.

The best six kinds were shown by Mr. Tom JONES, Manordils, Carmarthenshire, and this set was also of great merit. He had Aldenham Pink Celery, Gladstone Peas, Selected Ailsa Craig Onions, The Bishop Potato, and Princess of Wales Tomato. Mr. J. DAY, Newnham, Berkhamstead, who was second, included excellent Intermediate Carrots and King Edward VII. Potatos. Mr. G. THORN, Willesborough, was third.

The collections of Potatos were particularly good, and seldom have so many clear, shapely, and shallow-eyed tubers been seen as at the Holland Park Hall show. The Rev. C. G. KEAN (gr. Mr. A. Basile), Weybridge, won the first prize. His best varieties were Mr. Breeze, Arran Rose, Tinwald Perfection, The Ally, and Arran Comrade. Mr. G. THORN was second, and he included perfect examples of White City, Factor, and Arran Comrade. Sir CHAS. NALL-CAIN was third. The class for 6 immune varieties also created a keen competition. The first prize was won by Mrs. JENNER with such sorts as Great Scott, Arran Comrade, and The Bishop; second Mr. F. HEAD.

Onions, though not so numerous as in some former years, were large and shapely, and, in spite of the difficulties of the season, well-ripened. The best 6 varieties were shown by Mrs. JENNER. The bulbs of Ailsa Craig (globe-shaped), Premier, Golden Ball, Sutton's Globe, and Selected Red were particularly fine. Mr. W. H. MYERS was second, and Mr. T. M. JONES was third.

There were many collections of saladings, but the quality was scarcely equal to the rest of the section. Mr. W. H. MYERS, showing Batavian Endive, Black Beet, and Golden Ball Lettuce, was first; Mr. T. M. JONES was second; and Mr. CHARLES V. SALE was third.

The Single Dish Classes were fully equal to those of any former year. Celery, Leeks, Carrots, Parsnips, Peas, Beans, and Potatos were first rate. The first-prize winners were:—W. H. MYERS, Esq., with Scarlet Runner Beans, French Climbers, French Dwarf Beans, long type Beet, Cucumbers, and Leeks. F. C. SROOR, Esq. (gr. Mr. G. Carpenter), West Hall, Byfleet, with Globe Beet and Cauliflower.

Mrs. JENNER, with 50 buttons of Brussels Sprouts, White Celery, and Yellow Tomatos. Sir CHARLES NALL-CAIN, with 3 plants of Brussels Sprouts, Parsnips, and Curled Kale. The Rev. F. G. WYATT (gr. Mr. J. Shirley), Little Haywards, Horley, with Winningstadt Cabbage, Celery, and Marrows. Mr. T. M. JONES, with Savoy Cabbage, Onions, and long Carrots. Mrs. FARNHAM (gr. Mr. J. Binnington), The Heights, Wisley, with red Celery. A. P. BRANDT, Esq. (gr. Mr. J. W. Barks), Bletchingley, with short Carrots. CHARLES V. SALE, Esq., with Peas. Mr. W. J. STAWARD, Alfreton Park Gardens, Alfreton, with white, purple, and yellow-fleshed Turnips. Mrs. G. F. AUSTEN (gr. Mr. A. Woodgate), Capel Manor, Horsmonden, with white Potatos. Mr. J. DAY, with coloured Potatos. Mr. T. N. HORN, with red Tomatos. In the class for any other vegetable the first prize was won by Mrs. JENNER with Mammoth Salsify of excellent quality.

Fruit.

TRADE GROWERS' COLLECTIONS.

There appeared to be only one exhibit of a collection of hardy fruit on a table 30 feet by 6 feet, and this was a splendid exhibit by Mr. J. C. ALLGROVE in a recess in the gallery. It was composed chiefly of Apples, and the quality was very high. His new variety, S. T. Wright, a large, shapely, culinary Apple, which is beautifully streaked with crimson, was very prominent, as also were the Rev. W. Wilks and James Grieve, both of which were also shown in large quantities. Other especially good cooking sorts were The Queen, Lord Derby, Bramley's Seedling, and Warner's King. Amongst the many dessert Apples, Charles Ross, Allington Pippin, Ellison's Orange, Cox's Orange Pippin, and Margil were splendid. The Pears included handsome fruits of Doyenné Boussoch, St. Luke, Mrs. Seden, and Marie Louise. Plums, Filberts, and Cob Nuts were also represented in this memorable collection, which deservedly received the first prize.

In the smaller, but still large class, the first prize was won by the BARNHAM NURSERIES COMPANY, with a collection which was particularly noteworthy for the high colour on many of the very shapely Apples. These were Peacemaker, Caville Rouge Precoce, King Pippin, Rival, Guelph, and Lady Sudeley. The cooking varieties included Norfolk Beauty, Golden Spire, Bismarck, Bramley's Seedling, and Peasgood's Nonesuch, while chief amongst the Pears we noted Marguerite Marillat, Beurré Fouquieray, and Triomphe de Vienne. Messrs. S. SPOONER AND SONS were second, and they had a handsome collection of such dessert Apples as Worcester Pearmain, Royal Snow, Cox's Pomona, and Cox's Orange. The principal culinary sorts were Rev. W. Wilks, Peasgood's Nonesuch, and Pott's Seedling. The outstanding Pears were Paroquet, Calabash, Marie Louise d'Uccle, and Durondeau.

The Market Growers' Class, which requires 12 baskets of cooking and dessert Apples, brought several excellent exhibits. The first prize was won by the HORTICULTURAL COLLEGE, Swanley, with a magnificent collection of such sorts as Peasgood's Nonesuch, Alfriston, Bismarck, of the cooking sorts, and Charles Ross, Rival, Cox's Orange, and James Grieve, of the dessert varieties. Lieut.-Col. LUMLEY WEBB, Upchurch, was a good second, with Tower of Glammis, Peasgood's Nonesuch, Rival, Ben's Red, and similar varieties.

AMATEURS' HARDY FRUITS.

Sir CHARLES NALL-CAIN was the only exhibitor of a collection of 8 dishes of dessert and 16 of cooking Apples, and he was awarded the first prize for a highly meritorious display. He had magnificent examples of Paroquet, American Mother, and Cox's Orange in the first row with Rev. W. Wilks, Peasgood's Nonesuch, The Queen, and Emperor Alexander behind. The best collection of 4 dishes of dessert and 8 of cooking Apples was shown by G. MILLER, Esq. (gr. Mr. J. Kidd), Newberries, Radlet, and this included perfect specimens of Mère de Ménage, Rev. W. Wilks, Rival, and Ribston Pippin. Capt. H. B. TATE (gr.

Mr. A. E. Moss), Billersby Manor, Warwick, was a good second.

Major H. R. CAYZER (gr. Mr. T. Hengate), Tynney Hall, was first in the classes for 6 dishes each of dessert and cooking Apples. In the former class he included splendid dishes of St. Everard's Pippin, Wealthy, and Mabbott's Pearmain, while in the latter he had The Queen and Peasgood's Nonesuch in excellent condition. Major BAYNES, Kinnesbourne, Green, Luton, was second with dessert Apples, and Sir CHAS. NALL-CAIN was similarly placed in the cooking Apple class.

The best 18 dishes of dessert Pears was shown by Sir CHAS. NALL-CAIN, and this was a superb collection of very shapely fruits, including Doyenné Boussoch, Le Lectier, Marguerite Marillat, and Clapp's Favourite. G. MILLER, Esq., was a good second, and he had typical fruits of similar varieties. Lord HILLINGDON was awarded the first prize for 9 dishes of dessert Pears, and his excellent collection included Brockworth Park, Durondeau, and Marie Louise d'Uccle.

Lady MARY MORRISON (gr. Mr. H. H. Mills), Fenthill House, Tisbury, Wilts, won first prizes for Plums and Damsons. In the former class Late Orange was shown, and in the latter Bradley's King was the variety. Showing Coe's Golden Drop, Sir CHAS. NALL-CAIN was second with Plums. The best Morello Cherries were shown by Maj.-Gen. Sir C. HADDEN (gr. Mr. O. Hayles), Rossway, Berkhamstead, while Capt. DRUMMOND, showing Queen Alexandra, was awarded first prize for Autumn Raspberries, and with Negro Largo for Figs. J. H. LONDON, Esq., was second for Figs with Brown Turkey, of luscious appearance.

SOCIÉTÉ POMOLOGIQUE DE FRANCE.

THIS year the principal French horticultural exhibitions have been held in Paris; since the spring International Horticultural Show and the Iris Conference, the Pomological Congress has taken place, while the Autumn International Exhibition and the Chrysanthemum Congress are yet to come.

The 58th Congress of the Pomological Society of France took place in Paris from the 11th to the 15th of September, at which Dr. Viger, the President of the French National Horticultural Society, presided. The Congress was well attended, nearly 200 persons being present, of whom a number were delegates from Switzerland, Belgium, Italy, and Luxemburg, viz.: MM. Blanc, from Lausanne; Bocquard, from Geneva; Dufour, from Vilvorde; Molon, from Milan; Wagner, from Luxemburg, etc.

At the opening of the first session of the Congress, Dr. Viger and M. Sylvestre, vice-president of the Pomological Society, spoke in feeling terms of the late President of the Society, M. Gabriel Luizet, who died a few months ago.

Among the questions discussed was the following: "What are the indispensable conditions for obtaining a good return for commercial fruit culture in different places?" Two interesting papers were read on this subject by MM. A. Nomblet and Magnan, and a good discussion followed. It was observed that in Switzerland, in the Valais, the local government has made regulations regarding the sale of fruit, and the packing and despatch of the goods are subject to inspection.

The Congress passed a resolution inviting agricultural and horticultural syndicates to advise as to the date of harvesting fruits intended for despatch by rail or sea, and drawing attention to the great losses resulting from the sale of green fruits which did not ripen properly, but which hindered the sale and consumption of the same fruits later on when they were mature.

Another question discussed was: "What should be the directing principles of nurserymen and seed growers in organising production with a view to satisfying post-war requirements?"

An excellent paper by M. A. Nomblet laid down the principles of the cultivation of fruits on a large scale and in rotation, laying stress on the necessity of planting sufficiently far apart to allow of the passage of mechanical cultivators between the rows.

A resolution was passed claiming for fruit

growers the privileges now extended to Grape growers, in favour of whom the railway companies have allowed a 50 per cent. rebate in freight charges.

A discussion ensued on the necessity, for the proper development of fruit cultivation, of establishing in the principal centres of production experimental stations, which should popularise the best methods of cultivation, the most remunerative kinds and varieties, the proper fertilisers, and the most effective means of combating the effects of inclement weather, and insect and fungous pests. Co-operation could also be encouraged in the way of buying collectively in the first place, and combining for purposes of the sale of produce.

The question of the effects of pinching pip-fruit-trees was also discussed. MM. Opoix and Coffigniez recommended the practice, but M. Rivière considered it useless, and cited in support of his contention the practice obtaining in Montreuil, Bagnolet, Fontenay-sous-Bois, Nogent, Deuil, and Montnagny, all in the vicinity of Paris, where the trees were never disbudded, and where the fruits produced surpass in fineness and flavour those of other centres of production. M. Dufour, of Belgium, considered disbudding necessary in certain localities. The general conclusion was that it did not do to generalise, and that pinching is necessary or not according to local conditions and methods of cultivation.

The influence of the stock on maladies of Peaches and Apricots formed the subject of a memorandum by M. Chiffot, of Lyons. The author had examined Apricot trees and Peach trees on different stocks; Almond, Plum, seedling, etc., and had come to the conclusion that the stock had absolutely no influence in this respect whatever.

Some interesting observations on Monilia of fruit trees were contributed by M. Passy. He also laid before the Congress some Pears attacked by a malady which is very rare and happily not of a serious nature, *Phoma umbilicaris*—a fungus which attacks the eye of the fruit and causes it to fall prematurely. For all maladies of fruit trees, early sprayings with sulphides were recommended.

MM. Rivière and Passy gave details of Silver Leaf Disease. They had never observed the mycelium of *Stereum purpureum*. The disease was chiefly confined to stone fruit trees: Plums, Cherries, and Almonds; it was less common on the Pear, and had been observed for the first time in France during the present year on the Pear tree, by M. Ducomet. It was also frequently found on ornamental shrubs such as the Lilac, *Philadelphus*, *Aesculus*, etc.

M. Chiffot also read a paper on the subject, and said he had not observed any traces of mycelium. Was it possible that a mycelium existed in the trunk which secreted toxins?

M. Passy remarked that the nature of the soil had no influence on the development of the malady. M. Opoix reported that at Ferrières, injections of powdered sulphate of iron applied directly to the trunk had cured a Peach tree affected with the disease, which was being forced in an orchard house. M. Dufour, of Vilvorde, gave an example of the influence of environment on the development of the disease. In a Peach-house, only the branches which were in the neighbourhood of the pipes were attacked by disease. M. Chasset gave an example of some trees which were very badly attacked by disease, but on being severely cut back were completely cured.

The disease known as "La Molle," or "Water-core," was then discussed, and M. Rivière drew attention to the analogy which existed between this disease and the softening of the fruit which is observed in the Medlar. M. Chiffot had also studied the question, and had found in all the examples he had examined a valved mycelium. It was doubtful, however, whether this was the cause of the disease, or a saprophytic mycelium which was a consequence. M. Chiffot recalled the fact that MacAlpine believed this malady to be due to a want of balance in vegetation. M. Chasset remarked that the disease had been found in the Pear *Passe Crassane*. In the Midi of France there was a variety of Apple called "Pomme

Glacée," which was always "vitreous," and was much liked on that account, especially for the making of sweetmeats, as it had a very distinct flavour.

The next item was a study of the disease *Oidium* of Apples. M. Chasset observed that the malady was much on the increase in the vicinity of Paris, but treatment with polysulphides had given good results. A solution of 4 gr. per litre of polysulphide of potassium in winter and 2 gr. per litre in summer prevented the development of the disease.

A discussion ensued on the subject of hybrid Vines for the production of dessert Grapes. There are many such hybrids now in existence, resulting from crosses between American species resistant to *Phylloxera* and French varieties. They have the advantage of being more robust, and more resistant to diseases, than the older kinds, thus necessitating less in the way of precautions against mildew and *Oidium*. M. Salomon questioned the value of several of these hybrids, and thought that it was not possible to obtain hybrid "direct producers" equal to the pure French kinds, but few of those present agreed with him. At any rate, there are many of the hybrids which, while perhaps not possessing quite the same quality as the old French varieties, are at any rate useful for the production of dessert Grapes in certain cases.

At the first session, the Congress examined various fruits, and the three following were definitely admitted:—

Apricot Poizat; Pear Duchesse Bérard; Pear Président Héron.

The following were retained for further examination, but were favourably regarded:—Strawberries, Alphonse XIII. (non-perpetual) and Saint-Fiacre (perpetual), both from Messrs. Vilmorin; Apricots, Blanchet and Corot; Almond, Bruantine; Cherries, Bigarreau Antoinette Nombrot, Bigarreau Président Vigier, Gagne la Reine, Noire de Montreux, etc.; Peaches, Commandant Bossu, Colonel Dusevel; Nectarine Brugnon Camille Maheut; Pears, Baronne Leroy, Beurré Henri Courcelles, Bési de Saint-Agyl, Directeur Tisserand, Fauneville, Merveille Ribet, etc.; Apples, André Sauvage, Bébé Rose, Delicious, Edouard VII., Isabelle Luizet, Serveau, etc.; Plum, Mirabelle de Flotow; Grape, Mme. Girerd.

The prize-winners at the Congress were:—M. BABOUD, of Thoissey, Ain; M. RIVIÈRE, Laboratory Director at the Agronomic Station, Versailles; and M. OPOIX, late head gardener at the Luxembourg.

The Congress nominated Mrs. Edison and Mr. Kuntz, members of the Committee of the American Society "Friends of Trees" for the devastated regions of France, honorary members of the Society.

Interesting excursions were made by the delegates to the Congress to the garden and houses of the Luxembourg; to the nurseries of Messrs. Nombrot, at Bourg-la-Reine; Messrs. Croux, at Chatenay; and Messrs. Moser, at Versailles; to the College of Horticulture and the park at Versailles; and to the gardens of the Trianon; forming an agreeable conclusion to this important Congress.

On Thursday, September 14, a large exhibition of fruits took place in the hall of the Société Nationale d'Horticulture. M.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

THE annual festival dinner of this Society was held on Wednesday, October 4, at the Imperial Hotel, Russell Square. Mr. Leonard Sutton presided, and the company numbered about sixty. In proposing the toast of the United Horticultural Benefit and Provident Society, Mr. Sutton stated that he felt greatly honoured in being asked to preside at the dinner. A benefit Society of this character was commendable in so much as the members were insuring that they would not be a drag on anyone in their times of trouble. By co-operating it gave them an opportunity of doing things for themselves, and in that way they were doing one of the best things for their

country. It was a gardening society for gardeners managed by gardeners, and Mr. Sutton's advice to members of the gardening profession was to join it. His firm had been connected with this Association for some 42 years; his father was an hon. member, and he could only wish that he was alive now to see the prosperous state it had arrived at, for the annual income amounted to £5,000, and during the past year the sum of £600 had been disbursed in sick pay. He would like a Society of this nature to take up the question of a pension fund and he thought this could be easily arranged if the gardeners themselves subscribed a certain amount and their employers subscribed a similar sum. Mr. Sutton associated the name of Mr. Bedford, vice-chairman of Committee, with the toast. He stated that Mr. Bedford was one of our most famous gardeners, in charge of one of the most important gardens in the country.

Mr. Bedford, in response, stated that the Society was the only one of its kind in existence and it was difficult to understand why more gardeners did not join as members. He referred to the various benefits the members received during illness and the amount payable to their representatives on death. The Society had also been able to give many additional benefits to State members, such as dental treatment, optical treatment, surgical appliances, etc.

The chairman read several letters from members and others, including Sir Harry Veitch, regretting their inability to be present.

At this stage the presentation of a gentleman's wardrobe in Mahogany and a handsome barometer was made to the chairman of Committee, Mr. Charles H. Curtis, as a mark of appreciation for his twenty-one years in that office. Mr. Sutton stated that during the 21 years Mr. Curtis had placed his energies and service at the disposal of the Society. But this was only one of his many activities in the horticultural world, for he had done valuable work for such institutions as the Kew Guild, the National Sweet Pea Society, and the National Chrysanthemum Society, and was well known as a horticultural journalist. In making the presentation, Mr. Sutton proposed the health of Mr. and Mrs. Curtis.

Mr. Curtis, who, on rising, was received with much applause, thanked the chairman and members for the beautiful gifts, which he said he would treasure so long as he lived. He stated that during 21 years the Society had disbursed in sick pay, £13,000, in benevolent grants £2,600, and in other ways £8,000, making a total of £23,600. In 1901 the sums invested amounted to about £17,000, whereas by the end of this year the investments would come to nearly £65,000, or an average of £44 per head for every member on the private side. Mr. Curtis estimated the time he had spent at meetings during the 21 years as chairman. The meetings of the Committee occupied about 2½ hours each. This works out at about eighty days during 21 years, but as there are numerous additional meetings and sub-committees to attend it would not be unreasonable to assume that a committee man is actually engaged on the work of the Society for one hundred days during the period under notice. He pointed out that a considerable amount of a member's time is occupied in going to and returning from Committee meetings and such time is at least twice as long as that occupied in the actual sittings of the Committee. In short, twenty-one years of office as a Committee man meant that the Society had received a whole year of service, assuming the working day to be eight hours in length.

Mr. W. H. Divers next proposed the health of the visitors, to which Sir Frederick W. Keeble, F.R.S., and Mr. G. Challis responded. Sir Frederick stated that it would have been more in keeping had a lady been asked to respond for the visitors, as it would have been a further indication of the pleasure they felt at their presence. He always considered that there was no type of man more capable of enduring hardships and exhibiting fortitude than the British gardener, and he supported Mr. Sutton's proposal of a pension fund for gardeners, to ensure them a means of subsistence in their old age. He was pleased to identify him-

self with this excellent gardeners' benefit Society, and would be pleased to become one of its hon. members.

The toast of the health of the chairman proposed by Mr. Curtis terminated the business proceedings. During the evening a selection of vocal and instrumental music was ably rendered under the direction of Mr. Fred Verity.

CARDIFF GARDENERS'

The first meeting of the new session was held at the Queen's Hotel on the 3rd inst., (forty members were present), with Mr. P. Meyers in the chair.

The meeting opened with a lively discussion on the good cropping of Potatoes in the district this year. Majestic appeared to be most in favour for cropping and cooking qualities. The subjects of Scotch seed and immature seed were keenly debated.

Prizes offered for the best dish of five Potatoes were won by Messrs. Couch, Radcliffe and Giles respectively.

NEW HORTICULTURAL INVENTIONS

LATEST PATENT APPLICATIONS.

24911. Bryant, C. H.—Device for positioning and retaining supports for plants. September 14.
24939.—Carpmael, W.—Manufacture of insecticides. September 14.
24296.—Bedell, E. M.—Process for separating seeds. September 7.
24114.—Bull, G. F.—Grass-edge trimmer. September 6.
23930.—Turner, G. W. T.—Garden shears. September 4.
23442.—Abinger, R.—Lawn-mowers. August 29.

SPECIFICATIONS PUBLISHED LAST MONTH.

- 185,172.—Porter, A. J.—Gardening-tool
185,261.—Eley, C. V.—Garden or like rollers.
184,907.—Ludford, W. G. C.—Pumping-machine for charging knapsack spraying-machines and other containers with air and liquid.
184,550.—Nicholson, A. C.—Cultivators and the like.
184,587.—Shaller, P. H.—Apparatus for spraying disinfectants, deodorants, etc.
184,657.—Joseph, R.—Spraying-device
184,233.—Stanley, T.—Interchangeable combination garden and like tools.

ABSTRACT PUBLISHED LAST MONTH.

PLANT SUPPORT. PATENT No. 183779

An inexpensive design of wire plant support has been invented by Mr. H. J. Greenwood, of Kingleigh, Church Road, Bracknell, Berkshire. The support is constructed from two lengths of wire, or one length doubled upon itself, twisted together. The ends of the untwisted portions being bent to form a vertical loop, the arms of which cross one another and are bent to form a loop. When the two parts of the loop are pressed together, the ends of the wire separate so that the loop may enclose the plant stem, the loop being returned to its normal position by the spring arms. An additional wire may be twisted and bent to form an extra supporting loop lower down the support.

This list is specially compiled for *The Gardeners' Chronicle* by Messrs. Rayner and Co., registered patent agents, of 5, Chancery Lane, London, from whom all information relating to patents, trade marks, and designs can be obtained gratuitously.

Messrs. Rayner and Co. will obtain printed copies of the published specifications and forward on post free for the official price of 1s. each.

INQUIRY.

EPIPHYLLUM GAERTNERI.

A CORRESPONDENT asks if any of our readers will be kind enough to state where plants of *Epiphyllum Gaertneri* may be obtained.

MARKETS.

COVENT GARDEN, Tuesday, October 10th, 1922.

Fruit: Average Wholesale Prices.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples, English, per bus.					Melons				
—Lord Derby ..	4	6	5	6	—Kronze ..	18	0	—	—
—Warner's King ..	5	0	5	6	—English and ..				
—Bramley's ..					—Guernsey ..	2	0	6	0
—Seedling ..	5	0	6	0	Nectarines ..	3	0	13	0
—Worcester, half bushel ..	2	6	3	0	Nuts—Brazil ..	40	0	44	0
—bushel cases ..	6	0	9	0	Walnuts ..				
—James Grieve ..	2	0	2	6	—Eoor per bag ..	7	0	8	0
—York Imperial ..	20	0	25	0	—English per lb ..	0	4	0	6
Nova Scotian ..					Oranges ..				
—Gravenstein ..	16	0	18	0	—S. African ..				
—Ribston Pippin ..	18	0	20	0	Navel ..	20	0	22	6
Bananas, singles ..	14	0	22	0	—Seedlings ..	20	0	22	6
—doubles ..	20	0	22	6	Peaches, per doz.	4	0	24	0
Blackberries, 12lbs ..	1	6	2	6	Pears, half bus.				
South African ..					—Beurré Hardy ..	3	0	5	0
Grape-Fruit ..	18	0	20	0	—Beurré Superfin ..	3	0	5	0
Grapes ..					—Conference ..	2	6	3	0
—Alicante ..	0	10	1	9	—Calabasse ..	4	0	5	0
—Black Ham- burgh ..	0	10	2	6	—Louis Bon of Jersey ..	2	6	5	0
—Cannon Hall ..	2	6	6	0	—Pitaston ..				
—Muscat ..	1	6	5	0	—Duchess ..	2	6	3	6
—Almoria, barrel ..	10	0	18	0	—Californian, case ..	16	0	17	0
Lemons ..					Pineapples ..	2	0	5	0
—Naples ..	30	0	40	0	Plums ..				
—Messina ..	16	0	18	0	—Magnum Bonum ..	6	0	7	0
					—Prunes ..	2	6	3	0

REMARKS.—Rather brighter conditions have prevailed lately, and although values have not materially improved at the moment, continued buying should force up prices to a better level. Supplies of home-grown Apples are augmented by consignments from Nova Scotia as well as from Central Europe. Worcester Pearmain is quoted higher, and the demand for large cookers is firm. Pears are plentiful, and except for specimen fruits, their prices are very moderate. Hot-house Grapes are moving more freely, the low level of prices probably inducing a better demand. Home-grown Tomatoes are in shorter supply, and with reduced quantities from Jersey and Holland, prices are higher. Cucumbers have also advanced in price. Some choice Guernsey Beans are now arriving, and are in firm request. Vegetables are still plentiful and in excess of demand. The Potato trade is very quiet, with prices at a low level.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s.	d.	s.	d.		s.	d.	s.	d.
Adiantum, cuneatum, per doz. ..	10	0	18	0	Erica gracilis ..				
—elegant ..	10	0	12	0	48 per doz ..	24	0	36	0
Aralia Sieboldii ..	10	0	12	0	60 ..	12	0	15	0
Araucarias ..	30	0	48	0	Thunberg ..	8	0	9	0
Asparagus plumosus ..	12	0	15	0	Erica valis ..				
—Sprengeri ..	12	0	18	0	48 ..	24	0	30	0
Aspidistra, green ..	48	0	72	0	60 ..	10	0	15	0
Asplenium, per doz. ..	12	0	18	0	Thunberg ..	8	0	9	0
—32's ..	24	0	30	0	Marguerites, per doz. ..	12	0	15	0
—nidus ..	12	0	15	0	Nephrolepis, in variety ..	12	0	18	0
Cacti, per tray, 12's, 15's ..	5	0	6	0	—32's ..	24	0	36	0
Chrysanthemum —white per doz. ..	10	0	18	0	Palms, Kentia ..	24	0	30	0
—coloured ..	9	0	15	0	—60's ..	15	0	18	0
Crotons, per doz. ..	30	0	42	0	—Cocos ..	24	0	36	0
Cyrtomium ..	10	0	15	0	Polyantha Roses ..				
					48 per doz. ..	12	0	18	0

REMARKS.—In this department, there appears to be a general improvement in trade, there being a good demand for flowers during the week-end, with a slight advance in prices. The scarcest subjects during the past week have been *Lilium speciosum album* and *L. s. rubrum*. Trade in *L. longiflorum* remains unchanged, which also applies to *Roses*, *Carnations*, *Lily-of-the-Valley* and *Violets*. *Chrysanthemums* remain the chief attraction. Disbudded blooms appeared to be scarcer during the end of last week, but supplies this morning were more plentiful. Prices show a tendency to rise for best quality blooms. Some fine specimen blooms of numerous varieties are also on sale. *Richardias* (*Arums*) are coming to hand in better condition, and the supplies of this flower are larger. A little white *Bouvardia* is taking the place of *Stephanotis*, which is finishing. Of foliage, *Asparagus plumosus*, *A. Sprengeri*, *Adiantum*, *Fern* and *Smilax* are in moderate demand; the last is arriving from Guernsey in excellent condition. *Croton* leaves, which have been absent from the market for the past three months, are again on sale, the small consignments being soon cleared.

GARDENING APPOINTMENTS.

Mr. Wm Povey, previously for fifteen years Gardener to Colonel MAY, Down Grange, Basingstoke, Hampshire, as Gardener to R. E. LAMBERT, Esq., Telham Court, Battle, Sussex.

Mr. C. Prosser, previously Foreman at Range-moor Gardens, Burton-on-Trent, Staffordshire, as Gardener to the Marlborough Council Public Gardens Department. (Thanks for 2s. for R.G.O.F. Box.—Ens.).

ANSWERS TO CORRESPONDENTS.

APPLE WITH BROWN SPOTS UNDER THE SKIN: *G. R. R.* The fruit you sent is affected with bitter pit disease, caused by a fungus, which is often associated with a canker disease on the young branches. Remove all diseased fruits and destroy them by burning. Cankered shoots should be cut off below the seat of the disease, and these also should be burnt. Next spring spray the trees with Bordeaux mixture just before the buds burst and again after an interval of five weeks. It is not an easy matter to determine the name of the Apple from the diseased specimen you sent but it is probably Manks Codlin.

BOOKS: *R. A. L.* Books suitable for your purpose are:—L. H. Bailey's *Plant Breeding*, price 17s.; Farrer's *English Rock Garden*, two vols., price £3 4s. 6d.; *Commercial Forestry*, price 6s. 9d.; *Trees and Shrubs Hardy in the British Isles*, by W. J. Bean, two vols., price 6s. 6d.; *Fruit and their Cultivation*, by T. W. Sanders, price 6s. 9d., and *Vegetables for Home and Exhibition*, by E. Beckett, price 6s. All these can be obtained from our Publishing Department, at the prices given, post free.

CELERY DISEASED: *J. T. S.* The Celery is suffering from a bad attack of the infectious disease caused by the fungus *Septoria petroselinæ* Apii. As a preventive measure against attacks of Celery leaf blight, the seed should be treated with hydrogen peroxide, the twenty-volume solution being the best strength. Affected plants in the rows should be sprayed with Bordeaux mixture on the first appearance of disease.

NAMES OF FRUIT: *E. H. W.* Apples: 1, Lane's Prince Albert; 2, Benn's Red; 3, 8 and 10, Newton Wonder; 4 and 14, Allington Pippin; 5, Fearn's Pippin; 6, 7 and 16, Cox's Orange Pippin; 9 and 11, Manks Codlin; 12 and 18, Norfolk Stone Pippin; 13, Cox's Pomona; 15, King of the Pippins; 17, Round Winter Nonesuch; 19, Peasgood's Nonesuch. Pears: 1, Vicar of Winkfield; 2, Pitaston Duchess; 3, Bergamotte d'Esperen; 4, Beurré Diel.—*T. T.* 1, Lord Suffield; 2 and 7, Ecklinville Seedling; 3, Cellini; 4, Wealthy; 5, Dean's Codlin; 6, St. Sauvier; 8, not recognised; 9, Shepherd's Fame; 10, Golden Noble; 11, White Nonpareil; 12, Lady Sudeley; 13, Belle Pointoise; 14, Landsberger Reinette; 15, Baxter's Pearmain.—*A. B. D.* 1, Margil; 2, Waltham Abbey Seedling.—*A. W. G.* 1, Cellini; 2, badly scabbed, not in character; 3, Blenheim Pippin; 4, Dartmouth Crab; 5, Ashmead's Kernel; 6, Pear Souvenir du Congrès.—*H. J.* Apples: 1, Keswick Codlin; 2, Strawberry Norman; 3, Lady Sudeley; 4, Wyken Pippin; 5, Cox's Orange Pippin; 6, Margil. Pears: 1, decayed; 2, Beurré Clairgeau; 4, William's Bon Chrétien; 6, Pitaston Duchess; 10, Doyenné Boussoch.—*Ruts.* 1, Beurré Sterckmans; 2, Beurré Superfin; 3, Louise Bonne of Jersey; 4, Cox's Pomona; 5, Doyenné du Comice; 6, Marie Louise; 7, Tyler's Kernel.—*G. P. J.* 1, Beurré Superfin; 2, Maréchal de Cour; 3, Catillac; 4, Beurré Sterckmans; 5, Thompson's; 6, Beurré Hardy; 7, General Todleben; 8, Chaudmontel; 9, Beurré Bachelier.—*C. H. A. W.* 1 and 2, decayed; 3, Clapp's Favourite; 4, 5, 6, 7 and 8, William's Bon Chrétien; 9, Cox's Orange Pippin; 10, Lady's Finger; 11, Nancy Jackson; 12, Stirling; 13, Potts's Seedling.—*A. D. R.* Not recognised, probably a local seedling.

NAMES OF PLANTS: *Rose.* 1, *Potentilla*, sp. not recognised without flowers; 2, *Corydalis cheilanthifolia*; 3, *Stachys Betonica*; 4, *Senecio tanguticus*; 5, *Muehlenbeckia complexa*; 6, *Artemisia lactiflora*; we cannot undertake to name *Roses*.—*E. S.* 1, *Aster Amellus*; 2, *Helianthus multiflorus plenus*; 3, *Aster*, garden seedling; 4, *Aster turbinellus*.—*G. S.* *Asclepias curassavica*.

Communications Received.—*E. W.* (thanks for cheque for R.G.O.F. Box.—Ens.).—*E. B. A. S.*—*W. B. W. M.*—*J. H. L.*—*T. H. R. P. B.*—*J. W. M. L. R. C. W. B. M.*—*J. T. R.*—*J. J. T.*—*D. D.*—*A. N. G. A. S.*—*W. S.*—*F. L. E.*—*A. H.*—*J. H.*—*D. S. F.*

THE

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AVERAGE MEAN TEMPERATURE for the ensuing week
deduced from observations during the last fifty
years at Greenwich, 49.3.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street,
Covent Garden, London. Wednesday, October 18,
10 a.m. Bar. 30.3; temp. 60°. Weather—Sunny,
with showers at intervals.

John
Goodyer.

Students of botany and of the history of science are under a great debt of gratitude to Mr. Gunther, Librarian and Research Fellow of Magdalen College, Oxford, for having presented them with a life-like and finished portrait* of one of the most distinguished of early British botanists, John Goodyer. It is but fitting that this work should emanate from Magdalen, for by his will, dated April 22, 1664, John Goodyer bequeathed his valuable collection of botanical books and manuscripts to that College, where they have been treasured so straitly as to have become all but forgotten until the pious hands of Mr. Gunther rescued these works of "an incomparable botanist, of sound judgment and of immense industry" from the oblivion of three and a half centuries. From them the author has been able to reconstruct a vivid picture of the work of Elizabethan and Jacobean botanists—Parkinson, the elder Tradescant, William Coys, Johnson, Stonehouse and others. Those who date the beginning of modern botany from the time of Linnaeus may find reason to modify their opinion in the study of the work of Goodyer and his contemporaries. Born in 1592, at Alton, in Hampshire, John Goodyer passed practically the whole of his life in that part of the country which lies

among the chalk hills at the junction of the North and South Downs. His youth was spent at Meon, and his manhood at Petersfield, where the "Great House" in which he resided from about 1633 until his death bears the recent inscription, "John Goodyer, 1592-1664, Botanist and Royalist, lived here." This and a local charity which he founded, and a plant which it is probable that he never saw—the Orchid *Goodyera repens*, were his only memorials until Mr. Gunther's work appeared. The distinguishing features of Goodyer's botanical work were acute observation and disinterested love of plants. In youth and early manhood he explored far more thoroughly than had been done before, the flora of his native county and added many new plants to existing lists. His knowledge and the records of his observations he put at the service of others, particularly Dr. Thomas Johnson, for inclusion in the new edition of *Gerard's Herbal*, which appeared in 1633, where Goodyer's generosity is handsomely acknowledged. Goodyer was a gardener, as well as a botanist, and his gardening friends included Parkinson, Coys and Franqueville. His earliest garden notes date from 1616, when he first gathered seeds of *Astragalus lusitanicus* "in the garden of my good friend Mr. John Parkinson, an Apothecarie of London." Parkinson's garden, as well as those of his contemporaries, had recently been enriched by Spanish and Portuguese plants introduced by Guilhaume Boel, in 1608. Coys's garden at Stubbers, North Okington, Essex, which Goodyer visited, was one of the oldest in the country. Already well established and well known to Gerard in 1597, it still flourishes under the present ownership of Mr. Champion Branfill Russell. In the course of a pilgrimage which he made to this garden on the three hundredth anniversary of Goodyer's visit thereto, Mr. Gunther was able to trace the plan of the seventeenth century garden and to see on the walls the Ivy-leaved Toad flax still growing where it was first established as a garden plant in England. This garden is famous in the world of horticulture, not only because of its antiquity, but also because in it, in 1604, the Yucca first flowered in this country. Of the lists of plants grown in the garden of Coys published by Mr. Gunther is one which is dated 1616-17—the oldest known manuscript list of an English garden and second in time only to the printed Catalogue of Trees, Fruits and Plants grown by John Gerard in his Holborn Garden. Already, at this early date, fruit gardens existed around London, and Goodyer may have visited and certainly knew of the Twickenham fruit garden of Mr. Vincent Pointer or Corbet. Ben Johnson's well-known epitaph (1640) of Master Vincent Corbet must always please gardeners:—

"Deare Vincent Corbet who so long
Had wrestled with Diseases strong
That though they did possess each limbe,
Yet he broke them ere they could him,
With the just Canon of his life
A life that knew no noise nor strife:
His Mind was pure and neatly kept
As were his Nourceries; and swept
So of uncleannesse or offence
That never came ill odour thence:
And add his Actions into these
They were as specious as his trees."

Nor may any account of John Goodyer as a horticulturist omit reference to the fact that it was he who first in 1617 introduced the Jerusalem Artichoke to English gardens and to cookery. His own account of this feat runs:—"In Anno 1617 I received two small roots thereof from Master Franqueville of London, no bigger than hen's eggs,

the one I planted, the other I gave to a friend," (the mark of a true gardener) "mine brought me a peck of roots wherewith I stored Hampshire." His comments on the virtues of the Artichoke as an article of diet were couched in the vigorous language of the time and very adverse—"a meat more fit for swine than man." One final example of Goodyer's powers of observation: Gerard in 1597 had recognised two species of Elm, Goodyer distinguished four, *Ulmus campestris*, *U. minor*, the narrow-leaved Elm, *U. montana*, Wych Elm, and *U. glabra*, smooth-leaved Elm, and described them all excellently. Thus, as Mr. Gunther amply shows, Goodyer won for himself a high place in the ranks of British botanists, loving plants, observing them carefully, growing them and using them also for medicinal purposes. Doubtless in this avocation he found solace and refreshment of spirit not only from the routine work of estate management, but also from the anxieties and perils of the Civil War, during which Petersfield was garrisoned for King Charles, and in which his friend Thomas Johnson, author of the *Gerard emaculatus*—a new and revised edition of Gerard—lost his life in 1644, in the defence of Basing House.

The publication of this valuable work—one which should be on the shelves of all botanical and horticultural libraries—is due to the labours of Mr. Gunther, the generosity of Magdalen College and the enterprise of the Oxford University Press. All who appreciate beautifully-printed works will desire to add the name of the printer, Mr. Frederick Hall, to the list of those to whom thanks are due for this worthy memorial of a great pioneer botanist.

Horticultural Superintendent at Wembley Park.—We are glad to have the pleasure of announcing that Mr. A. C. Bartlett, an old Kewite, and landscape gardener, who formerly had charge of the famous gardens at Pencarrow, Cornwall, has been appointed Horticultural Superintendent to the British Empire Exhibition authorities at Wembley Park.

Mr. Kingdon Ward's Plant Collecting Expeditions in Asia.—The instalment on page 238 brings to a close Mr. Kingdon Ward's narrative of his sixth plant collecting expedition in Asia. Those who have followed the series of interesting notes by Mr. Ward will realise that the expedition has been a very fruitful one, and promises to enrich our gardens with many new and beautiful plants. As soon as Mr. Ward had completed this expedition he immediately took steps to undertake another journey into the remote districts of China and its hinterlands, and exactly a month after the Christmas revels, to which he refers on page 238, were over—most of which time was spent in looking for a travelling companion—he left Bhamo on his seventh expedition. Readers will be pleased to know that Mr. Ward is well, and he has sent us accounts of his further journeys, which we hope to publish in subsequent issues.

Royal Horticultural Society of Aberdeen.—The following is the report of the directors of this society, which is to be submitted to the annual meeting of members on Saturday, 21st inst.:—With regard to the annual exhibition, which was held in Union Terrace Gardens, Aberdeen, on 24th, 25th, and 26th August last, the change of venue to the centre of the city was a wise one. This was proved by the fact that, notwithstanding there being no music and no attractions other than those provided by the proper objects of the exhibition, nearly three hundred more people paid for admission to the Union Terrace Gardens this year than to the Duthie Park last year on the occasion of the exhibition there. The total gate receipts were less this year than last, owing to the reduction of the charge of admission on the Saturday at this year's show. From a horticultural point of

* *Early British Botanists and Their Gardens*. Based on unpublished writings of Goodyer, Tradescant and others. By R. T. Gunther, M.A., F.L.S. With 9 plates and 21 other illustrations. Oxford University Press, 1922.

view this year's show was a remarkably good one. The income for the year amounts to £373 10s. 9d., and the expenditure has been £367 10s. 11d., leaving a surplus of income over expenditure for the year of £5 19s. 10d. This is the more satisfactory when it is considered that the previous year's debit balance has been entirely wiped off by voluntary subscriptions from members and friends of the society. It is hoped that the society will be able to do something in the coming winter, by holding lectures on horticultural subjects, to carry on the work undertaken by the North of Scotland Horticultural Association (now amalgamated with the society), and an appeal is made to members to help to increase the membership and so add to the usefulness of the society. The balance sheet shows that the sum of £163 5s. was collected towards last year's deficit of £176 18s. 9d., and the balance at the credit of the society stands at £14 18s. 11d.

New Public Park at Rowley Regis.—An interesting ceremony took place at Rowley Regis, near Birmingham, on Saturday, the 14th inst., when the title deeds of the Haden Hill estate were handed over to the Rowley Regis Urban Council on the occasion of the completion of the purchase of the estate for the purpose of a public park. The original intention of the Purchase Fund Committee was to secure thirty-four acres of land, but the wonderful response to the appeal enabled the Committee to acquire an additional sixteen acres as a playing space for children. Mr. H. Lench, the Chairman of the Purchase Fund Committee, stated that the generosity of the inhabitants was wonderful, especially considering that a sum of over £11,000 had been subscribed during a period of industrial depression, and, in handing over the deeds to Mr. J. E. Shaw, Chairman of the Rowley Regis Council, he expressed the hope that the people would treasure the park and use it to the best advantage. In accepting the deeds, Mr. Shaw said that Rowley Regis now possessed a people's park purchased by the voluntary subscriptions of the inhabitants of the district, and he hoped that the pleasure and happiness the park would give to the people would be the lasting reward of those who had worked so nobly to secure this fine open space. In commemoration of the event, Mr. Lench was presented with a silver casket by the members of the Committee, and gold medallions were presented to Messrs. J. and L. Perry, who had undertaken the collection of the whole of the purchase money. At the close of the ceremony the subscribers inspected the park, which was opened to the public during the present week.

Messrs. William Paul and Sons.—We learn that the freehold land occupied for many years by Messrs. William Paul and Sons at Waltham Cross and also the business of this firm as a going concern, have been sold by Messrs. Protheroe and Morris to Mr. W. E. Chaplin, who also has a long association with Rose growing in the Waltham Cross district.

A Protest by Scottish Fruit Growers.—We learn from the *Glasgow Herald* that the committee of Perthshire and Forfarshire Fruitgrowers' Association have considered the question of the importations to this country of Dutch grown Raspberries, which were responsible for the price of home-grown Raspberries being brought much below an economic one. It was stated that the imported fruit was of a much inferior keeping quality to the home-grown berries. The meeting was of opinion that manufacturers should be under obligation to label each container of jam showing clearly whether the contents are manufactured from foreign or home-grown fruit; and the secretary, Mr. A. J. Macaskill, Blairgowrie, was instructed to make a representation to this effect to the Government department concerned, and to make application to the Board of Trade for a report by the British Consulate in Holland as to the conditions of labour under which Raspberries are grown in that country.

British Mycological Society.—A series of three lectures by Professor A. H. R. Buller, Ph.D., Professor of Botany at the University of Manitoba, will be given on "Studies in the Mor-

phology and Physiology of Fungi," in the Botany Department, University College, Gower Street, W.C.1, at 5 p.m., as follows:—Friday, October 20, "Pilobolus and the Ocellus Function of its Subsporangial Swelling." Friday, October 27, "Sex and Social Organisation in the Hymenomyces." Friday, November 3, "The Production and Liberation of Spores in the Genus *Coprinus*."

Mr. Elisha J. Hicks.—Among cultivators and raisers of Roses Mr. Elisha J. Hicks occupies a foremost position. Born at Cirencester in 1874, he entered the service of Messrs. J. Jefferies and Son after leaving school, and worked in the Rose department of that firm under Mr. Coney for seven years. He was fourteen years of age when he attended his first flower show, which was at Dursley, in Gloucestershire; he had to cut and get ready twenty-four Rose blooms necessary for that show, and the flowers won a silver medal. He left the service of Messrs. Jefferies and Son when eighteen years of age, and was subsequently employed at two small establishments over a period of three years. He next entered service with Mr.



MR. ELISHA J. HICKS.

George Prince, with whom he spent a very happy ten years, and then settled at Twyford to start business on his own account. He planted 2,000 standard and 10,000 dwarf Briar stocks to begin with, and filled up his spare time working for other people. Since that period he has won no fewer than sixty gold medals, besides numerous cups, including the Wigan Challenge Cup six times and the National Rose Society's Champion Trophy for a group of Roses on three occasions. Mr. Hicks was the first Englishman to win the City of Portland (U.S.A.) gold medal for the raising of new Roses, and he has won two out of the four Edward Mawley memorial medals offered for the most meritorious exhibit at the National Rose Society's show. Among the principal Roses raised or distributed by Mr. Elisha J. Hicks the following come to mind: Princess Mary, Queen of the Belgians, Mrs. E. J. Hicks, Mrs. George Norwood, Chas. E. Shea, Margaret Horton, John Hart, Lady Verey, Lucille Barker and Climbing Lady Hillington. Mr. Hicks is not only a first-rate cultivator and raiser of Roses, but he is a clever exhibitor, and his large groups invariably attract attention and are greatly admired. Mr. Hicks is a member of the Council of the National Rose Society and of its Exhibition and Publication Committees; he is also a Freemason and takes a considerable interest in local affairs at Hurst, Berkshire.

Progress of the British Empire Exhibition.—Wonderful progress has been made at Wembley Park—where the British Empire Exhibition is to be held—during the past three months, and the huge stadium is now sufficiently advanced to show what it will look like when completed. The foundations and ground flooring of several of the huge exhibition buildings, one of which will have over five times the floor space of Olympia, are almost complete. On the occasion of a recent visit we were glad to notice that great care has been taken to preserve the fine trees which abound in the one hundred and forty acres of this exhibition site. Unfortunately, it has not been found possible to preserve the lake in its entirety, but one or two smaller lakes will be made as some compensation for this loss. A great deal of undergrowth has been cleared in several of the woodland areas, and a number of particularly fine examples of *Prunus*, *Crataegus* and *Pyrus* have been given the prominence their beauty demands. Within the stadium the whole of the playing area has been turfed. Some of the clay was first excavated on the two and three-quarter-acre site, and the remainder was levelled, then covered with ten inches depth of ashes and small clinker. After this foundation had been thoroughly rammed and levelled it was covered with five and a half inches depth of turfy soil from another part of the park, and this also was levelled and rammed firmly. Finally, 76,250 turves, each measuring twelve inches by eighteen, and two and a half inches thick, were laid in position, and all the turves were taken from the fairway of the old golf course, where the grass has been carefully treated and looked after for many months past. Turf laying commenced on September 1 and was finished on October 14. So well did the newly-laid turf become established that mowing was necessary on October 10 on the part just finished, and it is safe to say that one of the finest playing areas ever produced will be in first-rate condition for the football cup-tie final in April next.

Flowering of *Iris unguicularis*.—Mr. D. Chaplin, Froggnal Gardens, Sunninghill, Ascot, informs us that *Iris unguicularis* opened its first flower at Froggnal Gardens on October 16, four days later than last year, when the first bloom appeared on October 12.

New Chair of Geology at Aberdeen University.—On Tuesday, the 10th inst., Dr. A. W. Gibb was installed in the new Kilgour Chair of Geology at Aberdeen University. Under the trust disposition by the late Dr. Kilgour, of Loirston and Cove, Kincardineshire, and his son, Mr. Alexander Kilgour, munificent bequests have enabled the authorities of this University to make large provisions for the rapidly increasing needs of scientific teaching in the donors' native city. The donors directed that a number of scholarships in natural history and a professorship of natural science or natural history should be founded in Aberdeen University. Seeing there is a Chair of Natural History already in the University, it was resolved to found a Chair in Geology, and to transfer the endowment of the existing lectureship in geology to the establishment of an additional lectureship in natural history. The Chair of Natural History in Aberdeen University was founded in 1753. At that time even the name "geology" was not in existence, and so far as Aberdeen is concerned it was not till the '40's of last century, when the eminent botanist, William Macgillivray, was the first teacher in Aberdeen to give a scientific course on geology, and his lectures aroused considerable interest. That Macgillivray interested himself practically in the subject is evident, for there are still in the Aberdeen University Museums many specimens labelled in his characteristic handwriting—neat and legible. He was followed by James Nicol and Henry Alleyne Nicholson—two professors whose names will always be most closely associated with the development of geological teaching in Aberdeen. It was not, however, till 1903 that an independent lectureship in geology was established at Aberdeen from funds provided by the Carnegie Trust, and Dr. A. W. Gibb appointed lecturer.

Appointments for the Ensuing Week.—Tuesday, October 24.—Southampton Royal Horticultural Society's Chrysanthemum Show (2 days); Bournemouth Horticultural Society's Show (2 days). Wednesday, October 25.—Irish Gardeners' Association meeting; Elgin Horticultural Society's meeting. Thursday, October 26.—Bristol and District Gardeners' Association's meeting; Royal Botanic Society's meeting; Hertford Horticultural Society's meeting; Wargrave and District Gardeners' Society's meeting; Holland (Lincs.) County Potato Show. Friday, October 27.—Daily Mail Imperial Fruit Show (9 days); French National Horticultural Society's Autumn Show (8 days).

"Gardeners' Chronicle" Seventy-five Years Ago.—*Pruning.* Now that the summer's business is fairly at an end, it is time to take steps to provide against an inordinate pressure of business in the forthcoming spring; for any arrears of autumn or winter business at that busy period will prove a great hindrance to the carrying out of a properly devised system through the ensuing season, and can be justified on the grounds of necessity alone. Planting, pruning, training, trenching, etc., are matters that belong peculiarly to this dormant period, and having before disposed of planting and trenching, by directing attention to its importance, we will now offer a few practical remarks on pruning. The habits of fruit trees vary, more especially as to the manner of forming and exhibiting their buds; thus there is no difficulty in distinguishing the fructiferous portions of the Apple, or of bush fruit in general, whilst the Apricot and Filbert are at this period somewhat obscure in regard of these points. Even in the Pear, more especially some of the newer kinds, such as the Passe Colmar, the Seckle, the Marie Louise, and some others, it is difficult to prune with safety in the early part of winter. For these reasons, therefore, we say, prune bush fruit the moment you can find time. Follow closely with Cherries, Plums and Apples, and towards Christmas lay by the knife until the early part of February, when the Filberts will be blossoming; then, after a slight thinning of the crowded and inside spray, male catkins may be brought if requisite and suspended amongst the bushes. The Apricots will, by this time, give unequivocal signs by which to know the true blossom buds; these, then, may immediately receive their pruning. The Peach and Nectarine will succeed the Apricot, and these may be followed by the Pear, and lastly by the Fig. In pruning bush fruit thin liberally. Let no two branches in the Black Currant and the Gooseberry touch when finally thinned; these seldom require shortening; an equal and judicious thinning is therefore everything here. In pruning Apples the thinning of the branches or old wood should be the first step; this, however, requires caution. The late Mr. Knight, of Downton, was much against cutting out large limbs unless a severe necessity existed. His authority is too weighty to be passed over easily, more especially as he lived most of his time in a cider district. In thinning the young wood of espaliers, remember that the first point is to secure a continuance of leading shoots to form a compact tree, and the second to secure a free admission of light to all parts of the tree. The same remarks will apply to the pruning of all the rough espaliers or dwarf standards of the kitchen garden, be they of what kind they may. Raspberries may now be planted and pruned. *Gard. Chron.*, October 23, 1847.

Publications Received.—*Winter Flowers and How to Obtain Them.* By David Armstrong. "Country Life," 20, Tavistock Street, W.C.2. Price 9d. net.—*The Culture of Pot Plants in Rooms, Greenhouses, and Frames; Vegetable Culture.* By C. Davidson. Crosby Lockwood and Son, Stationers' Hall Court, Ludgate Hill, E.C.4. Price 5s. and 4s. 6d. respectively.—*Cyclopedia of Hardy Fruits.* By U. P. Hedrick. The Macmillan Company, New York. Price \$6.00.—*An Alpine A.B.C. and List of Easy Rock Plants.* Arranged by A. Methuen. Methuen and Co., Ltd., 36, Essex Street, W.C. Price 1s. 6d. net.

TREES AND SHRUBS.

HYPERICUM PATULUM (ROTHSCHILD'S FORM).

ORIGINALLY discovered and named by Thunberg in 1784, *Hypericum patulum* was not introduced until seventy to eighty years later, when Oldham sent it to Kew from Japan. In recent times, several forms of it have been found in China, and they are proving very handsome flowering shrubs. The best known of them has been called var. *Henryi*, after Prof. A. Henry, who introduced it from China in 1898. Even more attractive probably as a garden plant will prove to be the form illustrated in Fig. 93. It was exhibited by Mr. Lionel de Rothschild at the meeting of the Royal Horticultural Society on July 11. Compared with the variety *Henryi*, the plant did not differ much in the character of the flowers, although they were, perhaps, of a brighter yellow. But, so far as could be judged from a single plant, the growth was more graceful and more bushy. As may be judged from the figure, it was very floriferous, and there

hardiest members, and possesses great beauty. The plant is a strong, vigorous grower, producing its flowers, with straight red sepals and purple corolla, in abundance.

F. CORALLINA.—This species has a tall, slender habit, and is specially suited for training against walls. Its growth is vigorous and very free. The flowers are rich carmine red.

F. GRACILIS, and its variety *folio variegata*, are both graceful in habit, producing long, slender stems that are well furnished with crimson flowers. The variety has pretty white and green foliage that contrasts effectively with the blossoms.

F. EXCORTICATA.—This species has large carmine crimson sepals and purple petals. In its native home, New Zealand, it attains a height of 10 feet to 20 feet.

F. MICROPHYLLA.—This is a most beautiful subject for the rock garden, forming a neat, bushy plant that is smothered in summer with deep crimson flowers.

F. THOMPSONII.—A vigorous growing kind.



FIG. 93.—*HYPERICUM PATULUM* (ROTHSCHILD'S FORM).

can be no doubt that it is a valuable acquisition among hardy shrubs. Although the sprays examined at Kew did not afford any character sufficiently marked to justify a varietal name, this shrub may be distinguished in gardens as *Hypericum patulum* (Rothschild's form). *W. J. B.*

HARDY FUCHSIAS.

THE hardy Fuchsias comprise a most useful group of shrubby plants, adaptable for the sheltered rock garden, herbaceous border, or, indeed, anywhere where it is desirable to break straight lines which so frequently occur in many and sundry places. Quite recently I noticed along the coast many beautiful specimens of hardy Fuchsias of various species, flourishing in full flower, and their graceful, pendulous habit added considerably to the charm of the particular gardens.

The following are the hardiest species and varieties:—

F. GLOBOSA.—A desirable plant for any position, having numerous globose flowers, the corolla rich purple, and the sepals scarlet.

F. RICCARTONII.—This variety originated at Riccarton, in Edinburgh. It is one of the

with rich crimson purple sepals, and crimson petals. The flowers are produced in profusion.

F. VIRGATA is a pretty, medium sized plant, with crimson flowers.

F. LONGIPEDUNCULATA.—The flowers of this Fuchsia have very long, tubular, carmine sepals, and rosy purple petals. The plant is very handsome, and profuse blooming.

F. PUMILA is a small, bushy species, adapted for the rockery. The flowers are purple and crimson.

MARKET RED is a hardy variety with very large double flowers of rich violet blue, with carmine pink sepals. The variety Madame Cornillon produces large flowers, with carmine, crimson and white petals. It is a very conspicuous plant and exceedingly beautiful; the variety is frequently used for summer bedding.

The most suitable position for hardy Fuchsias is the base of a south or west wall, or other sheltered position. They grow well in ordinary deeply trenched soil that has been mulched with a little well-rotted manure. In winter a mulch of leaves or manure will afford them the necessary protection, or they may be cut down when the leaves have fallen and the stools protected with dry earth or coal ash. *W. Logan.*

The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the
DUKE OF MANTHOUCHE, K.G., Blenheim Palace,
Woodstock, Oxon.

Laelia.—*Laelia anceps* and its varieties are sending up their flower spikes rapidly, and need generous treatment. The members of this family of Orchids produce their flowers at a season when choice flowers are very valuable. The dark-coloured varieties are usually the first to bloom, followed by the many beautiful white forms, and where a representative collection is grown their flowering extends over a considerable period. Before they commence to open their flowers, it will be advisable to thoroughly cleanse and arrange the plants, neatly staking the long spikes, which should be tied in such a manner that their tips are clear of the roof glass. *L. albida* and *L. autumnalis* are other winter-flowering species. At this season they need plenty of moisture at the roots, also all the light available, and free ventilation whenever the outside conditions are favourable, with a temperature of about 60° at night.

Laelia pumila.—The flowers of *Laelia pumila* and its many varieties are highly prized where "buttonholes" are in demand, the somewhat small flowers being most suitable for the purpose. These dwarf-growing plants, and others of a similar nature, which have been growing in a cool house during the summer, should be removed to a house having an intermediate temperature. They should be suspended from the roof rafters, where the plants will receive the maximum amount of sunlight and air, and the extra heat will assist the flowers to develop and the pseudo-bulbs to complete their growths. The roots should be well supplied with water whilst the plants are in active growth, but much less moisture will suffice when growth is completed, although care must be taken that the roots are not allowed to become quite dry. These Orchids are best grown in shallow pans. The usual rooting medium may be used, and any necessary repotting is best done when roots are seen emerging from the base of the current pseudo-bulbs.

Other Laelias.—*Laelia purpurata*, *L. crispa*, *L. tenebrosa*, and many *Laelio-Cattleyas* may still have attention as regards repotting, but care must be taken that only sufficient water is applied to the new compost to prevent the plant from shrivelling. It will be observed how quickly the roots develop in the new material, and if the plants are kept on the dry side during the winter the new growths will break away readily and strongly in the spring. Failure in many cases to grow these delightful plants satisfactorily is attributable to giving them too much water during the winter, and not sufficient during their season of growth.

HARDY FRUIT GARDEN.

By H. MARKHAM, Gardener to the EARL OF STRAFFORD,
Wrotham Park, Barnet.

Apples.—As these fruits become ready for gathering, remove them very carefully from the trees when perfectly dry, and store them in a sweet, well-ventilated fruit room. Do not rest the fruits on hay or straw unless it is perfectly sweet and dry, as nothing spoils the taste of good Apples so much as a musty atmosphere. Do not gather very late keeping varieties until the fruits part with ease from the branches and the pips are turning brown. If carefully handled the fruits may be placed three deep in a layer where room is scarce. Keep all bruised and inferior fruits by themselves and use them first. Varieties that ripen first should be placed in the most accessible place, as they will need to be examined frequently, and when the space they occupy is vacant, this may be used to spread out the later keeping sorts more thinly.

Fruit Trees.—It is always advisable to have a good stock of young trained trees in reserve to replace any that are worn out or that are undesirable sorts. Such trees should be lifted and replanted early so that the damaged ends of the roots may callous over and fresh roots push forth before the ground loses its warmth. November is probably the best time for planting most kinds of fruit trees; I have lifted and replanted large trees of Peaches, Pears, Plums, etc., that have been specially prepared, in the last week of October with excellent results, and the trees have borne useful crops the following year. Before disturbing the roots see that the soil is thoroughly moist and that the stations are properly prepared in readiness for the reception of the trees. Having prepared the sites, unfasten the branches of the trees to be lifted, and tie them loosely together to prevent any injury in transit. Dig a trench beyond the point to which the main roots have extended and quite two feet deep; then gradually remove the soil with a fork and work towards the stem, doing as little damage to the roots as possible. Undermine



FIG. 94.—IRIS PARISIANA × I. GATESII.
(SEE P. 237.)

the tree and lift the bulk of soil and roots on to a strong mat for transit to the place of planting. Previous to relaying the roots, trim the ends of any that are injured; spread the main roots at even distances apart and cover them with good soil, working some of it well amongst the fibrous roots. Make the soil firm at the base of the hole and plant a little above the ground level to allow for the soil sinking. When the work of planting is finished cover the soil with a little strawy manure and secure the main branches temporarily to prevent damage by winds, but do not fasten them in such a way that the tree cannot sink as the soil settles. Ample space should be allowed between the wall and the stem to allow for the latter's thickening. In the case of stone fruits see that the compost contains plenty of lime and old mortar rubble.

Young Trees.—Young trees for planting this autumn should be ordered from the nurseryman early, as the orders are executed in rotation. Autumn planting is far preferable to spring planting and trees set before the ground gets very cold often become well furnished with new roots by the following spring.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir C. NALL-CAIN, Bart.,
The Noddy, Codicote, Welwyn, Hertfordshire.

Watering.—At this season of the year and during the coming winter plants growing in the greenhouse need to be watered very carefully. With the lower temperature of all plant-houses during the winter there should be a corresponding reduction of atmospheric moisture. And during times of cold, damp weather the floors need to be kept comparatively dry. Whilst endeavouring always to allow a circulation of air, whenever the weather is favourable, by ventilating, it is always necessary to shut out fog, which is one of the greatest enemies of indoor flowering plants.

Campanula pyramidalis.—Plants of the Chimney Campanula raised from seed, sown as advised in a previous calendar, and intended for growing in pots to furnish flower spikes next season, should be placed in their flowering pots. Receptacles 7 inches in diameter will be suitable for these plants, and they will do well in ordinary soil with a little bone meal added. After potting them, the plants should be arranged in a cold frame, plunging them in a bed of ashes up to the rim of the pots to prevent the latter becoming broken by severe frost and removing the lights on all possible occasions. Stock of an extra fine variety may also be raised from root cuttings.

Regal Pelargoniums.—Members of the fancy section of Pelargonium that have been cut back and have been allowed a slight rest by the treatment advised in a previous calendar, should now have most of the old soil shaken from their roots and be repotted in the smallest receptacles that will accommodate them. When they have recovered from this operation and have become well furnished with roots again they may be placed in their flowering pots. Young plants should be potted as they become ready, and, if possible, grown near the roof glass in a cool greenhouse during the winter. These plants are subject to attacks of green fly; but if sprayed with Quassia extract occasionally they will keep free from this pest.

THE FLOWER GARDEN.

By EDWIN BRACKETT, Gardener to the Hon. VICARY
GIBBS, Aldenham House, Hertfordshire.

Michaelmas Daisies.—Those who have patiently carried out all the necessary details in the culture of perennial Asters are receiving their reward in the wonderful display of flowers that these lovely plants give year after year. Whatever the aspect in which they are grown, they seem to thrive; neither does changeable weather appear to affect them, though great extremes of climate do, to a certain extent, hinder their complete and full development, though the Michaelmas Daisy does not show the effects of weather to anything like the extent that many other hardy herbaceous plants do. Soils, again, do not make any appreciable difference to them, and yet, despite all these great advantages, combined with the lateness of their flowering season, some persons still profess to dislike Michaelmas Daisies. This is probably because they are not acquainted with the modern Michaelmas Daisy, but know only the poor, weedy plants that were common in gardens a few decades since. Those, however who saw the wonderful varieties in blue, red, purple, white, pink, and other shades at the Holland Park Rink Exhibition know that the modern type of perennial Aster bears as much resemblance to its progenitors as the exhibition Rose does to the Dog Rose of the hedgerows. The following varieties of the *Novi Belgii* section have been raised in these gardens:—Dainty (semi-double, pink), Grace Sweet (rich deep blue), Moonbeam (pale mauve); Pink Perfection (bright pink), Queen of the Lilacs (pale Lilac blue), Sunset (single pink), Wedgwood (Wedgwood blue). Other fine varieties are Blue Gem (one of the loveliest blue varieties), Wells White (a fine pure white, tall growing variety), Antwerp, Brightest and Best, General Lenan, Heather Glow, Ghent, Louvain, Liege, Marne, Mons, Namur, Nurse Cavell, Walloon, and Ypres (all with pink flowers), Aerschott, Belgian

Queen, Cardinal Mercier, King of the Belgians, Malmes and Climax (blue); whilst of lavender and mauve sorts I may enumerate Bruges, Brussels, Joan Vaughan, King Albert, and Robinson, V.C. Sam Banham is a very strong growing variety, white suffused with very pale pink. The Novae Angliae section offers us Lil Fardell, Mrs. Raynor, and Rycroft Pink, in pink shades, and Wm. Bowman, Purple Prince, and Mrs. S. T. Wright in purple. The other sections, such as the ericoides, cordifolia, vimineus, and diffusus, all contain many gems, and two that should not be overlooked are members of the Amellus group, Beauty of Ronsdorf (mauve) and the magnificent King George, of great size and fine bluish-violet tone.

Sweet Peas.—The practice of sowing Sweet Peas in pots in order to ensure early flowers is one that gains in favour each year. It is a simple method, and one that enables the raiser to have full control of the plants until such time as they are ready to plant out in the open ground. Three seeds should be placed in a 60 sized pot, provided with efficient drainage, and filled with a sandy compost sufficiently moist to obviate the necessity for watering until the seed has germinated. Place the pots in a cold frame and shade them with sheets of brown paper until the young plants are through the soil, as this will assist the seeds to germinate and prevent drip from the roof reaching the soil, an important point inasmuch as if the soil is allowed to get too damp the seed is more likely to rot than to germinate. After the young plants are through the surface, remove the paper, gradually harden them off, and thereafter afford them the freest ventilation possible according to the weather, taking the lights off the frames on fine days. The great aim should be to promote sturdy and hardy growth to enable the plants to pass through the winter without harm. Guard well against mice getting at the plants, and cover the frame with a net when the lights are wide open, or off, otherwise birds will eat the young growths.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

The Orchard House.—The trees in the orchard house, being clear of fruit, should be fit for removal to the open, if this has not already been done, to give them a four months' rest. Peaches, Pears, Plums, and Cherries which have ripened their wood under glass will withstand any reasonable amount of frost, so long as they remain dormant. Their greatest enemies are birds and worms, and it is important that protection be taken against these, if necessary. When placed in position, the spaces between the pots should be packed with Bracken fronds or dried litter to ward off frost and keep the roots moist. Provided the soil is moist at the time of plunging, the plants will take little harm through the winter. A careful watch must be kept for mice in severe weather, for they sometimes cause much injury to the stems when the ground is covered with snow for a considerable time.

Potting.—Late trees may still be potted. This operation might have been performed a month earlier, but, as these trees will not be forced, roots being plentiful, they will fruit well even after severe disturbance. Young trees root-lifted last autumn, pinched and specially prepared for potting, may now be lifted and placed in pots varying from 8 inches to 10 inches in diameter. All stone fruits and Pears need a sound, fairly heavy, calcareous loam, mixed with burnt earth, lime rubble, bone meal, and a little soot. The soil cannot be made too firm by ramming, and the roots should receive one good watering prior to plunging the pots.

Fig.—These are the only trees which should be kept in the orchard house, as they are liable to injury where fire heat cannot be used in severe weather. In the event of the whole house being required, they may be stored, completely covered with dry Bracken fronds, when all the leaves have fallen, in a frost-proof shed or other shelter.

Melons.—At this late season, great care is necessary in watering Melons, and especially when fruits are on the verge of ripening, or splitting will occur. In order to have good-flavoured Melons at this season of the year, they should be grown in a suitable pit, where the atmosphere can be kept dry and warm. When they are colouring, take advantage of every gleam of sunshine to ventilate the pit freely. Later plants that are swelling their fruits must not be allowed to suffer a check of any kind. The syringe should be dispensed with, and the grower should guard especially against moisture lodging on the stems, or canker may set in. Keep the night temperature as near 70° as possible, with a few degrees higher by day with sun heat.

THE KITCHEN GARDEN

By JAMES E. HATHAWAY, Gardener to JOHN BRENNAND, Esq., Baldersby Park, Thirsk, Yorkshire.

Digging and Trenching.—As soon as the ground is cleared of crops it is advisable to commence tillage operations as soon as possible. A



FIG. 95.—IRIS KOROLKOWII, I. MESOPOTAMICA AND THE HYBRID THEREFROM; FROM LEFT TO RIGHT.

certain area of the kitchen garden should be trenched every year. Land intended for cropping with Onions or for making new Asparagus beds should be trenched as early as possible. Ground dug at this season of the year should be left as rough on the surface as possible to allow frost and air to penetrate it readily; heavy land is benefited by being thrown up in ridges.

Asparagus Beds.—As soon as the stems of Asparagus plants ripen they should be cut close to the ground with a pair of hedge shears and removed. The beds should be covered with a good quantity of half-decayed farmyard manure; if the dung is very rotten it is apt to keep the beds cold in spring. A post should be inserted at the corner of each bed, a line stretched therefrom the length of the bed, and sufficient soil taken from the alleys to cover the manure thinly. Crowns for forcing early should be lifted and placed on a gentle hotbed, covering them with a mixture of leaf-mould, sand, and old potting soil, about 4 inches thick. Maintain a moist atmosphere in the forcing house.

General Remarks.—Cauliflowers that are ready for use may be kept in good condition for some time if hung upside down in a cool shed. Turnips which have completed their growths should be stored. French Beans should be kept closely gathered on any sign of frost, and all growing crops kept free from weeds.

AMERICAN IRISES.

For some years Mr. William Mohr, Mt. Eden, Alameda County, California, has been interested in the breeding of Irises. He has produced many fine seedlings in the bearded section, one of the parents, *I. mesopotamica*, or, very possibly, a variety of *I. cypriana*, having been found to give great size, height and, in California, great vigor to its offspring. He has also some crosses between *I. Korolkowii* and various bearded Irises, in particular *I. germanica* major, and *I. mesopotamica*. The enclosed photograph (Fig. 95), of three flowers, shows, from the left, *I. Korolkowii*, *I. mesopotamica*, and a resultant seedling, the latter a finer flower than either and of novel colouring, but rather weak in the stem.

His particular pride is, however, a seedling of *I. Parisiana* × *I. Gatesii*. It is a huge flower (Fig. 94), with standards sometimes measuring 4 inches high and 3½ inches wide; falls 3½ inches long and 3 inches wide. The ground is white, heavily veined with manganese violet (Ridgway), with a lilac flush to the standards. The general effect is much lighter,

brighter and warmer than I have yet seen in any cross between a pogoniris and an onco-cyclis—usually they are rather dark and dull. Its stem is good and, as will be seen from the illustration, produces two flowers. In California, where, of course, conditions are favourable, it has an excellent constitution and will stand moderate watering throughout the summer. Being so new its reproductive qualities have not yet been much tested.

It has been stated that *I. Gatesii* has never been used in breeding. If anyone has had success with it Mr. Mohr would be glad to hear from him. He has been unable to reproduce his own cross, as he lost his single plant of *I. Gatesii*. Sydney B. Mitchell, Vice-President, American Iris Society, Berkeley, California.

CELSIA ARCTURUS.

Sow a few seeds of this biennial now and grow the plants on through the winter in small pots in a cool house. In the early spring they will make rapid growth. Place the plants on a shelf to keep them sturdy. The spikes of flower are very pretty, and the plant is useful for May and June flowering. The soil for potting should consist of loam, with a little well decayed cow dung and leaves added. Plants will bloom well in 4 in. or 6 in. pots. J. N. D.

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MR. KINGDON WARD'S SIXTH EXPEDITION IN ASIA.*

No. 26.—GOODBYE TO MU-LI.

OWING to the usual transport difficulties it was November 15 before we found ourselves actually climbing the high Mu-li range and collecting seeds. By lunch time we were in the snow. Here, on a south bank, where the snow had disappeared, was a carpet of the big, trumpet Gentian, its brilliant blue eyes turned wistfully towards the sun, low down in the sky. Most of them, however, were already withered, without setting any seed. Just below in the marsh were many more plants, their long, thin capsules gaping. Undoubtedly it is the same species, and it would be advisable to grow the plant both in boggy places and on dry sunny banks; it ought to be quite hardy. The grey seeds, by the way, viewed under a lens which shows the fine network of minute pits, are extremely pretty objects.

We had to collect seed of several Rhododendrons, and in two cases knew of only one tree of each species; however, we found them and secured seed. We also collected much seed of the species accidentally discovered, by virtue of its distinctive foliage, in August, and of Rhododendron Lemon Bell—to adopt the jargon of those who scatter bastard Rhododendrons up and down the country. This last is a graceful little tree, as pretty as anything met with.

At nightfall we camped in the snow—luckily frozen hard—just below the pass, at an altitude of about 14,000 feet. Even under the trees the cold was severe, nearly 20° of frost being registered. When the full moon appeared between the fangs of the limestone range like an arc lamp, the sight was unforgettable; a lance of light slipped between the trunks of the Fir trees and was shivered into a thousand glistening fragments.

Next day we crossed the pass, and the most formidable obstacle on our journey south lay behind us.

That day—November 16, was a busy day of seed collecting, too. But a disappointment was in store. Of all that wealth of fragrant blossom on the Daphne calcicola bushes which had greeted us in June, not a vestige remained to prove that there had ever been a flower! Not a fruit to be seen. It was inexplicable.

Down by the stream I found a *Crawfordia* in fruit, and collected the seed as a speculation, though the little colonies differed in no degree from others found on the N.E. frontier, and even at the Doker-la. Two more days were consumed on the journey to Yung-ning, which, bathed in winter sunshine, was pleasantly warm. On the dry rocky slopes a Gentian with bright, china blue flowers massed in heads, was met

with; but we found it at Yung-pei, too, and almost so far as Ta-li. In fact it may safely be asserted that below 10,000 or 12,000 feet very few plants in Yunnan have a restricted range, whereas on the contrary above 14,000 or 15,000 feet, a good proportion of plants on any range are endemic. The inference is obvious.

We spent three days in Yung-ning getting warm. We had one more serious range to climb, with seeds of several plants to collect; but I had serious misgivings over the *Nomocharis*, which by this time was probably beyond recall.

On November 22 we halted by the lake, and on the following day ascended the range above. To my surprise the *Nomocharis* gave no trouble,



FIG. 96.—LISSOCHILUS HORSFALLII.

(See p. 239.)

and though we secured comparatively little seed, this was more than counter-balanced by over a score of bulbs dug up. Also we found a tree Rhododendron which I had completely overlooked on the up journey, and collected seed of that, too.

Our task was now virtually over, though we collected a few seeds on the way to Yung-pei, reached on November 29; there was the orange Candelabra Primula, for example, which gave some trouble, as the cattle had not exercised as much care to avoid trampling on it as we could have wished. For the same reason the crimson-pink Candelabra, close to Yung-pei, had almost disappeared from the landscape; however, we purloined samples of both after a vigorous search.

An interesting plant found here in seed—we had not observed any trace of it in May—was a Muscarioid Primula, which might have been *P. Littoniana*. On the other hand, it might not have been, so we took no risks. I had not previously noticed any plants of *P. Littoniana* with several stems arising from the same scape.

At Yung-pei I took stock of our collection. One Rhododendron had been missed, the men collecting the wrong species. The "Martagon" Lily and *Daphne calcicola* had both refused to set any seed; and a curious *Impatiens* with unusual, flame-yellow flowers had been swamped in surrounding vegetation and lost. But apart from these I believe we collected seed of everything I wanted, and quite a lot I didn't want, but had not the heart to throw away after the zeal shown by my assistants. On one point I flattered myself. I do not think there was a single plant found—certainly no first-class plant—which I did not myself see growing in its native haunts. I might go further than that, and say that I found practically every plant independently, though, of course, I was not always the first discoverer. Even the rare, big *Primulina Meconopsis*—perhaps the gem of the collection—I found subsequently in fruit, though the honour of the original discovery belongs rightly to my head collector.

For all this boast, however, I could not have done without my four collectors; they were invaluable, especially when it came to collecting seeds. Sometimes I felt I could have done with two or three more.

The plant collection numbered nearly a thousand species, the seed collection about 200 species. How many of them are new to science or to cultivation time will show; but that a very fair proportion are first-class garden plants I do not doubt.

At Yung-pei three of my collectors left to return to their home at Likang by the shortest route, the fourth going on with me to Ta-li. We did not reach Ta-li till December 9.

Below, *Primula malacoides* was coming into flower, and the dainty *P. nensensis*, fragrant and mealy, crowded the marshes. So, too, did *P. Beesiana*.

I thought I knew all the Primulas between Ta-li and T'eng-yueh—all that grow by the roadside, that is. Yet a few days out from Yang-pi I found one I had never seen before—a bog Primula. There were some half-dozen plants just coming into flower in one spot, but I did not see it again—nor do I know now what it is. Probably I had never seen it before because I had never crossed Yunnan in December—but, on the other hand, I had travelled this road in February or March, when the winter-flowering Primulas are at their best.

We reached T'eng-yueh on December 22, in time for Christmas revels, and dined seven strong at the Consulate on Christmas Eve. Then, setting out on the last lap of the journey, we crossed the Burma frontier on New Year's Day, and reached Bhamo on January 4, fifty-three days having been required for the journey from Mu-li. *P. Kingdon Ward*.

ORCHID NOTES AND GLEANINGS.

CATTLEYA IRIS VARIETIES.

SINCE the two fine forms of the showy and useful cross raised originally by Messrs. Charlesworth and Co., between *C. bicolor* and *C. Dowiana aurea* gained First-Class Certificates at the Royal Horticultural Society in the autumn of 1901, ten forms of the same cross have received distinction at a similar season of the year, and it has been established as a general favourite, its forms exhibiting endless variation of shape and colour. The same cross has also been raised by other hybridists, Messrs. Mansell and Hatcher, Rawdon, Leeds, being among the more successful, as evidenced by the thirty or so charming varieties of it shown in their effective group at Holland Park Skating Rink, the flowers showing great variation in the yellow and bronze tints of the sepals and petals, and the carmine to purplish-crimson of the lip.

* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 23, August 20, September 3, October 8, October 29, 1921; January 7, January 21, March 11, March 25, April 8, April 22, May 6, May 20, June 3, June 17, July 1, July 15, July 22, August 5, August 26, September 9, September 23, and October 7, 1922.

SOME UGANDA ORCHIDS.

THE part of Africa known as the Uganda Protectorate, bordering Lake Victoria and the Nile at its source, contains considerable areas which may yet yield some interesting finds to the Orchid hunter.

On the whole, Uganda Orchids are not brilliant, compared with the most popular genera grown to-day, but botanically, some of the most interesting species have been, and will be, found in this country. Showy plants are, however, by no means non-existent. What Orchids are more beautiful than *Angraecum infundibulare*, *A. Kotschyi*, and *A. Rothschildianum*, or some of the species of *Listrochilus*? The genus *Lissochilus* is represented by many fine species that are a feature of the grass lands.

These African Orchids have not been very successfully cultivated in the British Isles; indeed, they have never been considered worthy of the special care given to *Odontoglossums* or *Cattleyas*. Yet it is obvious that if they are to be brought to perfection the same individual attention must be given them, and then African Orchids would hold their own.

The African *Lissochilus* have been practically complete failures under cultivation. Yet I am certain success could be achieved with them. What is the factor against success at home? They are not fastidious plants. They need good, rich, deep soil, and plenty of sunlight. They will never succeed in the moist, shady house in which so many Orchids are found. They will pine in an Orchid pan half full of crocks, and covered with a handful of peat and moss, but give them conditions as similar as possible to those they grow in naturally, and I feel confident they will succeed. Consider how the plants are found in nature. The flower spike and strong leaves may be seen above a field of grass 2 ft. high. To find the bulb one must dig down about a foot. A huge mass of roots is then uncovered, each root as thick as a lead pencil, and in order to remove these entire digging must proceed another 2 feet. The soil may be anything; sandy, or a stiff clay, or the red coloured loam common to the ironstone subsoil of the country. The only factor which should cause failure in this country is light. Yet we grow successfully many plants as fond of the sun as *Lissochilus*.

The epiphytic Orchids, again, need diverse treatment for different species. *Angraecum infundibulare* would be scorched up if given the amount of sunshine which *A. Kotschyi* (see Fig. 97) delights in. Yet both may be found in the same forest: one under the almost negligible shade of *Acacia*, the other in the dark recesses of the forest. The grower receiving a mixed lot of these Orchids will naturally give all similar treatment, and probably fail with all. Only the collector can give precise details and a basis for their treatment, and had this been done, many fine plants would be in our collections, and African Orchids would not have their present reputation of being hardly worth growing.

In describing some of the best of the known species, I propose to indicate the treatment most likely to give success.

LISSOCHILUS.

Lissochilus Horsfallii (see Fig. 96) under cultivation, is probably the gem of the genus. It grows in short grass in swampy places, where it receives full sunlight. The tubers are a foot below ground, the roots extending to 3 feet. The leaves grow up to 4 feet, and the flower spike to 6 feet. As a growth reaches full size, it flowers. Growth is perennial, the plant never resting. Flowering takes place several times a year, and a spike bears as many as sixty flowers, each 2 inches across, and several weeks elapse between the opening of the first and last flowers. This species has been flowered a few times in England.

L. arenarius is a dwarfier species. It rests completely each year, and the flower precedes the growth. The spike grows to only 2 feet in height, and bears only four to six flowers.

These are a purplish pink in colour, and of the same size as those of *L. Horsfallii*. It occurs in drier land than the latter, but always in full sunlight. It is a very beautiful plant, and I can imagine the furore that a group of 200 spikes would create if shown in the R.H.S. hall.

L. Mahonii, *L. giganteus* and *L. cristatus* are large growing species, but with smaller flowers than the two preceding. There is also a host of smaller growing species, unnamed so far as I am aware.

All species of *Lissochilus* are sun lovers, and all like soil a little stronger in texture than the typical Orchid compost. *E. Brown.*

(To be continued.)



FIG. 97.—*ANGRAECUM KOTSCHYI*, ON A TREE IN UGANDA.

A WONDERFUL YEAR.

THIS year has been a year of wonders in the garden! The reports of fruit crops show that in many districts the quantity exceeds the most sanguine expectations. Plums, I should think, occasionally have bulked as largely, and Pears, perhaps, also; but Apples have produced a crop such as probably will not be equalled in a lifetime. It is not so much that trees are laden to excess; that has happened frequently, but in numerous instances every flower in a cluster produced a fruit, thereby increasing a normal set many fold, and thereby, too, incurring the expenditure of much extra time in reducing the numbers to reasonable proportions. That, however, is not all, for varieties that only at wide intervals produce a crop are this year compet-

ing for bulk with the old stand-bys. The same thing has happened with such a Pear as *Citron des Carmes*, the second time I have known it to crop in 48 years, and wild Plums, usually barren, and Almonds seldom bearing fruit, are in fertility-line with the others.

For a time it looked as if fruits of all kinds would be small, the season being late, and in some cases that is true. At the same time such Apples as Warner's King, Bismarck, Lord Suffield and some others are nearly normal; Pears also are late, and scarcely an average size. Both Apples and Pears have dropped their fruits far beyond the usual, and in gathering the slightest touch is enough to loosen their hold. This condition is apparently due to the

dry state of the lower layers of soil, which trenching in late September shows never to have been quite moistened since the drought of last year. The drought has had another ill effect, inasmuch as shrubs, and at least one fruit tree, have died since spring. Against that has to be placed the benefit derived from it. It has undoubtedly affected all kinds of woody vegetation similarly to root-pruning. The show of blossom was beyond precedent, and the blossom was so perfect that, as all know, the set was almost phenomenal. Other garden produce has been equally exceptionally good.

Large Onions are not esteemed here, and to stop this year's crop from becoming individually over large the bulbs had to be partly lifted with a fork to hinder further increase in size. Peas, French Beans, Scarlet Runners and Cauliflowers, that in some years show gaps in

the succession, have this year done their duty without a break. A striking instance occurred with some of the earnest batch of Cauliflowers sown in October, and planted on a border in April. Two days after setting them out they were found to be mere bits or sticks, the leaves having been devoured by pheasants. Strange to say, they soon began to grow, and, finally, produced a good crop, only a little later than they ought to have been. But of all the vegetables that have demonstrated the exceptional character of the year the Globe Artichoke is the most remarkable. Offsets planted in spring for a late crop have filled not only the 4 feet allotted them, but have overlapped each other.

Flowers have been similarly exceptional. I continue a practice, begun during the war, of cutting over herbaceous plants in June in order to obviate staking. This summer the cutting over has had no apparent effect in reducing the height of the autumnal flowering section. Never have plants been so vigorous and tall, and staking had to be resumed. I might mention Gladioli, Carnations, Hollyhocks, Stocks and Roses as being outstanding. And freedom from disease generally has been marked, though Roses had to be sprayed and again sprayed for mildew.

Everybody has been complaining about the weather, the cold summer, the want of sun. There must be a reason for the results, such as, no doubt, have been usual elsewhere. I think the explanation is that the soil was heated to dryness and by absence of moisture last year. It acted, as already noted, similarly to root pruning in the case of trees; and the soil was pulverised to a depth that frost never reaches, with the further difference that the benefit of frost soon vanishes, while that of dryness lasts much longer. But the best results are only seen in deeply-worked soil.

Though, perhaps, not apropos, one may yet express regret that with such abundance neither the community nor the growers are benefiting as they should from it. From near and far one hears the same story of fruit and vegetables being unsaleable or saleable at unremunerative prices. And at the same time foreign material is doing well. I hear of Spanish Onions at £10 per ton; home onions unsaleable at £3—take it or leave it! Apples from America are selling in country villages at 6d. per lb., and home-grown Apples in Scotland are being returned to growers unsold. Surely in a year like the present means might have been taken to see that the superabundance was not lost. The old, old lines—

"So Thou the year most lib'rally dost with
Thy goodness crown,

And all Thy paths abundantly on us drop
fatness down."

if not very poetical, have had a practical demonstration—if only we would benefit by it, which appears to be doubtful. *R. P. Brotherston.*

THE ROSE GARDEN.

SOME GOOD AUTUMN FLOWERING ROSES.

ALTHOUGH September does not as yet appeal to popular imagination as a month of Roses like June, the time has arrived when it should have equal recognition. Indeed, certain varieties appear at their best in autumn, for they seem to grow more freely in July and August than during the period between pruning and the opening of the first bloom. Those who propose to plant Roses should not overlook the claims of autumn, and below I refer to a few varieties which are useful for autumn display.

Hoosier Beauty is a dark, red rose of perfect form, and has rich perfume. It is a dwarf, yet free grower, and blooms all the summer, but the climax is not reached until the early autumn, when every bloom stands revealed in its true colour.

The only fault I have to find with W. C. Gaunt is that it is practically scentless, and in dark blooms this is a disappointment; but if it is planted solely for its autumn brightness, then its place is assured. In the bud stage it reminds one of Richmond, but several shades darker.

Mrs. Wemyss Quin is essentially an all-the-

season variety, and as such must rank for some time as one of the leading bedding sorts; the colour is deep canary yellow, tipped with crimson, and it is non-fading. Lady Inchiquin is one of Messrs. Alex. Dickson and Sons' best Roses, and promises to be capable of living up to the style which we expect from a Gold Medallist, with the further backing of an A.M. from the R.H.S. So far, its reputation rests on exhibition form, but there is little to be desired from a decorative standpoint, for it has the necessary vigour in growth. The colour is described as orange-cerise, but that of a glorious September sunset is as near the shade as anything I can think of.

Many scarlet Roses have been introduced since General McArthur first appeared, but as yet I have not found a better for planting in the mass. It is one of the first to open, and nothing but frost finishes its season. It is such varieties as this that are most capable of solving the bedding problem of these times. Old Gold is a typical garden Rose, with a name which in no way overstates the colour description. Free in growth, the plants are presentable throughout the summer, but never more so than in early autumn, when the cooler days and nights make for longer lasting and more highly-coloured blooms.

Some Roses seem destined to draw attention to the necessity of catering for autumn colour, and Ophelia is not the least amongst them. It is never without blooms from the end of June, but under a summer sky, neither the salmon nor the rose tints are so vivid as they become later. To name a more useful bedding variety would be difficult. Pink Roses are not over plentiful, and one very often finds that good old variety Caroline Testout, the chief representative in a bedding scheme. For this reason Ethel Somerset should have a future. It has all the vigour of the variety just named, and promises to be as free in flowering, the blooms, however, are of more up-to-date form, being above average size, with a high, pointed centre, and carried on a good stem; the colour is a lovely shrimp pink, which deepens at the edges of the petals, especially in early autumn, to rich coral.

A garden Maréchal Niel Rose has long been dreamt of by Rose growers, and as I saw the variety Rev. F. Page Roberts under a cloudy sky a few weeks ago in a famous nursery, I am inclined to believe it has arrived. Whatever its other qualities may turn out to be, I can vouch for it as a garden variety and an autumn bloomer, although it will also probably be much in evidence at exhibitions for some time to come. The growth is strong and upright, and the foliage has every appearance of being mildew proof. On the blooms as seen in early autumn, there were no signs of any colour but rich, clear yellow; earlier buds were veined with buff on the outer petals. Long and pointed buds invariably indicate wet-weather resisting blooms, and in seasons like the present we can hardly have too many of this kind. Amongst several which answer this description, the beautiful orange-yellow Lady Hillingdon should be in every collection, for it remains presentable the summer through.

Sovereign is a deep golden-yellow variety, aptly named. It has by no means a large bloom, but just the type which comes freely over a long period, when the habit is bushy.

Although but semi-double, Hawmark Crimson must appeal to those who delight in autumn brilliance. Crimson in the bud, the fully opened bloom takes on a more scarlet tone, and this remains to the last. K. of K. and Red Letter Day are of similar form and most useful. John Hart brings to mind that delightful variety (in the bud stage) Lady Battersea, but it will probably enjoy a longer career, because it has greater substance in the open bloom, and autumn finds it at its best. In the modern variety Betty Upchurch, salmon pink and carmine are delightfully blended, and a refreshing perfume arises from the shapely bloom. In some respects it resembles the better known Mme. Abel Chatenay in form, but it is freer in its mode of flowering. As a decorative variety, its free-branching habit alone will commend it. Reddish orange seems a fair descrip-

tion for the very free grower, Lamia, and those who prefer new comers might find it a good substitute for Old Gold.

It is often remarked that for quality in dark Roses we must turn to the H.P.s. Before the advent of Courtney Page, one of Messrs. McGredy's best sorts, the observation may have had some point. Now, however, there is no excuse for placing form or colour before continuity of flowering, for in this H.T. there are enough of these qualities to satisfy the most critical, and the scent is very pleasing.

Many other Roses might be named for autumn effect, and a few of the older sorts for planting in large numbers, include Mrs. Aaron Ward, Indian yellow; Liberty, scarlet; Autumn Tints, coppery red; Iona Herdman, orange; Mme. Edouard Herriot, terra-cotta; and Richmond, scarlet. *Yorkshire Grower.*

THE ALPINE GARDEN.

THE ALPINE POPPY.

PAPAVER ALPINUM is one of the most charming of the small perennial Poppies, and is not out of place in the most select rock garden or flower border. This Papaver is not, however, one which lovers of showy, gaudily coloured flowers will appreciate, although it is not restricted to one or two colours and shades. It resembles a miniature form of the Iceland Poppy, *Papaver nudicaule*, but with a greater diversity of colour and tint, reminding one more of the newer varieties of the latter than of the older ones. But it is far more refined in every way. Its height is less than half of that of *P. nudicaule*; its flowers are much smaller; its foliage is more finely divided, and is much more beautiful generally. The colours of the flowers embrace shades of white, cream, yellow, blush, pink, orange, and scarlet. A still smaller form, called *P. alpinum pyrenaicum*, is also in existence, and is exceedingly beautiful in a miniature fashion. There is also a hybrid with fringed petals, called *P. alpinum fimbriatum*.

Nominally the Alpine Poppy is a perennial, but it is not always so enduring as could be wished. Sometimes our wet winters appear too trying for it, and at times plants are lost through unfavourable weather.

Self-sown seedlings often appear, and these will continue the succession, although it is not always safe to count on these, and it is more prudent to save a pinch of seeds from the best plants and to sow them, either in the open or under glass, in the spring. Like other Poppies, the plants do not always transplant well, and the best ones are produced by sowing where they are to bloom. Sow very thinly, and thin the seedlings to 3 inches or so apart. When sown under glass, damp weather should be chosen for transplanting.

I have always found *P. alpinum* and its varieties do best on a sandy soil, with a good proportion of small grit among it, but it is also excellent in a moraine with a fine surface, where the plants stand the winter better than elsewhere.

A good group of plants of *P. alpinum* makes an exceedingly pretty picture with the lovely foliage and charming flowers, which last from June onwards for a long period.

PRATIA ANGULATA (see p. 179.)

A FREE, sandy soil with a little peat or leaf-mould appears to suit this *Pratia*, but it must be confessed that it may be lost in winter even in soil of this nature. It is, therefore, an excellent plan to keep a small plant or two in a frame or cool greenhouse in winter to replace those outside should they perish. An alternative is to cover the plant with a sheet of glass, but to allow plenty of air to reach it; but even with this shelter the plant may be lost unless the position is well drained. It does not seem to mind much whether it has sun or partial shade. It has been known to me for some forty years, and it is always a plant which gives me pleasure when I see it well grown. *P. ilicifolia*, *P. begoniifolia*, *P. macrodon*, and *P. arenaria* have been in cultivation, but possess no superiority to commend them. *S. Arnott.*

GARDEN NOTES FROM S.W. SCOTLAND.

"... the spring, the summer, The chilling autumn, angry winter, change Their wonted liveries; and the mazed world, By their increase, now knows not which is which."

Midsummer Night's Dream, Act ii., Sc. 1.

It is well worth reading Titania's speech to Oberon, whereof the closing lines are quoted above, to find a vivid description of the seasons of 1922—the most untoward in the recollection of most of us. It is, at least, some consolation to be reminded that the sky sometimes lowered as gloomily and harvest was as laggard in the golden Elizabethan age as in our own day. It may be worth noting some of the results of the drenching cold of the past summer upon shrubs and herbs in this district. *Rhododendrons* have revelled in it, making almost extravagant growth, many of the finer Asiatic species being heavily set with flower-buds. The *Sorbaria* section of shrubby *Spiraea*, *Deutzia corymbiflora*, *Hypericum Hookerianum*, *H. patulum*, and its variety *Henryi*, and *Olearia* of many species have been companions among late-flowering shrubs; *Eucryphia pinnatifolia*, generally over in a fortnight, prolonged its bloom for a month, and *E. cordifolia*, fully four weeks later than usual, will continue in beauty till stopped by frost. *Clerodendron trichotomum*, though thickly set with flower buds, has failed to open a single blossom, while *C. foetidum* will not be in time to display its charming crimson corymbs.

This time last year *Amaryllis Belladonna* was "a sight for sair e'en," as we say in Scots; to-day, there is not a flowering stem above ground. A single bloom stands for fulfilment of the promise made by abundant leafage thrown up in spring by two clumps of *Lycoris squamigera*. On the other hand, *Nerine Bowdenii* is only ten days later than usual, and carries its prettily-crimped, carmine flowers in defiance of wet and cold. The only herb, however, which is not behind time is the great Christmas Rose—*Helleborus niger altifolius*—which never fails to begin its long flowering season in the first week of October.

In all the multitude of herbaceous *Speedwells* there is none equal in splendour to *Veronica longifolia subsessilis* (see Fig. 98), a Japanese variety of a European species. Beginning to flower in late summer, it continues for several weeks to produce spikes of blossom eight or nine inches long on stems two feet high. The flowers are of the richest Tyrian purple, relieved by small, white anthers. Unluckily, the plant has not the irrepressible vitality of many others of the genus, and we have found it apt to die off after flowering. Would that it had the same reproductive quality as *V. spuria*, which is a poor imitation of *V. subsessilis*, sowing itself freely where it is not wanted. It is worth any amount of trouble to keep the finer species in vigour, for in foliage, flower and habit, it takes rank with the foremost herbaceous plants.

Utterly different in habit and stature is another species of *Speedwell* which I have received from Mr. E. A. Bowles under the name of *V. filiformis* (not to be confused with *V. filifolia*, which had grown here for many years) and which the late Mr. Farrer faithfully described as "growing erect into a filmy fuzz of fine greenery, starred with china-blue blossoms." Mr. Bowles's plant is invaluable as a carpet, grateful for any space, in sun or shade, that needs covering; spreading fast, but never rising more than an inch high, a mere film of close, pale green foliage, through which bulbous things easily push their way. In spring, the green carpet becomes wan blue with crowded blossom.

Any vacant nook in shrubbery or woodland may be turned to good account by filling it with roots of *Arum italicum*, which is nearly related to our native Wake robin or Cuckoo-pint, but is larger in all its parts and has the merit of clothing the ground in winter with shining, hastate leaves. In autumn, it sends up massive spikes of orange-scarlet berries twelve to eighteen inches high. This morning I counted 73 such spikes within a space of nine

feet by three, among which were the soft, violet blooms of *Crocus speciosus*, a most gratifying feast of colour under an October sun. Luckily, neither birds nor mice seem to fancy the berries.

As for mice, both the long-tailed field mouse and the short-tailed vole are among the gardeners' worst enemies, and seem to consider that a retaining wall assigned to rock plants has been specially designed here for their harbour. Wide-mouthed jars, sunk in the soil with their rims flush with the surface, capture a good many; but we have had to give up that device because so many friendly toads fell into them. One might, indeed, despair of cultivating

INDOOR PLANTS.

BOUGAINVILLEA.

BOUGAINVILLEAS were formerly included in most collections of stove and greenhouse plants, and *B. glabra* was a popular subject in collections of specimen flowering plants in pots at horticultural exhibitions. Many growers flowered it to perfection, others, again, found it to be less tractable; indeed, some were inclined to believe that there were stocks of this plant which refused to flower under any cultural treatment.

I recently saw *Bougainvillea speciosa* planted

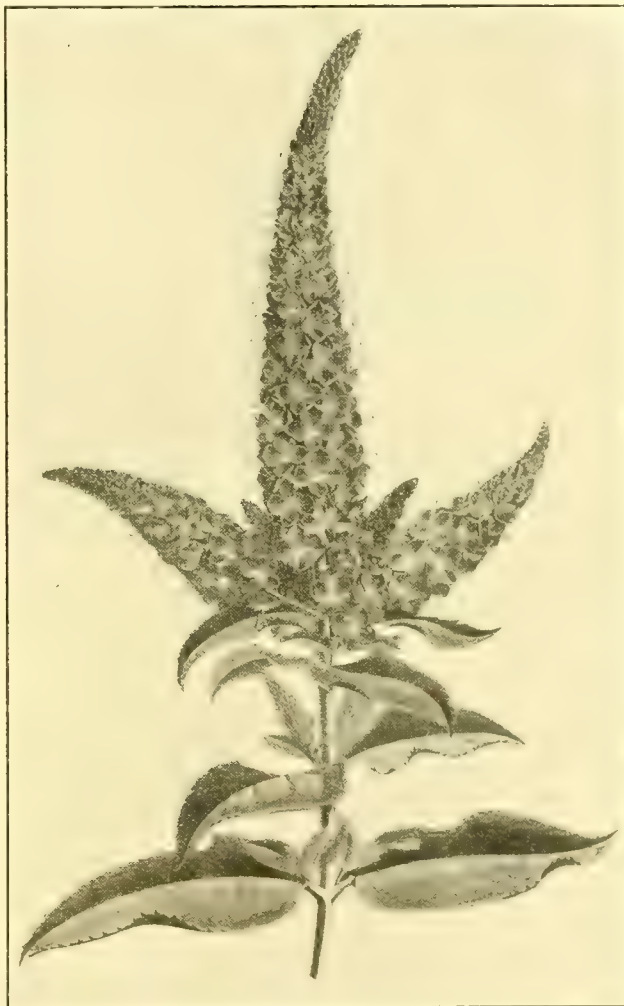


FIG 98.—*VERONICA LONGIFOLIA* VAR. *SUBSESSILIS* (REDUCED)

anything in the nature of a Tulip or a Crocus, but for the beneficent vigilance of a pair of barn owls that rear an annual brood hard by, and of a stoat which haunts these mischievous little rodents indefatigably. The antics of the said stoat, racing in circles and throwing somersaults in the endeavour to fascinate a blackbird, are most diverting; but I suspect he was the culprit that murdered a goldfinch after she had laid two eggs. The nest was built in the fork of a *Rhododendron arboreum*, and stoats are adept tree-climbers. *Herbert Maxwell, Monreith.*

Spring Bedding.—As most of the beds are now clear of the summer-flowering plants, the soil should be prepared for receiving the spring-flowering subjects. Dig the ground and add plenty of well-decayed manure, also use lime freely or basic slag on the surface. Such small-growing plants as *Arabis*, *Aubrietias*, *Myosotis*, *Theris* and *Viola* should be made firm in the soil by hand pressure. *C.*

out and trained under the ratters of the roof in the show house in Queen's Park, Glasgow. It was flowering magnificently, the long, pendant growths being wreathed with bracts, the whole plant a mass of flower, from the plant staging to the apex of the roof. At the winter pruning the weak growth is removed, leaving the stronger growths nearly full length; by this method of pruning it has been found to flower more freely than when closely spurred in. *Fred W. Jeffery, Dalserf, N.B.*

SAXIFRAGA FORTUNII.

ALTHOUGH this species is hardy, it flowers so late (October) that in most seasons the blooms are damaged by early frosts. It is, however, a beautiful subject for pot culture, and its requirements are simple just the shelter of a cold frame. During the summer it does best in a cool position at the foot of a north or east wall, and needs liberal supplies of water. *J. Coult.*

REMARKS ON THE CONDITION OF THE FRUIT CROPS. AUTUMN WORK IN THE FRUIT GARDEN.

(Continued from p. 228).

ENGLAND, S.W. (continued).

WORCESTERSHIRE.—Apples are a good average crop, but trees that were heavily laden last year are thinly cropped this season, which is to be expected. Pears look very promising, the growth of the trees being healthy and quite satisfactory, and the fruit clean and of good quality, although attacks of Pear midge increase annually; it is a persistent and ever increasing insect pest. Plums were a great crop, except River's Early Prolific which, flowering early, was damaged by bad weather. Purple Pershore has established itself as the coming Plum, both for bottling and culinary purposes. Fruit growing commercially on farms is evidently becoming better understood; an improved and entirely changed system of cultivation is proving a very valuable asset to the intelligent farmer. *William Crump, Oakridge, Malvern Link.*

—The fruit crops are not nearly so heavy as they promised, especially after such an abundance of blossom in the spring, which was the most plentiful during my 22 years' charge here. The following varieties of Apples are carrying good crops: Bramley's Seedling, Newton Wonder, Gascoyne's Scarlet Seedling, James Grieve, Lord Grosvenor, Lord Suffield, and Ecklinville Seedling. The Plum crop was a very heavy one. Of Pears we have about half an average crop. Our soil is of a fairly heavy nature. *Ernest Avery, Finstall Park Gardens, Bromsgrove.*

—The frosty mornings and cold winds of April damaged both flowers and foliage of many varieties of Pears, thus affecting the quantity and quality of the fruit. Apple blossom was plentiful and strong, and altogether above the average. Flowers of the Plum were not so abundant as in some former years; but the crop was all that could be desired. Cherries were fine in promise and fulfilment. Small fruits were as good as we expected, but a little below the average in quality owing to the drought. *James Udale, 7, Ombersley Road, Droitwich.*

—On the whole the fruit crops are not up to the standard. The dry weather just after the fruits had set did a great deal of harm. Fruit blossom of all kinds was very good. The top soil is, on the average, 12 inches to 18 inches deep and rather sandy with a certain amount of limestone in it, and our garden dries up very quickly. *G. E. Roden, Overbury Court Gardens, Tewkesbury.*

SHROPSHIRE.—Apples are an average crop. Damsons and Plums were very numerous. Pears on walls, too, are a heavy crop. The yield of Morello and Sweet Cherries exceeded the average and the quality was excellent. Fruit trees in general have been fairly free from insect pests this season. The soil is variable, in some parts it is very stiff, in others it is light and gravelly. *S. Horton, Binford House Gardens, Tenbury Wells.*

WALES.

CARDIGANSHIRE.—All fruit trees blossomed most abundantly, and all have set fruits freely, with the exception of certain varieties of Plums, including Gages. Apples and Pears are making clean, healthy growth, but some of the Plums were affected with blister and green fly. The following varieties are bearing abundantly:—Plums—Monarch, Czar, Pond's Seedling, Victoria, and Transparent Gage. Pears—Beurré d'Amanlis, William's Bon Chrétien, Madame Treve, Blickling, Souvenir du Congrès, Conference, Clapp's Favourite, Fertility, Jargonelle, and Santa Claus. Apples—Desert-Cox's Orange Pippin, King of the Pippins, King's Acre Pippin, Langley Pippin, Worcester Pearmain, and Charles Ross; cooking—Bismarck, Norfolk Beauty, King's Acre Bountiful, Warner's King, Ecklinville Seedling, Annie Elizabeth, Lane's Prince Albert, and Bramley's Seedling. The soil is cold and heavy, overlying slaty rock. *W. Phillips, Derry Ormond, Llanybi.*

To be continued.

I HAVE NEVER known Apples to be so late in maturing as they are this autumn, and this I attribute to the lateness of flowering and the long spell of wet weather during the past two months. It has been a difficult task to gather hardy fruit in a dry condition, for there have been heavy dews and rain almost every day of the past few weeks, at least in the Midlands.

Some large bush trees of Emperor Alexander Apple are bearing big crops for the first time in ten years, which goes to prove that the wood of this variety, to mention only one, requires to be well ripened.

The present is a suitable time to examine the trees, and mark any branches that need to be removed to admit sunlight and air. Trees growing in rich soil very quickly become congested with growth, especially those trained as pyramids. The branches should be thinned, but care must be taken not to spoil the shape of the tree in doing this. Later in the autumn some of the spurs may be removed entirely, but this operation should be extended over a reasonable period, doing, say, half at one time and the other half a fortnight or so later. It is surprising what a difference this thinning of superfluous spurs will make.

As soon as the leaves turn yellow and begin to fall, such trees as require it may be root pruned. Trees planted in very fertile, loamy soil will almost be sure to require attention at the roots after a few years, and any that are making too much growth should be marked for treatment. Young trees can be root-pruned in one operation by taking out a trench all round them, about two or three feet from the stem—or even more if the tree is a large one, and cutting the large roots through. The severed roots should be trimmed neatly with a sharp knife. A trench 2 feet deep will in most cases be suitable, and the fork should be worked underneath the tree to determine if there is a tap-root. If one is found it should be cut through, the soil placed in position again and made firm. It will benefit the trees if a liberal amount of old mortar rubble is incorporated with the soil before it is replaced. Root pruning should only be done when the soil is in a good condition for working, to permit of it being rammed and made very firm.

In the majority of cases trees that have carried large crops of fruit this season, whether Apples, Pears or stone fruit, will be benefited by manual assistance after the fruit is gathered to assist them in forming buds for next season. The fertiliser should be applied either in solution or sprinkled on the surface, to be washed into the soil by the autumn rains. A dressing of sulphate of potash is excellent; or, failing this, soot and wood ash may be applied. Scatter the fertiliser evenly over the surface as far round the tree as the branches extend, and lightly fork it in.

Trees growing on walls should be examined to ascertain if the roots are dry, for they often need moisture even in a rainy season. Fork the ground up lightly, draw some of the soil away from the wall, and thoroughly soak the ground close to it. After watering apply a light mulch of well-decayed manure.

Examine the ties on the branches, and loosen them if necessary. The strangling of the bark by tight ligatures is a frequent cause of gumming in Apricots, Plums, and Cherries.

Secondary growths that have resulted from summer pruning should be cut away.

Bush fruits, such as Currants and Gooseberries, should be attended to, and branches causing crowding removed while they are in leaf, as it is easy now to see where they are too thick. If not already done, the old Raspberry canes should be cut out, and the young ones trained in their places, allowing a foot between each. Hand-weed between the rows, and apply a good dressing of well-rotted farmyard manure to the roots. This autumn dressing will be of great assistance to the canes next summer, and will also serve to ward off frost from the roots, should the weather be very severe later. *R. W. Thatcher, Carlton Park Gardens, Market Harboro'.*

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Pyrus Eleyi.—The handsome Crab figured in the *Gard. Chron.* of October 7 (Fig. 87) was raised by Mr. Charles Eley, in his garden at East Bergholt, Suffolk. Very rarely has a Crab obtained honours from the R.H.S. Floral Committee for its capabilities as a flowering and also as a fruiting plant. The illustration in the *Gard. Chron.* of August 14, 1921, shows a flowering spray of this handsome hybrid between *P. niedswetskyana* and *P. spectabilis*, and this figure, together with the more recent one, form a pictorial record of what promises to be a popular small tree for garden decoration. *C.*

Wasps in 1922 (see p. 197).—Like Mr. Bayliss we have had a plague of wasps this year. I have never before taken so many nests in one season; up to date I have taken 156 nests (a number I could easily exceed) from the home farm adjoining and around the garden. Reports in the district are the same. Very few queens were seen in the spring; the majority of the wasps were of a small variety. *H. Perry, The Wodehouse, Gardens, Wolverhampton.*

The Wigan Cup for Roses at Holland Park Rink Show.—In the list of awards made by the Royal Horticultural Society at the Holland Park Rink Show it is stated that the Wigan Cup for Roses was won by Messrs. Alex. Dickson and Sons; but an explanation is needed for those who have not heard the whole of the events leading up to this award. Who really did win the Wigan Cup, and what is it offered for? If your readers refer to the list of awards on p. 216 they will find that my exhibit was placed first, and received a Gold Medal. When the award cards were sent out the Wigan Cup card came with the Gold Medal card, and was filled in to show the cup was awarded to me. I went out to notify the results to my friends, but imagine my surprise on returning to the show to find someone had taken away the Wigan Cup card! This was very annoying, and I at once sought the reason at the inquiry office, but only discovered that I must wait until the secretary had dealt with the matter, as something was not in order. I cannot understand why the Council did not make quite sure before sending out the cards and making me look like an impostor. The Wigan Cup is offered (see p. 5 of the R.H.S. Autumn Schedule) for the best exhibit of Roses, and even if I was not eligible for the award because I won it in 1921, now can it be said truthfully and fairly that the cup was given to the best exhibit if it was finally awarded to another exhibit, which was placed second? I consider that if I was not eligible, the only fair course was for the R.H.S. to withhold the cup. Even Mr. Dickson could not understand the action. To see two cards upon two separate groups with records in various papers giving both myself and Messrs. Alex. Dickson and Sons as the winners makes the whole business ridiculous, and I trust that the R.H.S. Council will see that such a blunder never occurs again. But why have such stupid conditions? Surely the only way of maintaining the standard of the exhibits and getting everyone to do their best is to give all a free hand, and if any firm can win the cup in successive years, let them have what is their just reward. *E. J. Hicks, Thwyford.*

[It is regrettable that an error such as our correspondent refers to should have occurred at Holland Park Show; but Mr. Hicks is not a new exhibitor, and must have known he was not entitled to hold the Wigan Cup this year, because (see R.H.S. *Book of Arrangements* for 1922, p. 47), "With certain specified exceptions, no challenge cup may be awarded to the winner of the previous year; but if that winner be recommended for the award on the second occasion, a special medal and card will be awarded." Exhibitors must abide by the conditions, and if the conditions are considered to be unsatisfactory, those immediately concerned should endeavour to have them altered.—Eds.]

SOCIETIES.

ROYAL HORTICULTURAL.

OCTOBER 17. A bright and interesting exhibition greeted the comparatively few Fellows and visitors who attended the R.H.S. meeting at Westminster on the above date. The Floral Committee awarded no fewer than thirty-two medals for groups, which is fairly good evidence of the extent of the display. Autumn flowers, including Dahlias and Chrysanthemums, were shown largely, and other subjects exhibited prominently were Orchids, Begonias, Nerines, Gladioli and Clematis, with a contribution of fruit.

Orchid Committee.

Present: Sir Jeremiah Colman, Bart. (in the chair), Messrs. Jas. O'Brien (hon. secretary), Gurney Wilson, C. J. Lucas, F. K. Sander, Arthur Dye, S. W. Flory, J. E. Shill, H. T. Pitt, A. McBean, J. T. Barker, Chas. H. Curtis, J. Wilson Potter, Pantia Ralli, T. Armstrong, Stuart H. Low and E. R. Ashton.

AWARDS OF MERIT.

Miltonia spectabilis extraria, from Messrs. SANDERS, St. Albans. A very pleasant reminder of the days when importations of *Miltonia spectabilis* brought considerable variety in this remarkable species, the nearest to the handsome form now shown being *M. spectabilis bicolor*, to which the new variety is superior in size and shape. The one flowered scape bore a very attractive, pure white flower with a large crimson blotch in the centre of the lip.

Laelio-Cattleya St. George var. Victory (C. Folia × L.-C. St. Gothard), from Messrs. STUART LOW, Javisbrook, Sussex. A grand flower with very broad petals of clear rose colour, the large and finely expanded lip being entirely ruby claret. It is one of the finest of its class.

Odontoglossum St. George var. Solum (Alexandrina × eximium), from Messrs. J. AND A. McBEAN, Cooksbridge. The fifth of this very fine cross to receive an award, and the most distinct and beautiful. The fine spike bore large and perfectly formed flowers, the inner two-thirds being claret red with very remarkable oblong, white blotches, the margins and tips also being white. The lip is white with claret purple blotches.

Brasso-Cattleya Dr. G. G. Macdonald (B.-C. Ilene × C. Peetersii), from Messrs. FLORY AND BLACK, Slough. A true Brasso Cattleya of the finest class. The large flowers are clear, rosy mauve, with darker mauve on the lip, which has a pale yellow disc.

GROUPS.

Messrs. SANDERS, St. Albans, were awarded a Silver Banksian Medal for a group containing specially good forms of Cattleya Hardyana and its variety alba; Vanda coerulea and other species, and a good selection of Cypripediums. Noticeable among the species was a fine form of the best old type of Oncidium tigrinum.

Sir JEREMIAH COLMAN, Bart., Gatton Park (gr. Mr. Collier), showed his new Odontioda James O'Brien (Oakwoodensis × Chantecleer), remarkable for its reversion to the true Odontoglossum form the Odm. percultum, which, with Oda. Bradshawiae, produced Oda. Oakwoodensis, predominating. The flowers are large, and of perfect form, the lip being especially showy; it is white with heavy claret-red blotches on the inner parts of the segments.

The Duke of MARLBOROUGH, Blenheim Palace, Woodstock (gr. Mr. J. T. Barker), sent Cattleya Sylvia Blenheim variety, a pretty flower of the C. Hardyana class with gold veined lip; and a fine example of Laelio-Cattleya Cornelia.

PANTIA RALLI, Esq., Ashstead Park (Orchid grower, Mr. Farnes), sent Odontoglossum Zenith (percultum × colossus), a charming flower of large size and fine shape, white, heavily blotched with mauve.

MESSRS. FLORY AND BLACK, Slough, sent Potinara Royal Purple (B.-L.-C. Gerald × S.-C. westfieldensis), a dark mauve flower of attractive form, and other hybrids.

Messrs. STUART LOW showed various hybrids, a novelty being Cattleya Valdeow (Vulcan × Dowiana), a rose-purple flower with ex-

panded front to the lip, which has yellow lines. Messrs. J. AND A. McBEAN, Cooksbridge, showed a selection, in which Odontoglossum Laurentia (Jasper × Olympia) with large white flowers richly blotched with mauve; and the new Brasso-Laelio-Cattleya Vashti (B.-C. Bianca × L.-C. Beatrice), were the best novelties.

Floral Committee.

Present: Messrs. H. B. May (in the chair), J. W. Barr, W. G. Baker, John Heal, W. B. Gingell, Sydney Morris, W. P. Thomson, G. Harrow, W. Howe, J. F. McLeod, J. W. Blakey, Thos. Stevenson, J. Jennings, D. B. Crane, M. C. Allwood, H. J. Jones, H. R. Darlington, Chas. E. Pearson, R. C. Notcutt, Reginald Cory, E. A. Bowles, W. B. Cranfield, G. W. Loder, and W. Cuthbertson.

AWARDS OF MERIT.

Chrysanthemum Godfrey's Triumph. A large deep yellow, single variety, with about three rows of flattish, substantial florets. Shown by Messrs. W. J. GODFREY AND SON, Exmouth.

Euonymus europaeus aldenhamensis. This is a handsome autumn-fruiting form of the Spindle tree; the fruits are of more brilliant pink, larger and less rigidly held on the stems than in the case of the well-known type plant. Shown by the Hon. VICARY GIBBS (gr. Mr. E. Beckett), Aldenham House, Elstree.

Carnation Tangerine. This very showy perpetual-flowering Carnation is a fancy variety, with light salmon-buff ground colour and flakings of rosy red. The name is scarcely descriptive, but the flower is good. Shown by Mr. KEITH LUXFORD, Sheering, Harlow.

Acer griseum. A distinct and handsome Maple, with rich crimson trifoliate leaves, measuring 2½ in. by 3 in.; white and slightly downy beneath. Although this species has fruited freely enough at Warnham, no fertile seeds have been found. The tree from which the specimens were taken is 16 ft. to 18 ft. high. Shown by C. J. LUCAS, Esq., Warnham Court, Horsham.

Rosa Farguesi. Fruiting sprays of this interesting Rose were exhibited; they are elongated and quaintly shaped, and of bright scarlet colour. Fruits of this species were illustrated in *Gard. Chron.*, Fig. 6, page 19, January 11, 1919. Shown by Mr. J. C. ALLGROVE.

OTHER NOVELTIES.

Viburnum tchagensense (Wilson, No. 22), shown by Mr. C. J. LUCAS, has red, shining berries, carried in pendulous clusters, and should be a showy plant if of shapely growth. *Pyrus Malus aldenhamensis* was shown in fruit by the Hon. VICARY GIBBS, but the Cherry-like fruits are of a somewhat sombre hue.

GROUPS.

Chrysanthemums were prominently shown in various parts of the hall. Mr. H. J. JONES associated highly decorative blooms with an immense quantity of Michaelmas Daisies and perennial Sunflowers. This was an imposing group of considerable artistic merit and great garden value. The tall stands of Helianthus Monarch, alternating with such Michaelmas Daisies as Henry Adams, Rubellus, Sirius, Elsa and Sam Barham were particularly effective, while on a lower level there were many baskets of Chrysanthemums of decorative type. The principal varieties were Red Almirante, of brilliant colour; Sanctity; October Glow, orange scarlet; Pink Profusion and Harvester (Gold Medal).

Chief amongst the excellent Chrysanthemums shown by Messrs. W. WELLS AND CO. was a large stand of the rich golden yellow Viscount Chinda, which received a First Class Certificate on the previous day. Other large flowered Japanese varieties were James Stredwick, Mrs. G. Monro, Majestic and Mrs. R. Luxford. Amongst the many vases of decorative types were Ethel Blades, Mrs. A. Thomson, Verona, and Goacher's Crimson (Silver Flora Medal).

A great quantity of Chrysanthemums, in spray form, was shown by Messrs. K. LUXFORD AND CO., and these were particularly decorative. The chief varieties were Countess, Goldfinch, Bouquet Rose, Mrs. H. Field, and Nathalie (Silver Gilt Banksian Medal).

Chrysanthemums of decorative size and in considerable quantity were displayed by Mr. WM. YANDELL, who staged such sorts as Betty Spark, Dolores, Uxbridge Bronze, and Lichfield Purple; the last named was of especially rich colouring (Silver-Gilt Banksian Medal). Messrs. GODFREY AND SON showed vases of Cassiope, a soft mauve pink variety of decorative type, and Godfrey's Gem, a medium-sized single of bronzy yellow colouring, with Scabiosa caucasica Pride of Exmouth.

Although the blooms were somewhat smaller than of late, Roses were very fresh and bright. Mr. G. PRINCE had beautiful vases of Ophelia, Madame Butterfly, Lady Pirrie, Los Angeles, and other sorts (Silver-Gilt Banksian Medal). Messrs. D. PRIOR AND SON, staged Rodhatte, Ophelia, Golden Emblem, Mrs. H. Stevens, and many other sorts (Silver Banksian Medal). The Rev. J. H. PEMBERTON included a splendid vase of his new musk-scented Nur Mahal, The General and Vanity in his collection (Silver Flora Medal). Particularly fresh and fragrant Roses were shown by Mr. E. J. HICKS (Silver Flora Medal). Messrs. STUART LOW AND CO. associated Roses with Carnations, and prominent amongst the latter was a magnificent stand of White Pearl (Silver Banksian Medal). Carnations of considerable merit were also shown by Mr. C. ENGELMANN (Silver Banksian Medal), and Messrs. ALLWOOD BROS., who also staged Dianthus Allwoodii in many varieties (Silver Flora Medal).

Near the annexe Messrs. SUTTON AND SONS had an interesting collection of Begonia Lloydii seedlings in a variety of interesting and beautiful shades of colour. The plants were exceedingly floriferous (Silver Banksian Medal). Messrs. BARR AND SONS contributed border flowers and spikes of particularly good Nerines in such sorts as Scintilla, crimson; Vivid, Carolus, deep scarlet; Ariadne, Jupiter and Miss Jekyll, pink; and also had very vigorous plants of two hybrids named Aurora and Hero. Both hybrids are of pink shades and were so tall as to appear, at a little distance, as though they were pink-flowered Agapanthus (Bronze Flora Medal). A good strain of Antirrhinums was staged by Messrs. W. TRESEDER, LTD. (Silver Banksian Medal), while Messrs. J. PIPER AND SONS exhibited particularly good plants of Primula obconica (Silver Banksian Medal).

A comprehensive collection of general border flowers was shown by Mr. F. G. WOOD. Tall snowy white plumes of Pampas Grass and the purplish-tinged variety (Cortaderia kermesiana) stood out prominently. The comparatively rare Yucca gloriosa superba was also on view adjoining a small, neat rockery, while at the far end there were border Chrysanthemums, Erigerons and other hardy flowers (Silver Flora Medal). Considerable space was also occupied by Messrs. WATERER, SONS AND CRISP with a good collection of hardy flowers. Delphiniums, Michaelmas Daisies, Kniphofias and Lupins were particularly prominent (Silver Banksian Medal). Mr. G. REUTHE included a little collection of hardy Heaths, Colchicum albus and autumn Crocuses in his collection (Silver Banksian medal). Mr. W. WELLS, Junr., had very good Michaelmas Daisies, in such sorts as Rose Queen, Lamvain and Advance (Silver Banksian Medal).

Hardy border flowers were well shown by Messrs. RICH AND CO. (Bronze Banksian Medal). Messrs. I. HOUSE AND SONS had their valuable perennial Scabious (Silver Flora Medal). Mr. THOS. CARLILE showed Delphiniums, Lupins and Michaelmas Daisies (Silver Banksian Medal). The Misses HOPKINS had Asters, Scabious, Plumbago Larpentae and early Polyanthus (Bronze Banksian Medal). In an interesting collection Messrs. B. LADHAMS, LTD., included a number of showy Lobelia hybrids; B. Ladhams, Queen Victoria and Magnificans of scarlet colouring and Mrs. Humbert, soft pink, were very delightful (Silver Flora Medal). Violets were shown by the Misses ALLEN-BROWN (Bronze Banksian Medal).

Several interesting New Zealand shrubs, particularly shrubby Veronics, were staged by Messrs. J. CHEAL AND SONS. Sprays of Quercus rubra and Pyrus discolor displayed rich autumn tints. They also showed border flowers and

Dahlias in another part of the hall (Silver Flora Medal). Messrs. L. R. RUSSELL, LTD., arranged a collection of floriferous Clematis (Silver Bank-sian Medal). Messrs. SKELTON and KIRBY included showy branches of *Crataegus Crus-galli* and *Berberis Thunbergii* in their group (Bronze Banksian Medal). Messrs. LOWE and GIBSON staged some interesting *Gladiolus* seedlings from seed sown early this year (Bronze Flora Medal).

Dahlias of good quality were staged by Mr. J. T. WEST (Silver Flora Medal), Mr. CHARLES TURNER (Silver Banksian Medal), Messrs. JARMAN and CO. and Messrs. J. CHEAL and SONS.

Fruit and Vegetable Committee.

Present: Messrs. C. G. A. Nix (in the chair), J. Cheal, H. S. Rivers, Geo. F. Tinley, S. B. Dicks, E. Neal, Owen Thomas, E. A. Bunyard, Geo. Reynolds, H. Prince, J. C. Allgrove, W. Bates, W. H. Divers, W. Wilks, Owen Thomas, Ed. Beckett, T. Pateman, and A. Metcalfe.

Several seedling Apples were submitted for awards. The variety Victory, a cross between Bismarck and Peasgood's Nonesuch, was considered promising, and as the fruits had passed a culinary test with satisfaction, a deputation was appointed to inspect the tree. It is like a highly-coloured Peasgood Nonesuch, but much heavier. The exhibitor was Mr. G. CARPENTER, West Hall Gardens, Byfleet, Surrey.

By far the most promising new fruit was a seedling Black Grape, shown by Mr. W. BUTCHER, Ecclesden Manor. Mr. Butcher stated that he raised it from a seed taken from a white Grape, and that the vine in which it was grown was unheated and shaded by Elm trees. Three bunches were exhibited, the largest of which weighed four pounds, and the berries, considering the conditions under which they were grown, were well coloured and of excellent flavour. If this new variety proves to be distinct, it will be a notable addition to Grapes, as the fact that it was grown in a cool house and ripened so well in such a sunless summer, points to it being a very valuable sort.

Lady BICKERSTETH, Cottingham, Yorkshire, showed two splendid bunches of the white, seedless Sultan Grape, for which a Cultural Commendation was recommended.

Messrs. G. G. WHITELEGG and Co., Chislehurst, showed a collection of Apples and Pears, for which a Silver Hogg Medal was awarded. Many of the Apples were coloured to an extraordinary degree, and there were some remarkably fine fruits, very highly coloured, of Catillac Pears.

HOVE HORTICULTURAL AND ALLOTMENT HOLDERS'.

THE sixth annual show, under the auspices of the Hove Horticultural and Allotment Holders' Association, was held in the local Town Hall on Wednesday and Thursday, the 13th and 14th ult. The exhibition was a great success, and attracted numerous traders, whose non-competitive collections contributed much to the success of the show. In the competitive classes an outstanding exhibit was a semi-circular group of plants staged by Mr. G. PAGET WALFORD, Hove (gr., Mr. Reed), for which the Association's silver challenge cup, presented by the chairman, Councillor Ed. Bull, was awarded. A challenge cup was also offered in a class for a collection of vegetables of six varieties, and this was won by Mr. H. SMITH. Mr. J. C. REEVES was successful in winning first prizes for a collection of four dishes of fruit and for six vases of Dahlias, six blooms in each receptacle, and he was also second in the classes for six vases of Asters and six vases of hardy perennials, in which Mr. G. PAGET WALFORD was first in both cases. The number of exhibits was 800, as compared with only 300 last year.

The following medals were awarded to non-competitive collections:—*Gold Medals:* Messrs. ALLWOOD BROS., Haywards Heath; BARNHAM NURSERIES, Barnham; Messrs. CHARLESWORTH and Co., Haywards Heath; Messrs. STUART LOW and Co., Enfield; Messrs. BLACKMORE and LANGDON, Bath; Messrs. BALCHIN, Hove; Mr. F. WOOLLARD, Brighton; and the HOVE CORPORATION, for an exhibit from the local parks.

Silver Medals, to Mr. W. WELLS, Jun., Mersham; Messrs. J. CHEAL and SONS, Crawley; Mr. HEMSLEY, Crawley; Messrs. BOX and Co., Lingfield; and Mr. GOLDSMITH, Hove.

SPALDING FRUIT SHOW.

THE third annual fruit show of the Spalding and District Bulb and Fruit Gardeners' Association was held in the Masonic Hall on Friday, the 13th inst. Although the show was by no means a large one, the quality of the exhibits was of exceptional merit.

The culinary Apples were shown in Potato trays (one layer only), and it is a pity that the schedule does not definitely stipulate the size of the tray, the number of Apples to the tray, and whether the fruits should be exhibited "eye" upwards or on their sides, as a certain tray contained nearly twice as many fruits as others.

In the class for the best tray of Bramley's Seedling, the first prize was gained by Mr. A. W. WHITE, Hillegom, Spalding, who showed even specimens of good size and colour. Messrs. HENLEY and SONS, Spalding, were second with a tray of red and green types mixed, and Mr. F. TIFER, Spalding, 3rd. Eleven entered the class for a tray of Newton Wonder, chief honours going to Mr. R. WELLBAND, London Road, Spalding, his fruits being of exceptionally fine colour, Mr. A. E. EDWARDS 2nd, and Mr. A. W. WHITE 3rd.

The last-named competitor was placed first and 2nd in the class for Lane's Prince Albert out of eight entries. There was little to choose between the two sets, the first prize going to the better coloured fruits; Mr. F. TIFER, 3rd. Lord Derby is a variety which is not so commonly grown in the district as those mentioned above, and in this class the same exhibitor, Mr. A. W. WHITE, gained first and second prizes with large-sized fruits, free from blemish.

In the class for the best tray of "any variety," Mr. A. E. EDWARDS won first prize with Warner's King, and Messrs. HENLEY and SONS, 2nd, with Blenheim Pippin.

In the single dish classes Messrs. B. N. and C. E. SMITH won first prize in the class for nine fruits of Cox's Orange Pippin; Mr. C. KITCHING, 2nd; Messrs. ANDERSON BROS., 3rd. The last-named competitors were first prize winners for a dish of Allington Pippin, and Mr. J. BEESHAM and Mr. E. JACOB were first and second respectively in the class for a dish of Blenheim Pippin. In the class for "any other variety" first prize went to Mr. A. E. EDWARDS for magnificent specimens of Charles Ross.

There was but one class for Pears, the winning dish coming from Mr. J. J. BARNARD, Fulney, who exhibited nine perfect fruits of Louise Bonne of Jersey; Mr. C. KITCHING, 2nd, with a good dish of Doyenné du Comice.

The Challenge Cup, awarded for the best tray of culinary Apples, was won by Mr. A. W. WHITE with his tray of highly coloured Lane's Prince Albert, and as he has won it the second time in succession it becomes his property.

Obituary.

Mrs. Clarisse Bischoffsheim.—We regret to record the death of Mrs. Bischoffsheim, of The Warren House, Stanmore, Middlesex, widow of the late H. L. Bischoffsheim, Esq., at the age of 85 years. Mrs. Bischoffsheim was a keen gardener, and both in Mr. Bischoffsheim's time and since, the gardens at The Warren House were amongst the finest in the neighbourhood of London. The grounds are naturally beautiful and have been improved by the gardeners' art. Carnations and most florists' flowers are extensively grown under glass for decorative purposes, and a fine block of Orchid houses contains good examples of both hybrids and species, many of which have been noted from time to time in our columns. The long ranges of vineries and Peach and Nectarine houses are other notable features in a garden which is maintained in a high degree of excellence. The death of the mistress of Warren House gardens is a great loss to horticulture.

ANSWERS TO CORRESPONDENTS.

BEECH NUTS: W. M. The fruits or, as they are commonly known, mast, of the Beech, are not poisonous and the kernels are often eaten by children, and also used by vegetarians as an article of diet. In some parts of the country pigs are turned into forests and woods to feed on the Beech mast.

CUCUMBERS DISEASED: C. and Sons. This disease, which is frequently combined with a bacterial disease, is generally an indication of improper cultivation. Thus an excess of water, unsuitable manure in the border, or imperfect drainage are factors favourable to the disease. On the contrary, the borders may be so infected with the fungus that no method of cultivation will produce healthy plants.

FLUE DUST FROM A COLLIERY: H. G. Flue dust from blast furnaces contains potash, and is of great value as a fertiliser, but the dust obtained from ordinary furnaces such as destructors, boilers and factory furnaces is of no value for application to the soil. Write to the Ministry of Agriculture, Whitehall Place, for Leaflet No. 23, dealing with the subject of flue dust as a fertiliser.

FRUIT GATHERING AND HOP-PICKING: Amateur. You would probably be able to obtain work in fruit harvesting and hop-picking in any of the large fruit growing centres of Kent, such as Maidstone or Swanley. With regard to Flax pulling, very little Flax is grown in this country, although we believe it is still cultivated in some districts in the west.

NAMES OF FRUIT: L. H. P. 1, Winter Greening; 2, Reinette très Tardive; 3, White Nonpareil; 4, Ross Nonpareil; 5, Brockworth Park; 6, Colmar d'Été; 7 and 8 (Plums), decayed—J. J. Apple: Rymer Pears: 1, Doyenné Boussoch; 2, Summer Doyenné; 3, Fondante de Cuerné; 4, Beurré d'Amanlis; 5, Winter Nelis.—M. Q. 1 and 2, decayed; 3, Northern Spy; 4, Winter Greening; 5, Malster; 6, Lord Derby; 7, Summer Strawberry; 8, Cellini; 9, (Pear) Doyenné du Comice; 10, Nouvelle Fulvie; 11, Le Lectier; 12, Clapp's Favourite.—J. T. W. 1, Keswick Codlin; 2, Marie Louise; 3, Stirling Castle; 4, Duchesse d'Angoulême.—W. G. W. A. Radford Beauty; B. Dumelow's Seedling (syn. Wellington); C. Lord Derby.—H. W. 1, Beurré Gifford; 2, Doyenné Boussoch.—A. J. P. 1, Gravenstein; 2, Doyenné Boussoch.—G. A. 1, Hambling's Seedling; 2, Lady Sudeley; 3, Stirling Castle; 4, Mère de Ménage; 5, Duchess of Oldenburgh; 6, Flanders Pippin. N. L. H. 1, not recognised; 2, Warner's King; 3, James Grieve; 4, Yorkshire Beauty; 5, Blenheim Pippin; 6, Winter Hawthornden; 7, Stirling Castle; 8, Colonel Vaughan; 9, Smart's Prince Arthur; 10, Lady Henniker; 11, Herefordshire Pearmain; 12, Northern Greening; 13, Bramley's Seedling; 14, Gloria Mundi; 15, Baumann's Red Winter Reinette.—G. B. The specimens were not in good character: 2, 3, 4, and 8 not recognised; 1, Apple: King of the Pippins. Pears: 1, Doyenné Boussoch; 2, Beurré Gifford; 3, Beurré d'Amanlis.—Somerton. 1, Magnate; 2, President d'Osmonville; 3, Nouveau Poiteau; 4, Hayshe's Prince Consort; 5, Uvedale St. Germain; 6, Marie Louise.—Elrie. 1, not recognised; 2, Dutch Mignon; 3, Cellini Pippin; 4, French Crab; 5, Lord Suffield; 6, Pitmaston Duchess. The Plum is probably Coc's Violet.—W. H. B. 1, Blenheim Pippin; 2, Lord Suffield.

NAMES OF PLANTS: E. W. 1, Aster amellus var.; 2, Catanauche caerulea, var. alba; 3, Aretotis stoechadifolia; 4, Salvia coccinea; 5, Trachelium caeruleum; 6, Artemisia lactiflora; 7, Nepeta sp. ? (material insufficient for identification); 8, Cunicifuga racerosa.

Communications Received.—W. A. A. B. H. S.—R. A. G. W.—H. W. Chaw (Thanks for 2s. 6d. for R.G.O.F. Box) M. L. R.—M. O. S.—D. M.—M. G.—A. P. L.—F. B.—D. C.—G. B. F.—R. G.—A. C.—E. R.—H. W. E.—W. A.—T. H. S.—B. H. M.—F. W. J.



THE

Gardeners' Chronicle

No. 1870.—SATURDAY, OCTOBER 28, 1922.

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 47.7.

ACTUAL TEMPERATURE:—
Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, October 25, 10 a.m. Bar. 30.3; temp. 55°. Weather Sunny.

More important to growers

Anthracnose of Cucumbers under glass or in open ground, than Bacterium spot, described on page 201, is Anthracnose which, according to Dr. W. F. Bewley, the Director of the Experimental and Research Station, Cheshunt, causes annually a loss of many thousands of pounds to growers in this country. Anthracnose is due to the fungus *Colletotrichum oligochaetum*. According to Dr. Bewley* it sometimes causes a damping off of seedlings and may attack the young Cucumber plants. Its point of attack is the ground level—plants suffering from the disease shrink and fall over. Generally the leaves are attacked first, and that at a time when in March or April the plants are already well established and beginning to bear fruits. On leaves spots appear usually above a vein. They are of a pale green water-soaked colour and very minute, but soon are easily recognised by their dry, reddish-brown centre surrounded by a yellowish zone. The spots vary in shape and frequently crack; they increase rapidly in size and coalesce, and the leaf dies. In the advanced stages of the disease, stem and leaf stalks are also affected and

show similar spots. On these spores are produced in abundance, giving rise first to a pink and later to a black colour. Similar appearances are produced on the fruit. Dr. Bewley has made a searching investigation into the mode of infection, starting from the fact that the fungus thrives not only on the living Cucumber, but also on new and rotten wood, straw and cotton-wool, provided that the atmosphere is moist. He investigated the wood, manure and boxes of houses of plants both free from and recently afflicted with anthracnose. He found that the materials in the latter case gave abundant evidence of the existence of the fungus and reached the important conclusion that present methods of cleaning Cucumber houses during the winter months are insufficient to exterminate the fungus, which can exist and cause infection from season to season. The most important source of new infection appears to be straw manure. When the manure is obtained direct from the country it does not contain the fungus, but if allowed to stand in the nursery near to heaps of straw manure which have been previously used in infected houses it rapidly becomes infected. The fungus was also isolated in several cases from manure obtained from London stables. Water supply and the clothes of workers in the nursery are other important sources of infection and, as stated on p. 103, Dr. Bewley is at present engaged in following up these clues with the object of, if possible, eliminating the risks of infection from these several sources.

The Apple Blossom Weevil.—Since Thomas Andrew Knight made mention of the Apple Blossom Weevil in 1801, in his *Treatise on the Culture of the Apple and the Pear*, very much has been written concerning the habits of this pest and the methods to be followed in controlling it. It appears, however, that much confusion has existed with regard to the habits and life history of the weevil, and as the pest was so much in evidence during 1919 and 1920, the authorities at the Agricultural and Horticultural Research Station at Long Ashton considered it advisable to work out the details and study control methods. The result of the investigations made are contributed by Mr. H. W. Miles, B.Sc., of the University of Bristol, to the October issue of the *Journal of the Ministry of Agriculture*. In his most interesting contribution, Mr. Miles points out that the weevils leave their winter quarters towards the end of March, and under the warming influence of the sun, crawl to the smaller branches of Apple and Pear trees and pierce the blossom buds as soon as these show green at the tips. The weevil thrusts its rostrum downwards toward the growing point and sucks the juices therefrom. Mating takes place about this period, and the weevil rests and feeds alternately until the blossom buds reach the "cluster bud" stage, and the first young leaves bend outwards, revealing the flower buds in a compact cluster. This stage of development is usually reached about five weeks after the first appearance of the weevil, and egg laying then takes place. The female weevil drills a hole in the selected flower bud with her rostrum, which penetrates calyx and petals, and scoops a hollow cavity in the anther lobes. Mr. Miles states that this operation occupies from ten to twelve minutes, and then the female reverses her position and thrusts her ovipositor into the hole already made and deposits an egg in the cavity in the anther. This process occupies from one to two minutes. The hole is closed by means of a sappy exudation from the damaged tissues of the calyx. From eight to thirteen days later the eggs hatch and the young larvae commence to feed on the pollen cells of the anthers. Feeding continues until anthers, filaments and styles are destroyed, and the base of the petals may be gnawed so that they dry and form a covering under which the larvae live. In such cases the blossoms are said to be "capped." The adult weevil emerges

about the beginning of June. The principal enemy of the Apple Blossom Weevil is an Ichneumon fly, the female of which seeks out the flowers infested with weevil grubs and lays therein an egg on or near the body of the grub. When this hatches the young parasite attaches itself to the grub of the weevil and proceeds to feed thereon, growing very rapidly at the expense of its host, which it finally destroys. Mr. Miles deals at considerable length with control measures and refers especially to banding, jarring and spraying, but concludes "that no one method is likely to give complete control, but where two or three are employed in conjunction in plantations, a reasonable freedom from this pest is obtainable."

Fraud at a Scottish Flower Show.—A case which has caused a good deal of interest had its dénouement at Edinburgh Police Court on October 20, when an exhibitor at the exhibition of the Garden Allotments' Federation (Edinburgh and district) in the Waverley Market, Edinburgh, was charged with fraud. This exhibitor had sent in a signed declaration to the secretary of the Federation to the effect that his exhibits were grown by him on his own allotment. It was stated that the accused had won prizes of 5s. and 21s. respectively, together with a medal, and that the Onions he exhibited were grown in Perthshire. The accused, who admitted the charge, was fined £5, with the alternative of imprisonment for 30 days.

National Sweet Pea Society's Annual Meeting.—The annual general meeting of the National Sweet Pea Society will be held at the offices of the Chamber of Horticulture, 18, Bedford Square, London, W.C., on Tuesday, October 31, 1922, commencing at 3 o'clock.

A Large Potato Crop.—Mr. T. A. Scarlett, the well-known Potato grower of Edinburgh, has obtained a crop of Crusader Potatoes equal to 25 tons 14 cwt. per acre. The seed was planted on April 10 at the rate of one ton per acre. The ground was manured with 1 cwt. of potash, 3 cwt. of superphosphates, and 5 cwt. of fish guano when the tubers were planted, and 1 cwt. of sulphate of ammonia was applied on June 23, just before earthing up. The total cost of the manures was £12 10s. per acre. The best yield, of 70 st. 12 lb. for a row 120 yards long, equal to 25 tons 14 cwt. per acre, was from seed grown on the grey soil in Fifeshire. The next best crop was from seed from the red soil of Dunbar. The rows were made 25 inches apart and the tubers were set nine inches asunder in the rows, of which there were three, each row being 120 yards long. The average crop of the three rows was 22 tons 2 cwt. per acre.

The Chrysanthemum.—On Friday evening, the 20th inst., Mr. Harman Payne, the Foreign Corresponding Secretary of the National Chrysanthemum Society, gave a lecture entitled, "The Golden Flower (Chrysanthemum): Its Poetical, Mythical and Romantic Associations." It was the second lecture of a series organised by the recently formed Men's Association in connection with St. Andrew's Church, Catford, and was given in the Parish Hall, adjoining. Although the weather was none too favourable, there was an excellent audience, who frequently gave expression to their appreciation of the way in which the lecturer handled his subject. Mr. Harman Payne opened his lecture by giving a series, in chronological order, of poetical references to the Chrysanthemum by some of the eminent Chinese writers of antiquity. Beginning with the great sage and philosopher Confucius, who was born 550 B.C., who is the first known author to mention the flower, the lecturer quoted from Wu-Ti (157-87 B.C.): Tao-yuan Ming (A.D. 365-427): Tu Fu (A.D. 712-770), whom his countrymen called the God of Verse; Po Chu-i (A.D. 772-846): Su K'ung T'u (A.D. 834-908): Chou-tun-i (A.D. 1017-1073), and others who had referred to the Golden Flower in the course of their writings, including Ch'eng-Fu-shao, the author of the gossipy little treatise known as "The Flower Mirror," in which much information about the Golden Flower is given. Various curious facts, superstitions and quaint items of folklore current in

* Journal of the Ministry of Agriculture XXIX., No. 5, August, 1922.

China were related. The Imperial Chrysanthemum party inaugurated by the Emperor Uda about A.D. 900 and continued to this day in the Palace Gardens, with some photographic views of it in modern times, were of much interest. Quaint examples of Chinese and Japanese nomenclature were touched upon and compared with Western methods. The Japanese Festival of Happiness, the fête at Dangosaka, where curious images and natural objects are constructed out of living plants of Chrysanthemums, were all fully explained. Then followed a selection of interesting Japanese stories in which the Chrysanthemum plays a part of some importance, for, as Mr. Payne pointed out, it would appear that whenever the Japanese wishes to point a moral and adorn a tale, there is no flower that he resorts to more frequently than the ever-popular and highly esteemed Kiku, or Chrysanthemum. Selections of many dainty little extracts from Japanese poets, ancient and modern, were recited. There were also some very amusing quotations from American poets, the humour of which was keenly enjoyed by the audience. The evening's entertainment, which was considerably brightened by a very fine collection of beautifully executed coloured lantern slides, was brought to a close with a graphic account of the true story of the life and labours of Dr. Joseph Neesima, the Japanese Christian, with whose name the famous hairy Chrysanthemum Mrs. Alpheus Hardy is inseparably linked. Mr. Harman Payne was heartily thanked for his interesting discourse.

Lower Railway Rates.—The new reductions in passenger fares and rates for perishable goods by passenger trains announced by the railway companies to come into operation at the beginning of next year, include a decrease from the 75 per cent. increase imposed during the war to 50 per cent. above pre-war rates in the transit of perishable goods, including every sort of fish, fruit and vegetable. These reductions, with the concessions obtained by the Chamber of Horticulture and allied associations through the Railway Clearing House in the case of pot plants, should be of material assistance to growers for market as well as private exhibitors.

Flora of Papua.—According to Mr. C. T. White,* Government Botanist of Queensland, the vegetation about Port Moresby includes white-barked Eucalyptus, E. papuana, and E. alba, species of rather stunted growth dotted about on grass-covered hills. Other common trees are Alstonia scholaris, Albizzia procera and a Cycad, Cycas media. In gullies and around the sea beach patches of thin scrub are brightened with masses of the scarlet flowers of Bombax malabaricum, the Silk Cotton tree, while around about the rocky sea coast near the town, Cochlospermum Gullivraei is conspicuous with its numerous, large, yellow Buttercup-like flowers. The Sago Palm, Metroxylon sp. and the Bread Fruit, Artocarpus incisa, are found in swampy patches. There is a Mangrove flora similar to that of the North Australian and Malayan regions; the common climber over the Mangrove trees is Dalbergia monosperma. The Nipa Palm is a conspicuous feature along both banks of the Ethel River and Bioto Creek. In this district, also, is an apparently little known tree, Sonneratia lanceolata, very much resembling in appearance some forms of Avicennia officinalis. On the Astrolabe Range, which is about 3,000 feet elevation, the vegetation is for the most part of an open character, with forest trees, principally Eucalyptus tereticornis, Banksia dentata, Melaleuca sp., Diplanthera tetraphylla, Grevillea pinnatifida and Timonius Rumphii. Nephthys Moorei is a common plant in the poorer, open, dry forest country around Bisiatabu. On the Sogeri Plateau vegetation is very rich and tropical, and includes very large numbers of Zingiberaceae and Marantaceae. One of the most conspicuous of the flowering plants is Mucuna Kroetkei, a forest climber with long, pendulous racemes of brilliant scarlet flowers. On Yule Island, and on the mainland opposite, the vegetation is somewhat similar to that about Port Moresby.

In the ranges about Mafulu (about 4,000 feet) the vegetation is extremely rich and varied, consisting almost entirely of heavy rain-forests. Among trees the ordinary Malayan types predominate: Ferns, Lycopods, Begonias, Palms, Bamboos, and other typical tropical forms are abundant. The occurrence of Grevillea is a connecting link with the flora of Australia, while Quercus, Castanopsis, and Begonia are Asiatic types not as yet found in Australia.

Mr. John Ramsbottom, M.A.—Born at Manchester and educated at Cambridge and Manchester Universities, Mr. John Ramsbottom devoted his energies to science, notwithstanding that his father and elder brother both gave their attention to commerce. In 1910, he entered service in the British Museum as a mycologist, and it is in that sphere of activity that he has acquired considerable fame, and our readers will remember that he was very intimately associated with the late Mr. Joseph Charlesworth, of Haywards Heath, in working out the association of certain fungi with seedling Orchids, and the development of this association by artificial means in such a way as to render the raising



MR. JOHN RAMSBOTTOM, M.A.

of seedling Orchids almost as easy as the raising of Mustard and Cress. His devotion to science, his unbounded energy and hearty geniality have secured him a large number of friends, and have also led these friends to lay certain burdens upon his shoulders. Thus we find that he is general secretary and editor to the British Mycological Society, vice-president of the British Ecological Society; a member of the Royal Horticultural Society's Scientific Committee; a member of the Council of the Linnean Society, and of the Tropical Diseases Section of the Royal Medical Society. He has served on the War Office Committee concerned with the destruction of the tsetse fly, and on the Organising Committee of the British Association, and is a member of the Tropical Diseases Committee of the British Empire Exhibition. From this enumeration of offices it will be seen that Mr. Ramsbottom is an exceedingly busy man and his various appointments are proof of the excellence of his work in the Botanical Department of the Natural History Museum, South Kensington. During the years 1917-1919 Mr. Ramsbottom was at Salonika, where he held the rank of Captain and was attached to the R.A.M.C. as a protozoologist, and rendered splendid service on behalf of the troops. He was three times mentioned in dispatches, and for his services gained the distinctions of M.B.E., and also O.B.E. It was during his services at Salonika that Capt. Ramsbottom, with the permission of the Com-

mander-in-Chief, conducted a plant-collecting competition amongst the warrant officers, non-commissioned officers, and men, and the conditions of the competition were published in General Routine Orders so that they reached every member of the Force. The result of the competition was a collection of over 4,000 sheets of specimens and many of the specimens were gathered at considerable risk to the collectors. In Dr. Rendle's view, this is the best of all service collections, and resulted in a large accession of specimens for the British Museum, while it is also of great importance as allowing a fairly intensive study of a definite area. Mr. Ramsbottom is a capital speaker, an excellent teacher, and, in addition, he has the pen of a ready writer, as our pages have testified on many occasions.

Fire at Enham Village Centre.—We much regret to learn that a fire occurred at Enham Village Centre for disabled Service men, near Andover, on Friday, the 20th inst., causing damage amounting to about £450. An illustrated article on this excellent institution for ex-Service men appeared in *Gard. Chron.*, March 8, 1919, p. 112.

New Assistant Horticultural Lecturer for East Anglia.—From a large number of applicants the Essex Education Committee has selected Mr. Henry Fraser, a member of the staff of the Royal Botanic Gardens, Edinburgh, to fill the position of Assistant Lecturer in Horticulture at the East Anglian Institute of Agriculture, Chelmsford. Mr. Fraser holds the first-class certificate of the Royal Horticultural Society, having passed first in practical gardening among 180 candidates at the General Examination of 1920. He also passed the qualifying and preliminary examinations for the National Diploma in Horticulture (N.D.H.), and he holds certificates in botany, chemistry, entomology, surveying, and allied subjects.

National Potato Exhibition, 1922.—The annual exhibition of the National Potato Society will this year be held in conjunction with the annual exhibition of the Sheffield Chrysanthemum Society, at the Artillery Drill Hall, Sheffield, on November 10 and 11. An excellent exhibition is anticipated, and many fine exhibits will be staged. Messrs. Dobbie and Co., Messrs. Sutton and Sons, Messrs. E. Webb and Sons, and other leading firms will exhibit, and the Ministry of Agriculture are sending an exhibit from their testing stations. These exhibits will be of a most interesting and instructive nature. A series of lectures will be given at the hall on the first day of the exhibition, the speakers being Messrs. W. G. Lobjoit, F. J. Chittenden, A. B. Cotton, William Cuthbertson, and H. V. Taylor. Allotment holders and all interested in Potato growing will therefore have a unique opportunity of obtaining some of the best advice upon this important subject.

Trial of New Roses at Bagatelle.—We are informed that the trials of new Roses at Bagatelle will be continued in 1923-24, as in previous years. New Roses sent for trial should have been grown in pots, and five specimens of each variety should be sent to the Rosery, Bagatelle, before April 30, 1923. At the same time, notification of the origin and parentage of the varieties, and any special treatment needed, should be sent to the Conservator of the Promenades, Paris, but the Roses should be directed to the Rosery, Bagatelle, Bois de Boulogne, for which the station is Neuilly, Port-Maillot, Paris.

Chrysanthemum Show at Amsterdam.—Readers who are visiting Holland during this week-end will be interested in learning that a Chrysanthemum show is being held at the Palais voor Volkslyst, Amsterdam, from October 26 to October 31. Many of the Dutch nurserymen grow Chrysanthemums extensively and well.

Forecasting Rain.—The weather has probably a greater bearing on agriculture and horticulture than on any other industry, and any sure means of forecasting rain is of great service to cultivators. It is a widely held belief

* A Contribution to our Knowledge of the Flora of Papua, British New Guinea, Vol. XXIV, No. 1, *Proceedings of the Royal Society of Queensland*.

that exceptional visibility is a sign of coming rain, but observations taken at the Meteorological Office, Cranwell, upset the popular theory and rather show the reverse to be true. According to the *Meteorological Magazine* for October, rain followed on only two-thirds of the days on which visibility reached 21 miles, while in the case of days on which visibility did not reach 13 miles the proportion was one-half. Visibility is observed hourly at Cranwell.

Appointments for the Ensuing Week.—Monday, October 30.—National Chrysanthemum Society's Floral Committee meeting. Tuesday, October 31.—Royal Horticultural Society's committees meet; lecture by Mr. C. T. Musgrave on "Methods of Propagation in an Amateur's Garden" at 3 p.m.; National Sweet Pea Society, annual meeting; Bath and West and Southern Counties Society's Council meeting; Brighton, Hove and Sussex Horticultural Society's show (two days). Wednesday, November 1.—Royal Agricultural Society's Council meeting; National Viola and Pansy Society's meeting; Highbury and District Chrysanthemum Society's show (two days); Croydon Chrysanthemum Society's show; Bath Gardeners' Chrysanthemum Show (two days); Glasgow and West of Scotland Horticultural Society's annual general meeting; Ormskirk Potato show (two days); Forest Hill Chrysanthemum Society's show. Thursday, November 2.—Manchester and North of England Orchid Society's meeting. Friday, November 3.—Paisley Florists' Society meeting.

"The Gardeners' Chronicle" Seventy-Five Years Ago.—*The Houghton Castle, alias May's Victoria, alias the Raby Castle Red Currant.* The following is the history of this excellent Currant, which I took down a few days ago from its discoverer, Mr. Robert Charlton, nurseryman, Wall, near Hexham, Northumberland. About forty years ago Mr. Charlton, then apprentice to a Mr. John Gray, a jobbing gardener, who took care of Captain Smith's gardens, at Houghton Castle, situate a few miles from Hexham, on the banks of the North Tyne river, was sent by his master to gather Red Currants for the house, to be used for preserving. He commenced his labours on the bushes trained as riders on the north side of a wall which had been built about six years previously. When he reached the last bush, at the west end of the wall, he was much struck with the appearance of the fruit it bore, which was very superior and larger than that of the other bushes. He at once went to his master, to ask him what sort of Currant it was, who said he did not know, but returned with Charlton to look at it. Mr. Gray then recollected that when he planted the wall he had a bush too few, and looking about the garden found a seedling growing under a Gooseberry bush which he took up and planted, and which proved to be the bush in question. The lad set to work and propagated it extensively, giving it to everyone, and when he commenced a nursery on his own account, regularly sold it as the Houghton Castle Currant, under which it was advertised in an early volume of the *Chronicle*. When, some eight or nine years ago, Mr. May, after being satisfied at Mr. Charlton's nursery with the identity of it and his Victoria Currant, was asked how and where he got his plants, he informed Mr. Charlton that he received the variety from the gardener at Raby Castle, whither it had been sent from the late Mr. Falla's nursery at Gateshead. Charlton had previously been regularly supplying Mr. Falla with plants. It is, therefore, an accidental seedling variety, and is very generally cultivated in the gardens of Northumberland, where it is much esteemed and deservedly so. I have no doubt Mr. Charlton can supply any of our readers with plants, and I trust it will now be extensively grown all over the kingdom, for it certainly is a valuable addition to our list of fruits. *G. W., Gard. Chron. October 30, 1847.*

Publications Received.—*Guide to the University Botanic Garden, Cambridge.* By Humphrey Gilbert-Carter. Cambridge University Press, Fetter Lane, E.C.4. Price 3s. 6d. net. *Potato Growing in New Zealand.* By David Tannock. Whitcombe and Tombs, Ltd., Christchurch, N.Z. and London. Price 2s. 6d.

TREES AND SHRUBS.

CISTUS OBTUSIFOLIUS.

THE blunt-leaved Cretan Rock Rose is a densely lushy evergreen shrub 1 foot to 1½ foot (seldom more) in height, but more in width. The leaves are sessile, or nearly so, ovate-oblong, 1 inch to 1½ inch long, ½ inch wide, tapering to both ends, three-nerved, dark green above, lighter beneath, rugose, clothed with starry pubescence. The flowers are terminal, borne in a many-flowered cyme 1¼ inch to 1½ inch across; they are white with a yellow stain at the base of the petals.

Though during the past few winters we have not experienced sufficiently hard frosts to cause many losses amongst the Rock Roses, *Cistus obtusifolius* has survived unharmed frosts which have crippled *C. purpureus*. A valuable shrub for the rock garden and front of the sunny shrub borders, its greatest asset is that the flowering season extends from June to September. On September 25 there were dozens of blossoms on this species, while on the

which it is I forget. That there is a difference has apparently been borne out by the two trees on the south wall of the Botany School at Cambridge, and they have also shown a difference of growth, at least in stature. These trees are from grafts from the tree at Montpellier, referred to in your issue of October 7, and they were planted in this position with the hope that wall treatment might favour their flowering. It is of interest to know that cuttings will strike to practical purpose, but grafts take readily on seedlings and unite perfectly. It is possible that seedlings make the best roots in the case of trees that will have to stand without support. *R. Irwin Lynch.*

THE ALPINE GARDEN.

LITHOSPERMUM ROSMARINIFOLIUM.

FOR a sunny nook in the rock garden in any of our milder counties this is a most delightful plant, since it comes into bloom in the late autumn, and continues in flower during fine intervals until spring is well advanced. Though



FIG. 99. —RHUS COTINUS; A BEAUTIFUL SPECIMEN AT AMPHILL PARK.

other Rock Roses there were few, if any, flowers. *A. O.*

RHUS COTINUS.

THIS shrub (see Fig. 99) is, on account of its curious cobweb-like floral mass, one of the most distinctive of late summer and early autumn features in the garden, while the colouring of its leafage adds still more to its ornamental worth and striking effect. *Rhus Cotinus* will thrive in most soils, but the lovely tinting of its foliage is more pronounced when the soil is neither too rich nor too moist. To fully display its picturesque habit and appearance, this shrub must be grouped clear of other shrubs, or, if planted in a mixed shrubbery, be allotted enough space to permit of an all-round development, otherwise much of its beauty will be lost. Though so attractive a plant one may look in vain in many large gardens for a good specimen. The cloudy inflorescence, which, by the way, is almost sterile, has gained for this shrub the name of Smoke Bush. *C. Turner.*

DISTINGUISHING THE SEX OF GINKGO.

IT may be of interest to mention that it is perhaps possible to distinguish the sex of *Ginkgo* by observing the relative time of defoliation under the same conditions. It has been said that one of the sexes is earlier than the other, but

L. rosmarinifolium is quite reasonably hardy it is obvious that its habit of flowering in winter would only lead to disappointment save in districts where bright and mild intervals may be expected. In bleak localities, however, it makes an ideal cold house plant, and as such its blossoms are even larger and more beautiful in colour and form than they are in the open.

L. rosmarinifolium is a native of the limestone rocks of Capri. With us, in the open, it makes a subshrubby plant about 9 inches high spreading to 1 foot or more in width. The Rosemary-like foliage is dense and of a rich, glistening green, and the flowers, which are produced at the ends of the new growths, are purple in the bud opening to a velvety Gentian blue of remarkable depth and purity. The individual blooms when fully expanded are slightly larger than a sixpence. The plant is easily propagated by means of cuttings struck in a cold frame during summer, and the young plants will come on remarkably quickly in any free, gritty soil containing lumps of limestone or old mortar. They should not be set out on a flat bed, but given such support as would be provided by a rock crevice or adjacent stones between which the growing branches can dispose themselves after the manner of the prostrate Rosemary. *A. T. Johnson, N. Wales.*

INDOOR PLANTS.

FOLIAGE PLANTS FOR TABLE DECORATION.

THERE is room for a more extended use of foliage plants for table decoration, and especially plants grown in thumb-pots for small vases or in pots 3 inches to 4 inches in diameter. A far greater variety may be used for this purpose than those generally employed. Ornamental foliage plants, especially when well rooted in small pots, will bear liberal treatment as regards watering. They should never be allowed to get dry at the roots.

Amongst the many suitable plants available the following may safely be relied upon as being most useful and possessing last-

handsome foliage plants. *P. Veitchii* is the most popular and one of the finest of all table plants. The foliage is green and white, and the upper leaves, in which the symmetrical character of its growth is most clearly defined, are of the purest white. The plant may be increased from suckers, which are produced freely by old plants. The suckers need to be carefully detached from the parent plant, with a root or two if possible, but even when they possess a few roots they often remain some time before starting freely into growth. As a rule the stronger suckers are the more difficult to establish; small pieces often grow more readily, frequently overtake the others, and form more handsome plants than the larger ones. They should be placed in a gentle bottom heat under a frame or handlight. *P. Baptistii* is a

and make useful plants grown in small pots. Cuttings placed in a moist hot bed root freely. *Cyperus alternifolius variegatus* is an ornamental grass-like plant, with long, narrow, variegated leaves, and is much used for decoration. This *Cyperus* needs plenty of moisture, and may be increased by division in the spring. *Paullinia thalictroides* is a beautiful, semi-scandent, foliage plant, with foliage resembling that of an *Adiantum* Fern. The matured leaves are of a bright green, the young shoots and foliage being of a beautiful rosy tint. The plant may be grown on a trellis, or as a bush specimen, and is a great acquisition for table decoration. The shoots keep fresh for a long time when gathered. Cuttings formed of ripe shoots root freely in bottom heat. *Maranta major*, a plant 1½ ft. to 2 ft. high, has leaves 4 to 8 inches long, of different shades of green and is a useful decorative plant on account of its lasting properties. It may be increased by division of the roots in the spring. The culture of the majority of the plants mentioned is not difficult when the means for growing them are fairly good. Any ordinary warm house, having a temperature of about 60° during the winter, will suit them. All will do well grown in a mixture of good turfy loam and fibrous peat, or leaf-mould in equal portions, with silver sand added. It is far better to pot in good soil than to mix artificial manure with the compost. It should also be remembered that plants for house decoration suffer less from exposure when grown in proportionally small pots. *John Heal, V.M.H.*



FIG. 100.—CIRRHOPE TALUM ORNATISSIMUM.

ing qualities. *Arahas* furnish us with a great variety, and the plants are suitable for table decoration on account of their light and graceful habit. The colour of the foliage of *A. elegantissima* is deep green, shaded brown; the mid-rib of each leaf is greenish white. The leaves of *A. Veitchii* are dark greenish-brown; it is a most useful plant for the table, or other purposes. *A. Veitchii gracillima* has a more elegant and graceful appearance than is met with in any other plant. The leaves of *A. Kerchoveana* are digitate, composed of 9 to 10 spreading leaflets, the whole making almost a circular outline. There are other good species and varieties of *Aralia*, but those enumerated are the best. Unfortunately, cuttings of these plants do not root well. They may, however, be grafted on to *A. reticulata*, which roots readily.

Pandanus, the Screw Pine, includes several

useful and elegant species; the leaves arch gracefully on all sides and are spineless. Some of the green-leaved kinds, such as *P. utilis* and *P. odoratissimus*, are pretty and useful in a young state.

The *Crotons* (*Codiaeums*) and *Dracaenas* are invaluable plants for decorations, with their beautiful coloured foliage. Palms, such as *Kentia Belmoreana*, *Phoenix Roebelinii*, *Cocos Weddelliana*, and *Geonoma gracilis* are of the greatest value, when grown in small pots, for table decoration. *Leea amabilis splendens* is a handsome foliage plant, having leaves of deep bronze-green with white markings above and purple underneath. It may be propagated freely from cuttings placed in bottom heat, with plenty of moisture. *Acalypha musaica* has bronze-green leaves, variegated with orange. *A. Maefeeana* has red and bronzy crimson leaves. The *Acalyphas* look well under artificial light,

ORCHID NOTES AND GLEANINGS.

CIRRHOPE TALUM ROTHSCHILDIANUM AND OTHER SPECIES.

APART from the charm of their quaint flowers, to those who have been interested in them for many years, is the number of incidents and associations which the flowering of rare species of *Cirrhopetalum* always presents.

Cirrhopetalum Rothschildianum offered me an instance of the kind when shown by Messrs. Flory and Black recently. Looking round Messrs. Stevens' rooms in Covent Garden in 1892, I saw a small, battered box containing a bunch of nearly dead Orchids of several species and which were said to have been collected by an explorer in the hills above Darjeeling. I told the faithful "Charles," that friend of all the old-time Orchidists, to buy the lot for me. He did so, at a very reasonable price, and I passed the plants on to the Hon. Walter Rothschild (now Lord Rothschild) and, in the course of time some plants became established, among them being this finest of all *Cirrhopetalums*, which I named and described in *The Gardeners' Chronicle*, Nov. 23, 1895, p. 608. The colouring of the flower is bright crimson-purple on a pale yellow ground, the fringe of the upper segments being darker purple. A curious feature in the flower is the tendril-like clasp of the elongated continuations of the broadly-expanded lower sepals. There seems to be no other record of the introduction of this fine species, although a stray plant or two may have been introduced with others. It was given a First-Class Certificate at the Royal Horticultural Society, October 15, 1895.

Cirrhopetalum Andersonii—Hook f. *Fl. Brit. Ind.*, V. 1890, was another find from the same set. When it flowered I was much impressed by its pretty umbels of pink-spotted flowers, entirely new to me. I took the plant to the Kew Herbarium and Mr. Rolfe, who told me that he had recently been through the material at Kew, thought it a new species. But the test was made again without result. I asked whether there were any drawings likely to assist, and he remembered that there were some of Sir Joseph Hooker's, and these were produced, and the first one to present itself was our plant, well rendered—*Cirrhopetalum Andersonii*. Sir Joseph Hooker was present, saw the final identification, and was well pleased that it should be through his aid a species not known in gardens was thus identified, and one

of those never-dying synonyms was avoided. A plant flowered recently with Messrs Sander.

Cirrhopetalum ornatissimum, Rehb., *Gard. Chron.*, 1882, p. 424. This very distinct species (Fig 100) is closely related to *C. Rothschildianum*, though with smaller individual flowers. In 1879, two or three small plants without name or habitat appeared in gardens, and about 1882 a remarkably fine specimen in a teak basket and bearing five or six spikes appeared at Messrs. Stevens' rooms. I was there with the late Sir Chas. W. Strickland, of Hildenley, Malton, Yorkshire, an enthusiastic collector of curious species, and he obtained it for seven guineas, which was thought to be a good sum to give for a "botanical" Orchid, but Sir Charles would not have given a like sum for the showiest *Cattleya* or *Laelia*. Would that we had more of his kind of plant lover in the present day! It is known that *C. ornatissimum* has been found in several parts of the Himalaya region. Its ovate-oblong, glaucous leaves render it easily distinguishable.

Cirrhopetalum Collettii, Hemsley, 1890, native of Burma, is an elegant species with long and narrow flowers displayed in a partial umbel and of red colour on a yellowish ground. Its pseudo-bulbs, like the others of the class usually bearing but one leaf, are of very firm texture, and the plant if grown in a cool, intermediate house is easy to cultivate.

Cirrhopetalum Wendlandianum, Kranz., *Gard. Chron.*, 1891, p. 612, is only a variety of *C. Collettii* if correctly represented in our gardens. I have not seen the type plant, but from the description, it is not distinct, and the specimens in gardens are *C. Collettii*.

Cirrhopetalum Thouarsii, with graceful umbels of yellowish flowers, striped and spotted with rose or purple, is remarkable as being one of the most widely distributed of Orchids, it being recorded from Madagascar, Java, the Philippines, Mauritius and Otaheite, and other islands in the region. I also had it from East Africa. It is the typical species on which the genus has been founded, dating from 1831. It is of trailing habit and grows freely in a warm, moist house, being an island plant in all its habitats.

Cirrhopetalum Mastersianum, Rolfe, 1890, named in honour of the late Dr. Maxwell T. Masters, F.L.S., was introduced by Linden from the Dutch Indies. It is a very graceful species, its slender stems bearing umbels of ten or twelve light copper-coloured flowers and unlike any of the other species.

Cirrhopetalum Brienianum, Rolfe, native of Borneo, is an elegant species with umbels of straw-yellow flowers, and one of the most floriferous if grown in a warm, moist house.

Cirrhopetalum mysorense, C. nodosum, and *C. setiferum*, all described by Mr. Rolfe in the *Kew Bulletin*, 1895, and *C. elegantulum*, Rolfe, all remind me of interesting exchanges of bulbs

Cirrhopetalum picturatum, native of Burma and Moulmein, and which first flowered with Messrs. Loddiges, in 1840, is one of the prettiest and freest growing of species and may be found in many gardens at the present day.

Cirrhopetalum, as a section of Orchids, is convenient to keep up, although it merges in *Bulbophyllum*, as for example in the plume-

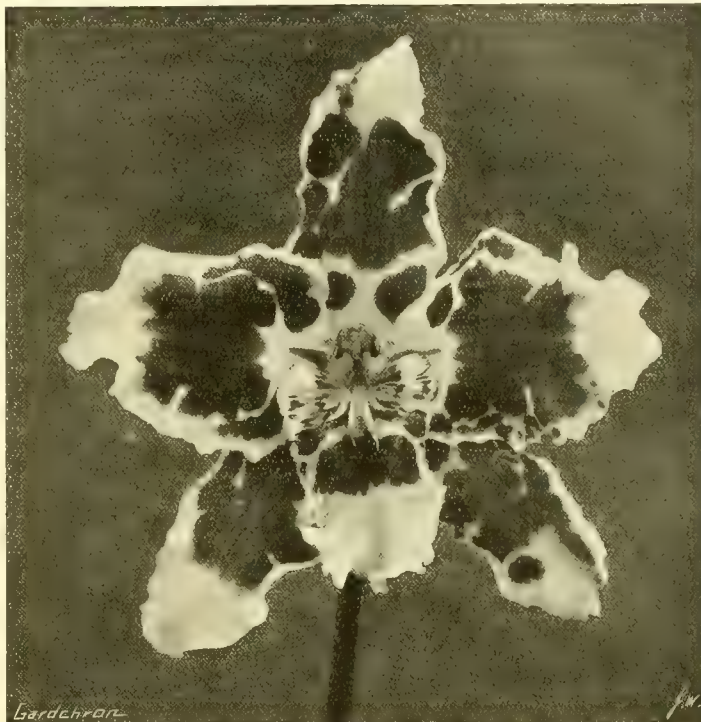


FIG. 101.—ODONTIODA JAMES O'BRIEN.

with Tea-planting friends in the Nilgiri and Mysore districts in India, the little parcels arriving chiefly by post. They are all pretty, compact-growing species, the little *C. elegantulum*, which I have had with a dozen or so umbels of reddish-flowers, being a gem in its class.

like *C. Medusae*, and others even more markedly. Those enumerated are of the class called evergreen, which do not require rigorous drying-off, but merely a reduced temperature in the resting season. The upland, Indian *C. fimbriatum*, *C. refractum*, and some others, lose their leaves after growth is completed, and must be treated like resting *Dendrobiums*. J. O'Brien.

NEW HYBRIDS.

(Continued from September 16, page 166.)

Name.	Parentage.	Exhibitor.
Brasso-Cattleya Viscount Toda ...	C. Rhoda × B.-C. Ilene ...	Flory & Black.
Brasso-Laelio-Cattleya GoldenCrown var. Prince Humbert ...	B.-L.-C. Joan × C. Venus ...	Charlesworth.
Brasso-Laelio-Cattleya Thurgoodiana ...	B.-L.-C. Eric × C. Thurgoodiana ...	Flory & Black.
Brasso-Laelio-Cattleya Vashiti ...	L.-C. Beatrice × B.-C. Bianca ...	McBean.
Cattleya Bardic ...	Carmen × labiata ...	Stuart Low.
Cattleya Cytherea ...	Venus × King George ...	Flory & Black.
Cattleya Don ...	Remula × Armstrongiae ...	Stuart Low.
Cattleya Dr. G. G. Macdonald ...	Kienastiana × Dowiana aurea ...	Flory & Black.
Cattleya Janet P. Crawford ...	Mantini × Dorothy Bushell ...	F. J. Hanbury, Esq.
Cattleya Jessie C. Murray ...	Chamberlainiana × Octave Doin ...	F. J. Hanbury, Esq.
Cattleya Marie McLeod ...	ilustris × Dowiana aurea ...	F. J. Hanbury, Esq.
Cattleya Mimosa ...	Venus × triumphans ...	Flory & Black.
Cattleya Muriel Henderson ...	Thomasii × Fabia ...	F. J. Hanbury, Esq.
Cattleya nivea ...	Leopoldii alba × Lady Veitch ...	Sanders.
Cattleya Orita ...	Vestris × Dowiana aurea ...	Stuart Low.
Cattleya Verona ...	Octave Doin × Pittiana ...	Flory & Black.
Laelio-Cattleya Clarinda ...	L.-C. blechleyensis × C. Rhoda ...	Flory & Black.
Laelio-Cattleya Elvasca ...	Elva × Rubens Lambeauiana ...	P. Smith, Esq.
Laelio-Cattleya Golden Sunset ...	Appam × aureole ...	S. Gratrix, Esq.
Laelio-Cattleya Iver ...	L.-C. Rubens × C. Luddemanniana Stanley ...	Flory & Black.
Laelio-Cattleya Monarch ...	L.-C. Serbia × C. Dowiana aurea ...	McBean.
Laelio-Cattleya Mrs. Medo ...	C. Venus × L.-C. Luminosa ...	Stuart Low.
Laelio-Cattleya Novara ...	C. Mrs. Frank Hurdell × L.-C. Colmaniana ...	Stuart Low.
Laelio-Cattleya Ortega ...	L.-C. Labiosa × C. Dowiana ...	Stuart Low.
Laelio-Cattleya Profusion ...	C. Hardyana × L.-C. Serbia ...	McBean.
Laelio-Cattleya Rothwellii ...	Geo. Woodhams × Rubens ...	McBean.
Laelio-Cattleya Warrior ...	C. Fabia × L.-C. Serbia ...	McBean.
Oncidioda Medina ...	Cochlioda Noezliana × "Oncidium" corymophorum ...	Charlesworth.
Odontioda Renown ...	Oda. Coronation × Odm. Victory ...	Armstrong & Brown.
Odontoglossum Aquitoris ...	Aquitania × Doris ...	Charlesworth & S. Gratrix, Esq., 1921.
Odontonia lutea ...	Odontonia Magali Sander xanthotes × Odm. luteo-purpureum Vuylstekeanum ...	Charlesworth.
Sophro-Laelio-Cattleya Antiope ...	L.-C. Antiope × S.-L.-C. Lacomia ...	Flory & Black.
Sophro-Laelio-Cattleya Cytherea ...	S.-L. Gratrixiae × C. Empress Frederick ...	Flory & Black.
Sophro-Laelio-Cattleya Flamingo ...	L.-C. St. Gothard × S.-L.-C. Carna ...	Charlesworth.
Sophro-Laelio-Cattleya Perim ...	S.-C. Thwaitesii × S.-L.-C. Hon. Barbara Wilson ...	Stuart Low.

ODONTIODA JAMES O'BRIEN

OUR illustration (Fig. 101), taken from the plant of this very remarkable *Odontioda* shown by Sir Jeremiah Colman, Bart., Gatton Park (gr. Mr. J. Collier), at the Royal Horticultural Hall on October 17, represents one of the most interesting crosses in which *Odontioda* and *Odontoglossum* merge. It is surprising that the scarlet in *Cochlioda Noezliana* has been so pronounced, even in hybrids in which the *Odontoglossum* largely predominates. Crosses with this species in their parentage rarely appear with such strong resemblance to *Odontoglossum* as in this case. But when its ancestry is analysed, the explanation readily presents itself. The present fine novelty results from crossing *Odontioda* *Oakwoodensis* (Oda. Bradshawiae × Odm. percultum) and *Odontioda* *Chantecler* (*Cochlioda* *Noezliana* × *Odontioda* *Cooksoniae*). Working out the species in its composition, their presence and influence may be best expressed by estimating the component parts as *Cochlioda* *Noezliana* 5, *Odontoglossum* *crispum* 3, *Odontoglossum* *Pescatorei* 3, and *Odontoglossum* *Harryanum* 1. If the flower is examined on these lines, it is evident that *Odm. crispum* and *Odm. Pescatorei* take the lead, the latter imparting broad segments of fine substance, and the well-known broad, flatly displayed lip. The plant has short, red-brown tinted pseudo-bulbs, suggesting *Cochlioda* *Noezliana*. The flowers are pure white, with claret-red blotches on the inner parts of the segments. The crest of the lip and some other points well show true *Odontioda* characters.

The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the DUKE OF MARIBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Miltonia.—*Miltonia spectabilis* and its varieties *Morelana* and *atrorubens*, with *M. Clowesii* and *M. Regnellii*, are interesting members of this genus for flowering during the late summer and early autumn. After the plants have bloomed, and the pseudo-bulbs finished growing, the supply of moisture at the roots should be reduced gradually, and the rooting material kept on the dry side until growth becomes active again in the New Year. *M. Roezlii* and its variety *alba*, with any late flowering plants of *M. vexillaria* or its hybrids, of which there are several, may still be repotted, when the new growths are in a desirable condition, namely, nearly half made and about to develop new roots. The whole of these plants should be placed in their winter quarters, at the warmer end of the intermediate house, and watered only when moisture is absolutely necessary.

Disa.—The members of this most attractive genus of terrestrial Orchids are best repotted at this season, just as the new growths push up from the sides of the old flower spikes. The pots should be well drained, and the compost should consist of equal portions of fibrous peat, *Osmunda* fibre, and *Sphagnum* moss, with a fair sprinkling of half-decayed leaves and coarse silver sand, or better still, powdered sandstone, all mixed thoroughly well together. After repotting, one watering should be given the plants to settle the compost around them, and then for some time spraying them lightly once or twice a day, according to outside conditions, will suffice to keep them moist. The house in which they are growing should be freely ventilated, with only sufficient fire-heat to keep them safe from frost in very cold weather. The plants should be grown near the roof-glass, as they need all the light available. *Disas* delight in cool, moist, airy conditions at all times. Every means possible should be taken to prevent attacks of insect pests, as these Orchids are injured by fumigants of any kind.

Cleansing the Houses.—Now that the work of repotting is not very pressing, it is advisable, where sufficient room is available, to thoroughly cleanse the houses, both inside and out, by scrubbing both woodwork and glass. In most districts this is a common necessity, as the accumulation of dirt and other matter upon the roofs prevents the light from reaching the plants during the winter. Whilst this work is in progress, means should be taken to remove all the foreign substance between the laps of the glass, as this entirely seals up the cavities, and often causes drip from condensed moisture, which might mean the loss of a valuable plant. At the same time it is advisable, whilst removing the plants, to thoroughly clean and rearrange them, so that every plant may receive the maximum amount of light. In order that the leaves should perform their functions unhindered, it is essential that they should be kept clean, although it is not necessary to do this more than twice a year, especially when the plants are not infested with scale or other pests. Scale insects must be consistently eradicated, as they spread rapidly, and, if allowed to increase, will soon kill the strongest plant. Dipping and hand-cleaning with some safe nicotine insecticide is the only remedy.

THE KITCHEN GARDEN

By JAMES E. HATHAWAY, Gardener to JOHN BRENNAND, Esq., Baldersby Park, Thirsk, Yorkshire.

Seakale.—The crowns intended for forcing should be lifted as soon as the foliage dies down, and they will force better if exposed to the weather for a few days. The side roots should be trimmed into root-cuttings, about 6 inches long, with a sharp knife, tied in

bundles, and placed in boxes containing fine soil. They will be ready for planting next spring. Seakale should not be forced in a temperature higher than 60°. A Mushroom house is a suitable place, or they may be forced under a greenhouse stage, but it is necessary to exclude the light from them.

Peas.—A sowing of Peas should be made on a warm border, in broad, shallow drills 4 feet apart. Cover the seed with about one inch of soil, and dress the latter with soot and lime, raking it under the surface. Select a round-seeded type of an early sort for this sowing. Slugs and mice are the chief enemies of Peas sown at this time of the year and must be guarded against. A few ashes and a little soot scattered along the rows will tend to ward off slugs. I have practised this method, and have had good results for years in obtaining early crops of Peas.

General Remarks.—The recent dry weather has enabled growers to proceed with the work of weeding. Hoe up the weeds, rake them together and burn them. Old Pea and Bean haulms should be cleared off the land, the latter cleared of weeds, and dug forthwith. All winter crops should be examined, and yellow and decaying leaves removed. Continue to earth up Celery when the weather is fine, and keep the plants dusted with soot to ward off slugs.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

Peaches.—Root-lifting and renovating the borders should be brought to a close in the early houses. The autumn having been favourable, any vacancies for large trees may be filled with plants from the open. This work should be quickly and carefully performed. Trees that were root-pruned last season may now be lifted with perfect safety, provided one or two good soakings of water be given the roots before lifting is attempted. When placed in position and tied loosely to allow for the soil settling, keep the house somewhat close for a few days, and syringe the trees frequently with tepid water. Treated in this way, large trees may be lifted in full leaf, and will become re-established within a month, when ordinary management will fit them for forcing gently with the others next season. Except for neatness, the tying of the trees may be deferred until the blossoms are nearly open. Pruning may be commenced, and, if my former advice has been followed, this work will be very slight, necessitating merely the removal of a shoot here and there, and making good all imperfect cuts. All other trees, no matter how large, should be detached from the trellis and carefully washed with Gishurst compound, using the same solution, but a little stronger, for washing the wires and woodwork. One washing will suffice for trees which have been free from insects. Painting with various mixtures often does more harm than good. If scale has been troublesome, the old wood may be washed with Gishurst compound twice.

Succession Houses.—If the buds of Peach trees in succession houses are well advanced, the trees may be washed with the hose once a week to keep down red spider. The roots should be kept thoroughly moist until the leaves fall, and then the branches may be cleansed and trained and the house subsequently kept freely ventilated until the time arrives for starting the trees. Avoid wintering pot plants in these houses if possible, especially those of a tender nature, as keeping the house closed on mild days will cause the buds of the Peach trees to swell when they should be resting and dormant.

Late Peach Houses.—Where the trees in late houses are clear of fruit, well syringe or wash them with the hose, and, if green or black fly are present on the points of the half-ripened shoots, fumigate the house or use an insecticide. If in doubt about the wood being ripe, a little steady fire heat will do no harm. Always provided ventilation is on a liberal scale. These trees should be well thinned out to allow light and air to enter them freely.

THE FLOWER GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

Spring Bedding.—Beautiful as are the present occupants of the flower-beds, they must make way for their successors in order to permit the latter to be placed in position in good weather, so that they may become established in their new quarters before the advent of inclement weather. Once the summer plants are lifted, the beds should be cleared of all rubbish and other undesirable matter and then dug deeply, incorporating with the soil a good quantity of well-decayed manure. Carry out this work and the planting operations during fine, dry weather, and as neatly and tidily as possible, otherwise contiguous gravel and turf may suffer ugly defacement, from which they will hardly recover before the time of spring floral beauty arrives. Lift the young plants awaiting the transplanting, carefully, by means of a hand-fork, retaining as much soil on the roots as possible, in order to obviate too much root disturbance. When placed into position, make the plants firm at the roots, leaving the surface soil loose around the collars. Bulbs that are to be used in conjunction with such plants as Wallflowers, *Myosotis*, *Arabis* and *Aubrietias* should be planted by means of a dibber. When all the necessary planting details are completed, finish off the beds neatly. It will be necessary to examine the beds during the winter after frost, to make sure that the latter has not loosened the plants in the soil. Should they be found to be disturbed, immediately make them firm again. It is always as well to keep a few plants of each sort in reserve to replace any that may fail.

Preparation for Shrub and Tree Planting.—Make timely preparations for the moving and planting of hard-wooded subjects before the actual time for planting arrives, especially where there is a large number to deal with. Where new plantations are to be prepared, trench the soil, and if it is of a heavy, retentive character, adopt some simple means of drainage. In making the holes for the roots see that they are of sufficient size to allow the latter to be spread out to their fullest extent. In the case of heavy, tenacious soils, make the holes with a digging fork, rather than with a graft or spade, and leave the bottom and sides broken up. I have seen holes very neatly and tidily made with grafts, but left so smooth and firm that they must have served as water-tight basins during wet weather, and held stagnant water around the roots for weeks. Planting too deeply is another fault that should be guarded against. Fallen leaves and other vegetable rubbish may be placed in the holes, and, when they decay, serve as food for the roots of the trees. Before lifting shrubs, etc., make sure that the labels are tied securely to them. Trees and shrubs with heavy heads should be staked to prevent rough winds loosening them at the roots before they become re-established, and to enable standards to retain an upright position.

Lawns.—Keep the lawn well brushed and free from fallen leaves. The latter material will be valuable for forming mild hotbeds, converting into leaf-mould, etc., whilst the sweeping will benefit the turf considerably.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir C. NALL-CAIN, Bart., The Node, Coddicote, Welwyn, Hertfordshire.

Canterbury Bells.—*Campanula medium* is a most useful plant for growing in pots, and may be had in flower in the cool greenhouse from eight to ten weeks earlier than in the open ground. The earliest raised plants should be potted in their flowering receptacles, and treated as advised for *Campanula pyramidalis* during the winter.

Shrubs for Forcing.—The greenhouse may be kept well furnished with flowers during winter and spring by introducing a few shrubs into heat at intervals. Subjects suitable for the purpose include Lilacs, species of *Prunus* and *Pyrus*, *Deutzias* and *Wistarias*. Plants that have been grown in pots especially for the

purpose may now be overhauled and top-dressed if needed, after first seeing that the drainage is in perfect order. Shrubs that have been planted out specially for forcing may be lifted and potted, but in this case only those that are well set with flower-buds should be chosen, leaving the others to remain for another season. After potting, all the plants should be plunged in a bed of ashes in the open until such time as they are required for forcing.

Euphorbia pulcherrima.—This plant, which is better known to gardeners as Poinsettia, will now soon begin to develop its showy bracts, and some assistance will be needed at the roots in the form of weak liquid manure and soot water. To prevent undue loss of foliage, the roots should not be overdone with water; at the same time do not let the plants suffer for want of moisture. The loss of foliage is, in my opinion, often due to the two extremes of watering and sudden changes of atmospheric conditions. Maintain a minimum temperature of 55°, and admit air through the top ventilators whenever the outside conditions are favourable.

Potting Materials.—It is always advisable to have sufficient potting materials in store for the winter months, such as loam, leaf-mould, peat and wood ash. If these are stored now, in not too dry a place, it will greatly facilitate the work of potting during the coming months. Where a shed is not available, the materials should be protected from heavy rains by some covering, such as of boards or felt.

HARDY FRUIT GARDEN.

By H. MARKHAM, Gardener to the EARL OF STRAFFORD, Wrotham Park, Barnet.

Plum Coe's Golden Drop.—Although the fruits of this excellent dessert Plum will hang on the trees very late in the season, it is better to gather the ripest fruits when they are quite dry, place them in shallow boxes and stand the boxes in a dry, airy fruit room, or on shelves in a cool vinery. If a piece of tissue paper is placed over the fruits they will assume a rich golden colour, and the flavour will be superb.

Morello Cherries.—As the majority of these trees are usually trained on north walls, it is prudent to push forward with the work of pruning, etc., before very cold weather sets in. Short, well-ripened shoots of the current season's growth should be trained in close to the walls at intervals, as these are the best for producing heavy crops of large fruits. See that all the old shreds and ties likely to compress the bark of the branches are removed and fresh ones substituted if necessary. Remove some of the shoots where they are too thick, and fill their places with young, fruitful growths. Young shoots should be secured at intervals all over the trees, both for fruiting and taking the places of older branches. Strict attention to keeping the trees somewhat thin and the growths free from crowding must be observed when pruning and training the Morello Cherry. The branches should be evenly balanced to form a neatly trained tree.

Orchard Trees.—Preparations for planting orchard trees should receive early attention. Healthy, clean-stemmed, young trees, when planted early in autumn, usually develop fine heads the following season. If the land has not been trenched, it should be thoroughly broken up for several feet around where each tree is to be planted. The drainage should be ample and some provisions made to prevent the main roots growing in a downward direction. If the soil is somewhat heavy, a quantity of old brick rubbish, lime, and decayed manure (not of too rich a character) should be thoroughly incorporated with the staple. Standard trees should be placed 30 feet apart. Let all trees to be planted be of proved merit for the different purposes, and, should the site be rather bleak, plant a thick belt of Damsons on the north and east sides to form a wind screen. In most seasons the Damson trees will yield good crops of fruit.

HARDY FLOWER BORDER.

REVERSION IN HELENIUM AUTUMNALE.

MANY have noted examples of peculiar behaviour in the above species of Composite. Those I have hitherto seen produced heads of good average size, but more or less green and leafy in appearance. I recently had a specimen sent me from a garden, where it refused to open any flowers. The piece was eighteen inches long, and the main stem of average thickness, with leaves of normal size. It was branched throughout its length, and all the branches were quite slender, with occasional secondary branches. Branches and branchlets were furnished with very narrow leaves, crowded towards the extremities. Most of the ramifications terminated in a capitulum of bracts, one-eighth to one-fourth inch in diameter, with a very small and hard disc of florets. About the beginning of September there was no sign of a coloured inflorescence whatever, every part being green and leafy. J. F.

SOME GOOD AUTUMN PLANTS.

AMONGST the numerous autumn-flowering plants in the herbaceous border none gives a more brilliant effect than *Tritoma* Lord Roberts, which sends up big spikes of rich scarlet blossoms, some of the flower heads measuring fourteen or fifteen inches in length. The plant is a robust grower, and soon makes a big, bold clump. *Lythrum virgatum* Rose Queen is one of the best of the Willow Herbs, and very beautiful in autumn when covered with its rosy coloured spikes; in addition the plant is very compact growing. *Pentstemon Middleton Gem*, rosy pink, and *Southingate Gem*, scarlet, are two very desirable plants for the herbaceous border, and they continue in bloom right through the summer until very late in the autumn.

These floriferous plants send out numerous side shoots, and if the leading growth is pinched out, these side shoots produce a wealth of flowers. Another fine *Pentstemon* is *Newbury Gem*, a very dwarf, compact grower with



FIG. 102.—ACER GRISEUM. R.H.S. AWARD OF MERIT, OCTOBER 17 (SEE P. 243).

TIARELLA UNIFOLIATA.

THIS is a species which deserves wider recognition since it combines many of the good qualities of *T. cordifolia* with larger leaves and much greater stature. The most notable point of distinction, however, between it and the common "Foam Flower" is that whilst the latter creeps about by means of runners the former never does so. *T. unifoliata* makes a large clump after the manner of *Tellima grandiflora*. Though the outer leaves assume brilliant tints in autumn the plant is not entirely herbaceous here, and soon after the new spring foliage has commenced to develop the flower stems appear. These grow quickly, and attain a height of 18 in. or 2 ft., the fluff spike of blossoms being of a warmer, creamier hue than that of *T. cordifolia*, and it is suffused with the rosy red of the anthers. *T. unifoliata* responds to generous treatment. It enjoys good soil (not too dry); given sufficient moisture and an open exposure, it will give the best results.

With the treatment described a long succession of inflorescences will be assured, and a group of plants, in suitable company, is an attractive feature in the border. Old clumps should be broken up and replanted in fresh soil enriched with well-decayed cow manure as soon as they begin to show signs of losing vigour. A. T. Johnson, N. Wales

crimson scarlet flowers. It is a very suitable subject for massing; there is also a white form of this beautiful plant. As a change to these red and scarlet varieties, *Pentstemon Kellermani* with plum-purple coloured flowers stands out very distinct. This variety also is excellent for massing.

The Japanese Anemones have done exceedingly well this season, and at the time of writing they are producing a splendid effect in the borders. The best of the white sorts is *Geante des Blanches*, the silvery-white flowers being of very large size, and much superior to those of *A. japonica alba*. *Helenium Riverton Gem* is quite the best of the Sneezeworts, and is as strong growing as the type of *H. autumnale*, which it greatly surpasses in colouring, the gold of the florets being suffused with terra-cotta passing to reddish bronze. This fine Composite gives a delightful touch of colouring in autumn in the herbaceous border, and the spikes are excellent for use as cut blooms. The variety *pumilum* is also worthy of inclusion in a select list of autumn flowers, as the plant is of dwarf, compact habit, and the flowers of very bright yellow, and large size. Another beautiful Composite is *Solidago Golden Wings*, which gives dense heads of bright yellow flowers, and will grow well in shady spots, such as under trees. T.

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GARDEN KALENDARS.

No. 3.—VARIOUS AUTHORS.

THE work of the big four—Evelyn, Miller, Abercrombie and Paxton—has been dealt with in the two previous articles. It is now the turn of the others who have contributed to this particular form of garden literature. In making out a list of these little works it has not been altogether easy to decide which to include and which to leave out, but as my aim is to follow so far as possible in the footsteps of those famous men whose works have already occupied our attention, it will be found that only those calendars are mentioned which take in more or less the whole of the sections into which a garden may be divided. In coming to this decision, it must not be thought that there are no others of interest or merit. Such is very far indeed from being the case, and to prove the point *The Fruit Garden Calendar*, by John Lawrence, who was first Rector of Yelvertoft in Northamptonshire, and later (1721) of Bishop's Wearmouth in the county of Durham, may be instanced. The above work was published in 1718. There is a great deal in it worth our attention beyond the excellent first-hand directions about the management of different kinds of fruit trees. The practice of cutting a ring round the bark, or, as he calls it, "circumcising" trees, to make them more fruitful, must have been in vogue in his day. Then how informing are his remarks about the out-of-door cultivation of Grapes and the management of English vineyards in the last part of his introduction, when he deals with the "Management of the Vine, that glorious plant which, amongst all others, justly claims the Precedency, being esteemed by Ancients and Moderns, the King of the Vegetable Kingdom, as Man is of the Animal and Gold of the Mineral."

How this whole-hearted enthusiasm reminds one of the commencement of *Le Floriste François*, in which De la Chesne-Montereul writes: "Comme l'on voit qu'entre les animaux l'Homme a la domination; entre les astres le soleil tient le premier rang et entre les pierres le Diamant est le plus estimable; ainsi il est certain qu'entre les fleurs la Tulipe emporte le prix." (As man is lord of the animal creation, as the sun is the first of the heavenly bodies, and the diamond of all precious stones, so among flowers the Tulip bears the palm.) The dictum of these authors may be disputed. The talking in the *Dail* would be as nothing if all those who might urge as rivals of the Vine, the Rice plant, the Date Palm, Wheat, Potato and the Apple were to be heard.

The cultivation of vineyards in England is always more or less of a mystery, just like the profitable cultivation of Saffron, hence anything that throws light upon the subject is welcome reading.

It would appear that in Lawrence's day many people had vines on the walls of their houses; but they were planted without any idea of gathering any fruit from them. They were just put there "to cover the Walls of a House with something Green, to make it look Pleasant and Beautiful to the Eye without any Prospect of reaping good or ripe Grapes from them." For this he blames some statements of Sir William Temple in his *Garden of Epicurus*. He urges that it is very largely a question of selecting deep, warm soils and properly sheltered positions, together with correct pruning. Incidentally, Lawrence alludes to the hot walls at Belvoir Castle by means of which Frontignac Grapes were ripened in July, which was an unheard-of feat up to then, and may be compared to the presentation of a Cucumber to King George the First on New Year's Day, 1721.

I proceed to give a list of all the gardening kalendars that I have been able to find. Doubtless there are omissions. Perhaps it would not be asking too much if I suggest that those who know of others would send a note about them to *The Gardeners' Chronicle*. They are all of greater or less interest.

When an asterisk follows a date it means that there has been more than one edition. To save space in several cases the title has been abbreviated, but I hope it has not interfered with the identity of the book.

LIST OF GARDENING KALENDARS.

- 1664* *Kalendarium Hortense*: J. Evelyn.
 1675 *Kalendarium Rusticum*: J. Worlidge.
 1682* *Florists' Vade-Mecum*: S. S. Gilbert.
 1683* *Gardeners' Kalendar*: J. Reid.
 1688* *Gardeners' Monthly Directions*: J. Worlidge.
 1716 *Gentleman Gardener*: H. Stevenson.
 1717 *Lady's Recreation*: C. Evelyn.
 1718* *Gentleman's and Gardeners' Kalendar*: R. Bradley.
 1726* *Kalendarium Universale*: B. Whitmill.
 1731* *Gardeners' Kalendar*: P. Miller.
 1754 *Scots' Gardeners' Director*: J. Justice.
 1758 *Gardeners' New Kalendar*: J. Hill.
 1758 *Gardeners' New Calendar*: W. Hambury.
 — *Complete English Gardener*: S. Cooke.
 — *Complete Florist*
 1763 *Gardeners' New Kalendar*
 1767 *Modern Eden*: J. Rutter and D. Carter.
 1769 *Practical Gardener*: J. Garton.
 1769* *Royal Gardener*: A. Powell.
 1771 *Planter's Guide*: J. Meader.
 1773 *Gardeners' and Planters' Calendar*: R. Weston.
 1774* *Every Man His Own Gardener*: J. Abercrombie.
 1776 *Gardeners' Pocket Calendar*: T. Ellis.
 1791 *Gardeners' Pocket Journal*: J. Abercrombie.
 1810 *Planters' Kalendar*: W. Nicol.
 1836* *Flower and Fruit Garden*: M. Doyle.
 1839 *Floral Calendar*: J. Mangles.
 1842* *Cottage's Calendar*: J. Paxton.
 1843 *Gardener's Almanack*: G. W. Johnson.
- In reading over this list of authors, it must impress everyone how many of the foremost gardeners of the past have published these little works. They are not all the work of unknown men. Over and above the names of Evelyn, Miller, Abercrombie and Paxton we find those of Gilbert, Whitmill, Worlidge, Bradley, Justice, Reid, Powell and Weston. It is an unpremeditated and magnificent testimony to their utility. It is pleasant to think that if there have been lame dogs in the past, the great ones in our calling have been ready to give them at all times a leg over the stile. In such a list it goes without saying that items of historical interest, as, for example, Evelyn's reference to the "worthy and ingenious Gentleman, Robert Berkeley, Esquire, of Speechley, in Worcestershire," and Worlidge's reference to the hard winter of 1683, when almost all the "artichokes" in England were destroyed, must be many in number and that little tit-bits of quaint thoughts and uncommon expressions must be as the sand on the sea-shore.
- Of these none is calculated to stir the imagination of the curious more than the *Astrological Kalendar*, bound up with the first edition of Gilbert's *Vade-Mecum* (1682), and the short notices about the stars which occupy one column of Worlidge's *Kalendarium Rusticum*. Gilbert tells us in his introduction that he has included it so that "the Gardener or young Flowerist may do all things in due and fit seasons." Reading between the lines it would appear that the ten instructions given are but a few chosen from a greater number. However this may be, if only those given are to be followed, a kalendar which gives the necessary details of what is happening among the heavenly bodies is imperative. How else could such advice as this be carried out? "Set or sow all kind of Pulse, the Moon in Cancer"! Worlidge's notes are similar. Under January 3rd we find, "Castor and Pollux rise in the evening," and on December the 30th, "The left foot of Gemini rises in the evening." In many books of the period the astrological part was concentrated entirely upon the moon. It was when this luminary was old, or full, or new; whether it was waxing or waning that

sowing, planting, pruning and gathering depended.

The following quotation doubtless represents the spirit of the age when it was written:—

"If you, with flowers, would stock the pregnant earth,

Mark well the moon propitious to their birth: For earth the silent Midnight Queen obeys, Observes her course, who, clad in silver rays, Th' eternal round of Times and Seasons guides, Controls the Air, and o'er the wind presides, Four days expired you have your time to sow, From Moon's increasing toll full-orb'd they grow;

This past, your labour you in vain bestow. Nor let the Gard'ner dare to plant a Flow'r, While on his work the Heav'n's ill-brooding low'r; When Moons forbid, forbidding Moons obey, And hasten when the Stars' inviting Beams display."

(*Rapin of Gardens*, Englished by Rev. James Gardiner, about 1706.)

With regard to Gilbert's and Worlidge's monthly directions, the curious thing is that in them neither author refers to the moon or any of the heavenly bodies. The question now arises, did they insert these items about Cancer, Gemini, etc., etc., with their tongue in their cheek, knowing them to be all moonshine, but not openly daring to say so; or was all this lore current coin and so well known and so universally followed, that they took it for granted? It would appear that astrological gardening is a *terra incognita*, which has never yet been thoroughly explored, else I would have come across its history and explanation in some book or another.

More space has been devoted to the moon and the stars than I intended, hence references to other points of interest in these calendars must be very brief.

In Garton's *Practical Gardener* (1769) we get what must be one of the last instances of the herbal united with the purely gardening book. One division is called "The Physical Garden," and is confined to the "cultivation of such Herbs as at some times are necessary in all Families." Their uses as medicines are given. Whitmill, in the fourth edition of his *Kalendarium Universale* (1748) tells us "that there are few gentlemen of late who are not themselves their chief gardeners."

The Complete English Gardener, by Samuel Cooke, gardener, at Overton, in Wiltshire, is a quaint little book without a date, and must be something of a rarity, as it is not mentioned by Mrs. Evelyn Cecil or Weston in their bibliographies. Hot walls are advocated, and in addition to a good deal about the management of bees, we get five pages given up to the "Shepherd's Barometer." One "old proverb" would certainly have been quoted in such a year as the present.

"If the grass grow in Janiveer,
It grows the worse for 't all the year."

The Floral Calendar (1839) of James Mangles, Commander, R.N., was printed for private circulation only, and merits attention for all the numerous odd bits of information which quite overshadow the calendar proper. Ellacombe's wonderful Rectory garden at Bitton has an earlier counterpart in Theodore Williams's equally notable one at Hendon Rectory. Such out-of-the-way subjects as suitable birds for aviaries, and where to buy gold and silver fish for greenhouse and garden tanks, find a place among its miscellaneous collection, as well as a long price list of the best Geraniums, several of which are valued at two and three guineas each. It is full of bits of historical and sometimes of very practical information.

Anthony Powell, Esq., gardener to his late Majesty King George III., in his *Royal Gardener* (2nd Edition, 1769), tells how he must have provided the royal table with early Cherries, "about three changes of dung will be sufficient to bring your Cherries to ripeness in February, allowing each parcel to remain a month at the back of the pales."

Of quaint remarks there are, of course, no end. Imagine Worlidge's advice under December appearing in the 1920 edition of Paxton:— "The evenings are long, which gives the in-

dustrious an opportunity to indulge themselves by the fireside over a glass of Hearts ease"; and what would Mrs. Grundy think about Evelyn's animadversions against the ants that used to trouble his Nectarines, "They are cursed Devourers"? Ellis, gardener to the Bishop of Lincoln, in his lists of annuals, puts Love Apples amongst the flowers. No further examples are needed to show that many a pleasant half-hour may be spent with these quaint old kalendars. *Joseph Jacob.*

AMERICAN NOTES.

I WAS interested in the note and illustration of *Eustoma Russellianum*, the Texas Bluebell, in *Gard Chron.*, September 2, p. 137, Fig. 55. This flower is not cultivated in the States, but it is made much of by the Texan florists, and quantities of the flowers are shipped to distant parts, although none, so far as I know, reaches New York. One man near Houston specialises in the flower, devoting his farm to it; but, according to reports, it cannot easily be cultivated. The plant is erratic and migratory, for one year part of his ground is literally covered with it, and the next season it takes possession elsewhere. Because of this queer habit, he waits to see where the plants are coming up before he ploughs any part of his farm.

The fact that Mr. Preston is able to cultivate it is another illustration of how ready American horticulturists have been to accept the declaration that this, that, and the other cannot be grown here. As a matter of fact, this great country is so varied in its climates and soils that it is possible to grow practically everything in the plant world in one or another centre. In three summers here I have found I can grow not a few things that others have informed me were difficult or impossible.

I am planting over 70 sorts of late Tulips this fall, for I never grew better blooms than those of Krelage's new hybrids I flowered last spring. The bulbs I lifted in late June were as fine as any I grew in Kent, and the offsets were quite numerous.

The autumn here is truly glorious; but for the short days it might be mid-summer. The vacant ground is a mass of Michaelmas Daisies; *Aster ericoides*, *A. cordifolius*, *A. vimineus*, and other types are everywhere, especially the first named, which establishes itself even on the grass bank in front of my house. It is surprising to see this dainty Aster flowering on plants from 4 inches to 2 feet high in the grass. The purple *Novae-Angliae* type is also abundant in places, but I have not seen the pink form. I have selected eight or nine good forms of these Asters; the variation is considerable, and I am not sure of the identity of some.

It is odd that in the garden these Asters are rone to mildew, but it is not noticeable in the wildings. The *ericoides* type grows in sheer gravel oftentimes. Most people here ignore them, as they do many other beautiful native plants. The same people will strive their utmost to grow the English Primrose.

English flowers are the things; English Delphiniums are special favourites. These flowers, however, are troubled with a disease which turns the foliage black. In bad attacks it stunts the plants and prevents them blooming. It reminds me of the disease that affects early Chrysanthemums in the open. Many residents have informed me that only the small Pompon Chrysanthemums were of any use in the open in this country, but I have Cranford White in fine form, and several other English varieties showing colour. For some reason the earlies are later here; Normandie is not yet in its prime, and the pink shade is totally absent, but, under glass, it is possible to get Advance, an American variety, in bloom in August. This, and several others, are now fairly prominent in the market; but the real Chrysanthemum season here is from mid-October to about the end of November.

I fancy it is only a question of varieties and proper handling; personally, I see no reason why spray Chrysanthemums should not be grown here in fields and lifted before frost, as is generally done in England, but this method is

not practised. Planting on benches under glass is done in June, usually quite small plants being used. Carnations, on the contrary, are invariably planted in the field in April, and lifted and benched in July or August.

I am afraid I disconcert my neighbours by persisting in flowering Pansies all the season, and sundry other things that are not orthodox. If anything, some of the Americanised British are even more emphatic about things than the natives. I was assured I would never grow Peas, Sweet Peas, or Cauliflowers on my ground; as a matter of fact, my autumn giant Cauliflowers grew so large that I had to stake them, and if it hadn't been for a plague of caterpillars during the fearful wet spell, early in September, when neither spraying nor dusting could be done, the heads would have been far bigger than they are. Club root is a great pest of Brassicas here, especially on Cabbages and Brussels Sprouts. Kales and Cauliflowers are not much affected save on soil that is lacking in humus. The soils in many States are greatly lacking in lime, but I am frequently dusting my ground with it. Oddly enough, I never had better Wallflowers

taken for a Violet. I have just planted out a batch of 150 rooted cuttings. I have a big batch of Primrose Polyanthuses, including the blue variety. The common *P. vulgaris*, sown last spring, has not yet shown up; maybe the seed will germinate after a hard frost.

Touching on the rooting of Apple cuttings, one of the colleges here has made experiments in this direction; but, according to a bulletin issued on the subject, only a small percentage of varieties responded.

I have invested in a new instrument named the Multitool. The man who invented it is a genius. It consists of a handle with a screw and a ball joint at one end; it will take five different-sized or patterned hoes with teeth and plain edge. The ball joint permits any one of the hoes to be set at a desired angle for shallow or deep working, and, as the teeth are broad and edged like knives, they pass through the ground about four times as easily as the plain draw hoe, and do not miss weeds, like the prong cultivators. It certainly is a wonderful tool for working between rows, and the small hoes are useful in the border. I have scrapped my Dutch



FIG. 103. *EUONYMUS EUROPAEUS ALDENHAMENSIS*.

R.H.S. AWARD OF MERIT, OCTOBER 17 (SEE P. 243).

than I now have growing in my hot, dry soil. The plants are so strong that it will be a problem to find frame room for them. Lupins are prone to rot, due, I imagine, to lack of lime in the soil, and Honesty clubs, too. Few Americans seem to be acquainted with this latter plant.

I visited the Brooklyn Botanical Garden this week; Montague Free, an old Kewite, has built there the best rock garden I have so far seen, despite the fact that the natural rocks are not of the best type. The Japanese garden, too, is a gem; it was made by Japanese. The Bronx, or New York Botanical Garden, is more like a park, covering a great area, but neither can compare with Kew.

Roses Mme. Butterfly, Mme. E. Rostand, and W. F. Dreer gave fine blooms in June and July; all were April planted. In August my plants were divested of foliage owing to spot disease. They are now in new growth and flowering again; I cut a bloom of Claudius Pernet to-day. I am trying to ward off a second attack of spot by spraying constantly with copper ammonia; the ground I have heavily dressed with iron sulphate after collecting all the fallen leaves possible.

Viola cornuta Lord Nelson raised from Watkins and Simpson's seed, has been a gem, full of flower since June, and it has been mis-

and draw hoes, the cultivator and the rake, too, for most purposes. The tool is retailed here at \$5 the set.

In conclusion, I may refer to the behaviour of *Dianthus Allwoodii*. I have the varieties Phyllis, Robert and Harold on my rough and ready rockery. Early in the season the plants flowered well, and they have since made such a mass of growth that I am anticipating a great show next season. The cuttings were propagated last fall and wintered in the open; but, unlike the common Pink, they do not make enough growth the first season to give a big crop. I might add that I raised a few *Dianthus* plants for my rockery from seed; two of the plants proved to be Carnations, and apparently of the perpetual type. Both are double and are flowering now. I also have a few perpetual border Carnations, which were sown in a pot in August of last year. Tiny as they were, they withstood the winter in a cold frame, protected only by bags, with the temperature falling once or twice to zero. The plants are now splendid; but as I stopped them they have not flowered. Their survival last winter as tiny seedlings, less than an inch tall, is a proof of the hardiness of Carnations provided they are protected from sunshine while frozen. T. A. W., New Jersey.

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(Concluded from page 242.)

WALES (continued.)

CARDIGANSHIRE.—All fruit trees flowered well. Apples are an exceptionally heavy crop, especially the varieties James Grieve, Mr. Gladstone, Keswick Codlin, Bramley's Seedling, Blenheim Pippin, Ecklinville Seedling, Beauty of Bath, Lord Derby and Golden Harvey. Pear trees are carrying heavy crops in the case of such varieties as Beurré Diel, Citron des Carmes, Clapp's Favourite, Conference, Dr. Jules Guyot, Doyenné du Comice, Hesse, Josephine de Malines and William's Bon Chrétien. Plums in the open are hanging like ropes of Onions, the branches being borne to the ground with the weight of fruit. Those on walls were not so good. Cherries were good, also Apricots. All small fruits were satisfactory, with the exception of Raspberries and Strawberries, which were very bad. The exceptionally heavy rains in the first four months of the year, followed by drought, ruined them. Frost was registered here every night during April. All fruit trees were very late in flowering. The first to flower was Early River's Plum on May 1; the last, Apple Sure Crop, on June 2. All trees are free from pests. No spraying was done, owing to shortage of water. The soil is a medium loam resting on gravel. *D. H. Dunn, Hafod Gardens, Devil's Bridge, Aberystwyth.*

GLAMORGANSHIRE.—The Apple crop is an average one. Trees of James Grieve, Lord Grosvenor, Cox's Orange Pippin, Allington Pippin, and Worcester Pearmain are cropped the best. Pears are quite up to the average and very good in quality. Gooseberries were plentiful, and the bushes free from blight, and Raspberries and Currants were also excellent. *C. T. Warmington, Penllergaer Gardens, Swansea.*

PEMBROKESHIRE.—The fruit crops are not very good. Apples, Plums, and Cherries were very poor. Plums and Cherries suffered from very cold winds and heavy sea fogs at the flowering period. Our Apple trees developed a large quantity of bloom—in fact, I never saw more but the flower trusses were weak and very few Apples set. Peaches, Nectarines and Apricots were all extra good. Bush fruits, also, were very plentiful. Strawberries were short in quantity, but the few berries that ripened were very good. *Charles McInroy, Stackpool Gardens, Pembroke.*

—Apple, Pear, and Plum trees flowered exceptionally freely, and the whole county looked as if covered with a white sheet. The result is we have a splendid crop of Apples and a good average crop of Pears and Plums. Small fruits, including Gooseberries, Black Currants, Red Currants, Raspberries, and Loganberries, all set very freely, and the fruits were very good. There was an average crop of Strawberries, but bad weather set in at the time of ripening, and a lot of the berries rotted on the plants. *T. H. Roberts, Heywood Meadow, Tenby.*

IRELAND.

KILKENNY.—All fruit trees blossomed with extraordinary profusion, in common with all other flowering trees and shrubs after last year's wonderful summer and autumn. Apples, which last year were terribly thinned by bullfinches in the dormant bud stage in January, are this year carrying heavy crops. This is true of all varieties, with the one exception of American Mother. Pears are a heavier and a cleaner crop than for years. Plums and Damsons are very plentiful, as also are Apricots and Peaches, but Cherries have suffered somewhat from the drought during May and June, which also badly affected the Strawberry crop. Rain fell too late for the Strawberries, but ensured a very heavy crop of Raspberries, whilst Currants and Gooseberries also were plentiful and good. Figs out of doors are a very fine crop. The long-continued drought

caused Apple trees to be rather badly affected with red spider—a most unusual condition for them here. Otherwise insect pests have not been very troublesome, although, in patches in a young orchard, the work of the capsid bug is now painfully evident. The soil varies from medium to sandy loam over veins of limestone or yellow clay. *T. E. Tomalin, Bessborough Gardens, Piltown.*

MEATH.—Plums and Damsons were bountiful crops all over this county, but, owing to a late spring and cold weather in May and June, Plums were slow in swelling, and were only colouring at a date when in other years they would be ripe. The soil is everything that could be desired and of the best quality for fruit growing. *Michael McKeown, Julianstown, Drogheda.*

TYRONE.—The fruit crops were fairly satisfactory on the whole, but rather late. Apples are a very heavy crop, and are not swelling well, unless where thinned. Fruit bloom was exceptionally abundant, and in a few cases, Pears especially; the trees seemed to be exhausted by the effort of flowering and failed to set fruits. Strawberries suffered from dull, showery weather, and many showed signs of decay long before they commenced to colour. Insects and fungous pests are not more than usually in evidence, except that American blight seems rather on the increase. *Fred W. Walker, Sion House Gardens, Sion Mills.*

CAVAN.—Apple trees in sheltered positions set fruit freely and are carrying good crops. In exposed situations the trees suffered very much in the first week of June from a drying east wind, which ruined the fruit prospects. Gooseberries were an excellent crop. Red Currants and White Currants bore fairly well. The Strawberry crop was an extra fine one, and the berries finished well. Plums were a heavy crop, but the trees were badly attacked by aphids. *Edward Rutherford, Farnham Gardens.*

DOWN.—There was a remarkable profusion of blossom on all fruit trees, and the weather was favourable to the setting of all kinds of fruits, except Plums, which were in bloom when 9°, 10°, and 11° of frost were registered, although sufficient blooms escaped damage to ensure a crop. May was an exceedingly dry month; rain came in time to swell out a fine Strawberry crop and all bush fruits. Many varieties of Apples required to be thinned. *T. W. Bolas, Mount Stewart, Newtownards.*

WESTMEATH.—The fruit crops generally are good in this district, except Strawberries, which were very poor. The latter part of May and beginning of June was hot and dry, but the summer was cold, and rain fell on nearly every day. The soil is light on a gravelly subsoil. *Wm. Allan, Pakenham Hall Gardens, Castlepollard.*

CORK.—All fruit trees are very healthy; they have scarcely been attacked by codlin moth or American blight, which are our chief enemies of fruit. *M. Colbert, Aghera Gardens, Conna.*

—Apples, Pears, and Plums are very satisfactory. As a result of the cold, harsh weather during April, May, and the early part of June, bush fruits were, on the whole, disappointing, and were fully three weeks later ripening than in 1920-21. Gooseberries were undersized. Black Currant bushes on light soil suffered from drought and aphids, and in many places Strawberries dried up. Raspberries and Loganberries, however, were satisfactory. Insects and fungous pests not so prevalent as in most years. *J. Dearnaley, 17, St. Patrick's Terrace, Magazine Road, Cork.*

KILDARE.—All fruit trees in these gardens are bearing abundantly, and the crops required to be thinned on several occasions. Owing to the great heat at the end of May, Pears on walls have a wonderful colour. Insect pests were most troublesome during the summer, but spraying with an insecticide killed them. The winter of 1921-22 was exceptionally

mild until March and April; during those months we registered frost almost every night, causing the trees to flower very late. The soil is a medium loam over clay. *Frederick Streeter, Straffan House Gardens.*

WATERFORD.—The fruit crops have turned out better than was expected, yet there was bitter, harsh weather at the time of the trees flowering. Small fruits and Pears are our best and most plentiful crops. The Apple crop may be put as under: The varieties of Apples that are fruiting most abundantly are: cookers—Bramley's Seedling, Annie Elizabeth, Hambling's Seedling, and Stone's; dessert—Beauty of Bath, James Grieve, and Blenheim Pippin. Small fruits were very plentiful and good. Green fly is troublesome. The soil is on a rather hard pan and of a light texture. *D. Crombie, Curraghmore Gardens, Portlaw.*

CHANNEL ISLANDS.

JERSEY.—All fruit trees started into growth rather later than usual, and all flowered profusely, but not vigorously, most of the blossom dying on the trees, so that we have crops under the average. *Jas. Harper, Springfield Nurseries, St. Heliers.*

—The fruit crops this year are very poor. The trees blossomed well, but the fruits did not set, and much of what did set fell later, so that on the whole it is a very poor fruit year indeed. The trees seemed to have suffered much from the dry weather of last year and again this spring. *Thomas Sharman, The Imperial Nursery, St. Mark's Road, St. Heliers.*

ADVERTISING BRITISH FRUITS.

GROWERS of Tomatos and other crops under glass are satisfied that the sale of their produce in a season which was not conducive to a strong demand has been helped very much by the big advertising campaign which they financed and supported with such commendable enthusiasm. Unfortunately the similar scheme for advertising outdoor grown fruit, which made a very promising start, has not been able to secure anything like the same success, simply because it has not been properly supported by growers. A halfpenny in the pound sterling deducted by the salesman from the gross return for all consignments cannot be called an extravagant sum to spend on advertising; yet comparatively few growers have agreed to it. The promoters have found it very much more difficult to reach the orchardists than the glass-house growers. The bulk of the latter are concentrated in the Lea Valley, Worthing, and Guernsey; and they proved ready to attend meetings and quick to appreciate the value of propaganda. The orchardists, on the other hand, are scattered, and it has been found impossible to obtain a good attendance at meetings or to arouse enthusiasm for what is undoubtedly a sound scheme. Something is being done to advertise outdoor-grown fruit, but on nothing like the scale that would have been possible had more growers given their support. Valuable assistance in disposing of the enormous crop of Plums might have been secured if the scheme had been taken up enthusiastically. *Market Grower.*

VEGETABLES.

A POTATO COMPETITION.

SOME very large crops were produced in a potato competition held by the Dale Abbey Allotment Association. Twenty-three of the members took part in the competition and each was supplied with one pound of seed tubers, the crop varying from 193 lb. to 44 lb. The second best yield was 191 lb., and there were also other yields of 110½ lb., 107½ lb., 103 lb., and 101 lb. respectively. The variety was Prosperity, a flattish-oval main crop variety, raised by Messrs. WEBB and Sons, Ltd., of Stourbridge.

NURSERY NOTES.

A FRUIT NURSERY.

WHEN the famous Veitchian nurseries, which included, beside the central establishment at Chelsea, others at Coombe Wood, Feltham, and Langley, were dissolved by the firm in 1914, much of the land was sold for other purposes, but the Langley nursery continued in its original use, a very large portion being acquired by Messrs. Sutton and Sons for the growing of flower seeds, whilst the section devoted to fruit and Roses passed into the hands of Mr. J. C. Allgrove, who was for forty years in the employ of Messrs. James Veitch and Sons. Mr. Allgrove was for very many years the manager of this particular section of the Veitchian business, and was, in a large measure, responsible for the high standard of quality for which Messrs. Veitch's fruit trees and other subjects grown by him at Middle Green were famous, and, although this nursery is changed in proprietorship, it is in name only, for the same high standard of quality and the best traditions of his old firm are continued by Mr. Allgrove, whose name stands high amongst his patrons and fellow-nurserymen for the quality of his wares, as well as for his integrity of business and sterling character.

Middle Green is one of three villages to which the name of "Green" is appended—George Green, Middle Green, and Horsemore Green—and is easily reached from Slough on the Great Western Railway. The nursery is about forty acres in extent, the major part being used for the raising and growing of fruit trees, a considerable portion for Roses, and the remainder for hardy herbaceous plants and alpiners.

All manner of fruit trees are cultivated by Mr. Allgrove, including pot specimens for orchard houses, as well as such subjects as Vines, Figs, and Nuts. Stone fruits in pots, including Peaches, Nectarines, Cherries, and Plums, are grown in a long lean-to house, and how well may be seen on reference to Fig. 104, which represents a splendid specimen of Jefferson Plum at the time it was in fruit. The greater portion of the nursery is devoted to the raising and growing of Apples and Pears, which do remarkably well, the soil being brick-earth, which is so suitable for fruit cultivation, and every year a considerable area of the nursery is trenched with the spade, the better to prepare it for the growth of the trees, which are lifted and replanted every few years. As the trees are sold and the ground cleared in any particular part each season, it is trenched and then devoted to Potatoes for the express purpose of clearing it and giving it a rest from fruits for a season. This leaves the soil in an excellent condition, and, when the young stock is planted, the trees make healthy, fruitful growth, as we saw at the time of our visit, specimens only two or three years old having relatively enormous crops. This was, perhaps, the most pronounced in Rev. W. Wilks Apple that was raised at Langley and is one of the most precocious of all fruit trees, for it bears well and gives fruits of enormous size, even when only two or three years old. The vigorous fruiting of this variety in a young state tells on its rate of growth, but slow development of the tree may be obviated by removing the fruits from young plants. This excellent Apple was raised from Peasgood's Nonesuch crossed with Ribston Pippin, and, whilst the first parent has given large size, the Ribston Pippin has contributed high quality. It is not a dessert variety, but it is a culinary Apple of high quality, although rather soft, for which reason it is not very suitable for transit unless picked at an early stage. It is sure to rank high in the list of culinary Apples, and will become a general favourite when better known and more plentiful. Langley has given us several other fine Apples beside this one. What in the opinion of some is the best early dessert Apple was raised in this nursery; we refer to St. Everard, a cross between Cox's Orange Pippin and Margil, a variety of very high quality and likened by many to an early

Cox's Orange Pippin; the fruits are ripe in September.

Another splendid Apple named S. T. Wright, not yet in cultivation, has been raised by Mr. Allgrove from Peasgood's Nonesuch crossed with Bismarck. Mr. Allgrove exhibited fruits of this new variety at the Holland Park Show, and they were conspicuous for their high colouring and general fine appearance in a collection of the best varieties, but they did not appear nearly so handsome then as when we saw them growing on two, three, and four year old plants in the nursery, where each fruit seemed as though covered with a glowing rose tint. It is gratifying to know that this new Apple is a prolific cropper, for appearance

large as those of Blue Pearmain, but very highly coloured.

The stock of Pear trees is equally large, and, like the Apples, the young Pears are healthy specimens, with strong, fruitful growth. One of the most interesting is the variety Mrs. Seden, that was raised from Seckle. It is a late keeping Pear of first-class quality, with the high flavour of Seckle, and melting, juicy, buttery flesh, with rich, aromatic flavour. It is a round fruit about 2½ inches in diameter, and coloured with pale yellow speckled with brown, the side exposed to the sun sometimes taking on a crimson tint. Those who appreciate the old Seckle Pear will find in Mrs. Seden a similar variety, but available much later in

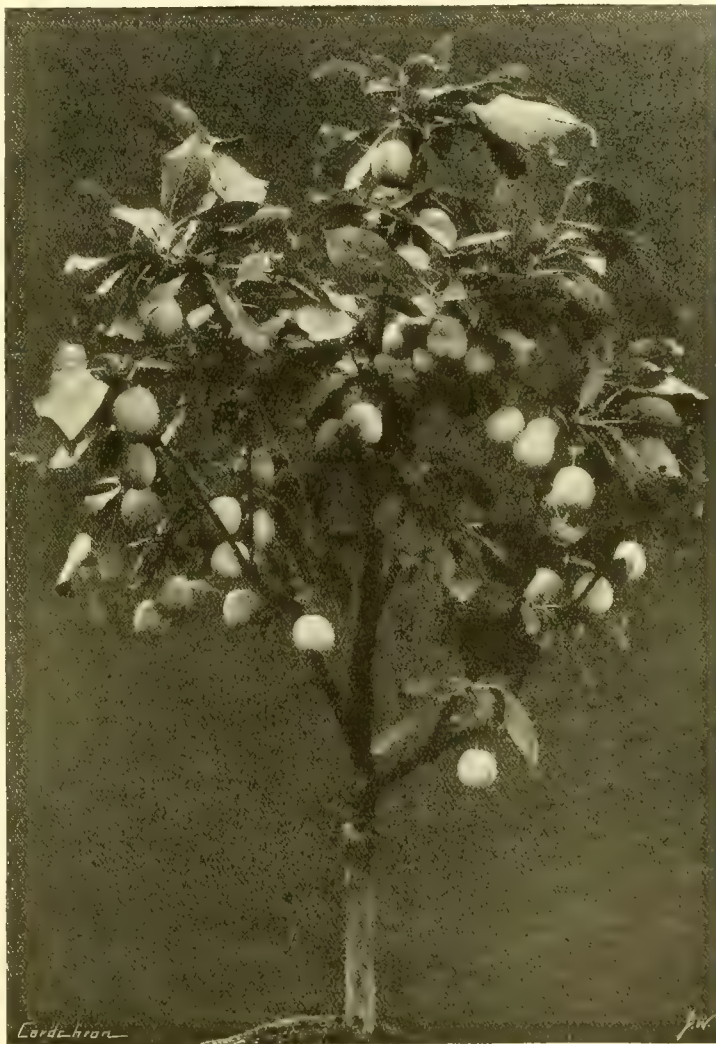


FIG. 104.—PLUM JEFFERSON; A FINE EXAMPLE OF POT CULTURE.

and high colouring are not always accompanied by good bearing.

It was very interesting to observe the large blocks of Apple trees in various stages of development, from those which had been worked this year, maidens, two-year-old trees, many of which were fruiting, and so on to the trees ready for sending out to customers this autumn. Almost all varieties were represented, but the greatest numbers were those of the most popular varieties, such as Rival, Bramley's Seedling, Crawley Beauty, Charles Turner, Cox's Orange Pippin, Allington Pippin, Blue Pearmain, Christmas Pearmain, Ellison's Orange, James Grieve, King of the Pippins, Langley Pippin, St. Edmund's Pippin, and Wealthy, these including some of the best sorts in cultivation for all purposes. Our attention was directed to a very showy variety named Swedish Reinette, which has fruits as

the year. Another Pear that attracted our notice was Beurré de Mortillet, a most handsome fruit, with bright red, almost scarlet, cheek. Other excellent Pears included Beurré Superfin, Charles Ernest, Comte de Lamy, Conference, Dana's Hovey, Doyenné du Comice, D'urondeau, Easter Beurré, Emile d'Heyst, Forelle, Glou Morceau, Josephine de Malines, Louise Bonne of Jersey, Marie Louise, Marguerite Marillat, Olivier de Serres, Seckle, Thompson, and Winter Nelis. The Apple and Pear trees are trained in a variety of shapes, including bushes, standards, espaliers, single, triple, and double cordons.

Plums are very extensively propagated for sale by Mr. Allgrove, and his new Allgrove's Superb is a valuable addition to the list of dessert varieties. It is like a coloured Jefferson, of large size, with a beautiful dark purple colouring and very high quality. Splendidly

fruited trees in pots of such sorts as Coe's Golden Drop, Transparent Gage, one of the choicest of all dessert Plums, Coe's Violet, Denniston's Superb, Kirke's, Golden Transparent, and President were observed, but those in the open were mostly over, although there were some remarkable crops of the Langley Bullace, a seedling from the Farleigh Damsen and Black Orleans Plum. Other stone fruits, such as Cherries, Apricots, Peaches, and Nectarines were noticed, trained in a variety of shapes; the stock of trained Peach trees is one of the best in the country. Mr. Allgrove is sometimes called upon to despatch, say, a Peach tree at a time when it would be impossible to lift it from the open ground, and, to meet this demand, trees are grown in large tubs or boxes, to permit of them being transported bodily and planted against a wall or in a glasshouse, even in the height of summer, it being merely necessary to knock away the boards that enclose the roots and to set the latter in the border. A very fine stock of young Vines and also of pot Figs is grown in an enclosed garden, a little distance from the nursery proper, where there are several fine glasshouses for the purpose.

Most growers are aware that Mr. Allgrove makes a speciality of Gooseberries, for his exhibits of these fruits at the R.H.S. fortnightly meetings have earned high encomiums; indeed, no one of the present day shows Gooseberries so well as this nurseryman. Several fine sorts have originated at Middle Green including Langley Beauty and Langley Gage, two of the finest dessert varieties, the former a yellow and the other a white fruited sort. Gooseberries are trained in a variety of forms; cordons are most prolific cropping and very profitable. The stock at Langley includes nearly all the best varieties such as Dan's Mistake, Broom Girl, Leveller, Trumpeter, Fearless, Langley Gage, Talfourd, Whinham's Industry and Whitesmith.

A brief reference may be made to the fine stock of Roses, which at the time of our visit presented a feast of floral beauty in their wealth of autumn flowers. The collection embraces all the popular sorts in cultivation and the plants evidently find the soil to their liking, judging by the splendid growth they make. Mr. Allgrove has made a speciality of Rose species that are ornamental through their fruits. Several Roses with attractive hips have been introduced from China in recent years and the best of these is probably R. Moyesii, but Mr. Allgrove informed us that there were two types of this plant, one much superior than the other. It is darker in foliage and berry than R. Fargesii and the fruits have only a few hairs, while those of Fargesii are hairy all over, the berries also are a brighter scarlet. R. setipoda is another beautiful species of this type. Herbaceous and alpine plants are cultivated extensively by Mr. Allgrove and his collection of these plants includes many gems of these easily grown and popular plants.

DAHIA CONFERENCE.

UNDER the auspices of the National Dahlia Society, a Conference was held at the Royal Horticultural Hall, Westminster, at 4.30 p.m., on Tuesday, the 17th inst. Sir Frederick Keeble, F.R.S., presided, and was supported on the platform by Mr. Joseph Cheal, Mr. John Green, and Mr. A. C. Bartlett, respectively Chairman, Treasurer, and Hon. Secretary of the N.D.S. The attendance was good, and two admirable papers were read—the first, on "Dahlias for Parks and Gardens," by Mr. T. Hay, Superintendent of Regent's Park, and "Exhibiting Dahlias," by Mr. J. T. West, of Brentwood. Mr. Hay's contribution was particularly interesting, and his advice should prove of immense value to those who desire to use the Dahlia as a garden plant in public parks or private gardens. At Regent's Park, Mr. Hay has shown how valuable the Dahlia is for the production of fine colour effects in the autumn, and by a process of careful selection he has discovered the varieties most suitable for his purpose. A note on the Dahlias at Regent's Park last year, in *Gard. Chron.*, October 29,

1921, showed that very large numbers of varieties are grown there, yet they are all suitable for the purpose, although probably not representing a tithe of those that are fitted for massing on a grand scale.

Mr. West confined his attention to advice on the cultivation of Dahlias for exhibition purposes and the staging of flowers when produced, and, as he is one of the oldest of exhibitors, he had many interesting comments to make upon methods adopted in the past and many suggestions to offer with regard to the future.

In opening the discussion on Mr. Hay's paper Mr. J. Cheal expressed his great pleasure in it and agreed with the lecturer that the Dahlia was eminently suitable for the decoration of such public places as Regent's Park and even those in less favoured places, citing Bermondsey, where Mr. W. H. Aggett has for many years grown a large collection of Dahlias with great success, and these have given immense pleasure to the public. Mr. Cheal stated that in his own garden he had experimented with various Dahlias in beds, and of all the combinations he had tried none gave greater pleasure than the bed of the dwarf Crimson Flag edged with a still dwarter yellow Mignon variety.

Mr. J. B. Riding, in congratulating Mr. T. Hay on the great success of the Dahlias at Regent's Park, said he looked upon Mr. Hay as a real Dahlia apostle, as he had also induced a great many others to love and to grow Dahlias. Mr. Riding said he had an intimate acquaintance with Regent's Park over a long period and he was greatly impressed by the enormous improvement Mr. Hay had effected in so short a time. In his opinion, the floral effect of the bedding Dahlias at Regent's Park was simply wonderful and was a great incentive to others to go and grow likewise. He was glad that at last public park superintendents had realised the great value of Dahlias in the scheme of floral decoration. With regard to the possible value of Dahlia imperialis as a parent, he could not agree with the lecturer, as this species flowers much too late in the season to be of value in this country. The Dutch varieties, he remarked, were in some instances improvements on previous varieties, but, as a rule, English raisers were sending out superior varieties.

Mr. R. H. Holton was especially glad that the lecturer emphasised the long period of flowering the Dahlia enjoys even in an average season and he was of the opinion that in giving it as three months, the lecturer was not guilty of exaggeration. Often it was distinctly longer and far too many persons were under the erroneous impression that as soon as the Dahlias come into flower frosts destroy them.

Speaking as an amateur of long experience, Mr. G. Stanbridge said he quite agreed that the Cactus varieties were inferior to the other types for garden decoration. Their flowers are hidden in the foliage, and with the possible exception of Britannia, he found that none would consistently produce their flowers above the foliage—the Cactus varieties were all too weak in the stem. His experience with Collette Dahlias was that after the second year they all produced a double row of ray florets. He did not agree with Mr. Hay's estimate of the value of Coltness Gem, but preferred Lemur, which he considered to be the ideal bedding Dahlia. With regard to the Star Dahlias, these he found were not a true type: there was a spare, poorly formed floret in every flower.

Mr. A. W. Vasey felt that Mr. Hay had earned the gratitude of all Dahlia lovers by his successful endeavour to popularise the flower. With regard to the diverse opinions on Coltness Gem, he was of the opinion that it has a great future. No other variety is quite identical, though Brentwood Yellow comes near to it. The paucity of foliage, which met with the disapproval of a previous speaker was, in his opinion, a great asset, as the plants were all a blaze of colour. He had derived great pleasure from the Mignon Dahlias at Regent's Park, where they were dwarf plants not more than 18 inches high, bearing a profusion of bloom. Although the Cactus varieties are the least attractive when growing they appeal to many, and

of the sales, of Dahlias by his firm, 47 per cent. were of Cactus varieties. In addition to Mary Purrier, mentioned by Mr. Holton, there were numbers of good Cactus varieties that produced their flowers above the foliage, and he instanced Border King and Sweet Briar. Mr. Vasey said he had seen all the Dutch varieties growing in Holland, and he was impressed by the fact that nearly all produced masses of flowers on long, stout stems, but as decorative varieties, Mr. West's dwarf Paeony-flowered type and Messrs. Burrell's novelties were the more charming and would be largely grown in the future.

Mr. W. Stephens was of the decided opinion that the place for Cactus Dahlias was in the kitchen garden, though after a long experience of them he stated that, even if he again possessed a large garden, he would not grow even one Cactus Dahlia. For a small garden and for general usefulness, he preferred the Star and Miniature Paeony varieties.

In closing the discussion, Sir Frederick Keeble said he felt that the difference of opinion that had been expressed was a most healthy sign for the future of the Dahlia, and he reminded the gathering that "In matters of taste, there is no disputation." Expressed dislike of a plant or flower may often imply ignorance of its beauties, for all are beautiful in their own sphere, and those who could not see superlative beauty in Dahlias had only to visit Regent's Park to be converted. He felt that the Dahlia, whether grown massed in beds, or the tall varieties against the background of green trees, or as cut flowers in a smart room, has no fear in comparison with other flowers. Even though the English raisers of Dahlias have, as has been seen at the R.H.S. so many times, raised most fascinating varieties, Sir Frederick Keeble often wondered why the raisers of new Dahlias did not send a collector to that mountain-side in Mexico where, he was told, there grows a hardier Dahlia than ours, which will withstand a few degrees of frost. This species would be of great value as a parent of hardy varieties.

ON "EXHIBITING DAHLIAS."

Mr. West's paper was also listened to with great attention. Mr. W. Stephens, who opened the discussion, said he was sorry to hear the use of wire frames recommended, as he hoped the day would not be far distant when the N.D.S. abolished the use of wires at its shows. He had been troubled greatly by earwigs and had found trapping them in small flowers pots to be most useful. By this means he had often caught as many as 150 in a single morning amongst a small collection of Dahlias.

Mr. C. R. Skillin said he had been greatly enlightened by Mr. West's remarks on cultivation. The difficulties of amateurs who, like himself, had to grow their Dahlias in small London gardens, were greater than those more fortunately placed realised, and such knowledge as that so freely given by Mr. West was most helpful. Replying to Mr. Skillin's question, Mr. West said that pot roots would flower three weeks earlier than those from tubers, but they did not make such pretty plants in the earlier stages of their growth.

Referring to artificial support for Dahlias, Mr. Stanbridge expressed the opinion that the use of such foliage as Berberis should not be allowed, as this handicapped the small grower.

In proposing votes of thanks to the lecturers, Mr. W. Stephens said that he hoped both excellent lectures would be published by the National Dahlia Society, as they contained much advice which would be helpful, particularly to young growers. Mr. J. B. Riding, in seconding, again referred to the great work Mr. Hay has done for the Dahlia and agreed with Mr. Skillin that any advice given by Mr. West out of his long and careful experience was well worth following.

In reply, Mr. Hay stated that he had found that sheets of newspaper rolled into loose balls and placed around the Dahlia plants made most efficient earwig traps.

A hearty vote of thanks was accorded to Sir Frederick Keeble for presiding.

[We hope to publish the papers read at the conference, in subsequent issues.—Eds.]

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Mentha piperita vulgaris.—I have been told that no one has collected this plant since W. Sole did so. Sir James Edward Smith records that Dale, a collector of Mints, found it in Essex; and he also found a specimen in Sherard's herbarium, collected by the river at Wandsworth. According to his records, for Sole's finds of it, the plant must have been fairly frequent about Bath, between Wells and Glastonbury, and also at Chiltern Bottom, Wilts. Last year I had a specimen from a young man named William Nelmes, from the valley of the Severn, near Alveston, Gloucestershire. I was greatly interested in it and got him to send me a root, which flowered this year. It differs from *M. piperita* in having broader, more ovate leaves, rounded or subcordate at the base, instead of being wedge-shaped as in the typical *M. p. officinalis*, and in having much shorter oblong spikes of flowers, often almost capitate, especially on the branches. It agrees in every particular with the description by Sole and other authors. I have also seen dried specimens in two different herbaria. In my opinion it is a hybrid, namely, *M. hirsuta* × *piperita*; and I also venture the opinion that *M. piperita* could not produce seedlings of its own, because it is always a female plant so far as my observations go and the descriptions I have read. Sole's *M. p. vulgaris* was female; so is my plant. *J. F.*

History of the Moss Rose.—It is really difficult to guess what useful purpose Mr. Mark Mills fancies he is rendering by his contribution under the above heading (see page 217). His comments are mainly irrelevant so far as the Moss Rose is concerned, and to widen the scope of the subject under consideration by importing into it such questions as to the Provence, the Musk and the monthly Roses having been grown in English gardens is to state a self-evident fact that has not been called into question. Of course they have—and everybody is aware of it. But when he naively suggests that an original edition of Culpeper's *Complete Herbal* may "probably" contain a reference to the Moss Rose, which his later editor, does not, he is passing beyond the bounds of probabilities. Why "probably"? Mr. Mills's concluding remarks are: "It appears that monthly Roses have been grown many years in our English gardens." Was it necessary to consult Culpeper's ancient work to be assured of that fact, and, if so, what has that to do with the Moss Rose? *C. Harman Payne.*

Branch Cuttings of Apples.—In reply to Mr. E. F. M. Hewat's letter, in the issue for September 16, p. 169, asking for further information respecting Apple cuttings, all the cuttings that I have been successful with have had a number of burr-knots on them, or aerial roots, as we call them in Cornwall. I make the cutting just below where it is producing the burr-knots; whether it be below the elbow bend or above it, I have not discovered that it makes any difference. About nine inches is a very good depth to plant the cuttings; in the case of very large ones, one foot would not be too deep. The soil should be made firm after the cuttings are inserted. I prefer rather small cuttings to large ones. *J. Treloar, Trevanno Gardens, Helston, Cornwall.*

The Hibernation of Wasps.—No, *Market Grower*, it is not a fact that the vast majority of the wasps taken in the spring are "drones that have been in hibernation." Only in a very exceptionally mild and open autumn and winter could drones survive until the spring. In the ordinary course, all the drones and workers perish in the autumn and only the fertile queens survive the winter. The wasp supply in any year depends on three factors: (1) The number of queens surviving the many dangers of hibernation; (2) the character of the weather in March and April when they are awakening from their winter torpidity; and (3) the general character of the weather during the summer. If all these are favourable, it will

be a good wasp year, but if any one of them is unfavourable, the chances are that wasps will be scarce, or, at any rate, not abundant during the season. *C. Nicholson.*

Wasps' Nests.—Mr. Geo. Bayliss asks, in *The Gardeners' Chronicle* of September 30, if any of your readers have exceeded the record of 75 wasps' nests this season. We have exceeded his figures by a large margin. Up to August 10, our bothy staff obtained 160 wasps' nests for exhibition at the Madresfield Horticultural show; up to date (October 9) the total number of nests taken is 178, in addition to three hornets' nests. All these were taken within a mile radius of Madresfield gardens. We usually have a plague of wasps here in a good Plum season; there seem to be several different kinds, but though their distinctive names are unknown to us, we are able to state from experience that they all have stings! *R. Summers (Foreman), Madresfield Court Gardens.*

The Cult of the Bonfire.—Whether it is due to a disposition for tidiness or a craving for destruction inherent in mankind, it is difficult to say, but the fall of the leaf and the ingathering of autumn crops appear to be signals for the creation of innumerable bonfires throughout the kingdom. One of the greatest problems that horticulture has to face is the supply of organic manures, and with the growing substitution of machinery for animal power this problem becomes more acute; yet the habit of disposing of vegetable refuse by burning seems to be ingrained in gardeners, and few realise how seriously the potentialities of soil fertility are affected by this destruction. During the past year I have collected sufficient vegetable refuse to make 200 loads of manure for the supply of these gardens. This manure has been used for almost every kind of crop, and the results are in every way satisfactory. If anyone is sceptical, a visit to these gardens to see the system in practice should prove convincing, and a heap of manure now lying ready for use made from last year's Rose-prunings should prove additionally interesting. *W. Auton, Pyrford Court Gardens, Woking.*

Acclimatisation (see pp. 224-225).—After reading the concluding paragraph in the article on "Acclimatisation," we must admit that but little progress has been made in evolving frost-resisting races of certain garden plants—for example, Kidney Beans, Potatoes, Dahlias. The Kidney Bean is mentioned in the article, and certainly it would appear to be as tender now as it was when Sir J. D. Hooker reviewed the *Origin of Species* in *The Gardeners' Chronicle* sixty-three years ago. This year, in these gardens, Kidney Beans were cut by frost on September 9, before a single pod had been pulled. Of Potatoes, Epicure, while not completely frost-resisting, is a variety which very quickly recovers from frost-bite and grows away again, little the worse. This is one of the reasons why this variety is so extensively planted for early lifting on the Ayrshire littoral. And because of this, and not for quality, it comes out near the top in Mr. Cuthbertson's Scottish Potato acreage, published in your columns some little time ago. *Fred W. Jeffery, Dalserf, N.B.*

Carnations for the Garden (see p. 155).—Mr. W. J. Farmer will probably find what he requires among the perpetual-flowering Border Carnations. I send blooms gathered from plants that were raised from cuttings in 1921, the cuttings in turn being taken from seedlings that were raised in 1920. The plants make erect growth up to 30 inches tall; they are free-flowering, and will bloom until frost stops them. A few of last autumn's flower buds withstood the winter and expanded early this season. *D. S. Fleming, 44, Maples Street, Nottingham.*

A New Grape.—The Grape exhibited by Mr. W. Butcher at the meeting of the R.H.S., on October 17, will, if new, prove especially valuable for amateurs with cool conservatories and green-houses. The definite statement was made that it was raised from a pip of a white variety, so that it is scarcely possible that it is a Grape already in cultivation. *G.*

SOCIETIES.

ASSOCIATION OF ECONOMIC BIOLOGISTS.

PROFESSOR E. B. POULTON, F.R.S., the President, took the chair at a meeting of the Association of Economic Biologists, held in the Imperial College of Science, on Friday, October 13, 1922. A discussion on "Virus Diseases" was opened by Dr. E. J. Butler, Director of the Imperial Bureau of Mycology, who spoke on "Virus Diseases in Plants," and by Dr. J. A. Arkwright, of the Lister Institute of Preventive Medicine, who spoke on "Virus Diseases in Animals and Man." In both animal and plant pathology diseases, due to filterable viruses, enzymes, ultramicroscopic organisms, or whatever the causal agents may be, are assuming greater and greater importance, and many of these maladies are among the most insidious and destructive known. Among diseases of plants, the following may perhaps be mentioned: All the diseases known as "mosaic," which are found in Potatoes, Tobacco, Tomato, Cucumber, Sugar-cane, Mangolds, and a great variety of cultivated and wild plants; Peach yellows, degeneration of Potatoes, Potato leaf roll, and many other obscure troubles. Animal and human virus diseases include typhus, foot and mouth disease, pleuro-pneumonia of cattle, infectious anaemia of horses, fowl-pox, vaccinia, rabies, etc. During the past decade, a great deal of attention has been focussed upon these diseases, and much is now known of their symptoms and the physical and biological properties of the causal agents. Thus, no virus disease of plants is transmissible apparently through an unbroken skin. In certain cases, the grafting or budding of a diseased portion upon a healthy stock is necessary for the transference of the disease, others must be carried by certain insects, whereas, in a third group, the expressed juice of diseased plants, even diluted to one in ten thousand, and lightly rubbed on young leaves, is sufficient to transmit the disease. Furthermore, the whole problem is complicated by the fact that plants may contain the disease-causing virus in quantity and act as a centre of infection without themselves suffering in any way. One of the most important observations of recent years, if confirmed, is that on the obligatory incubation period of the virus of curly top of Sugar Beet in the body of *Entettix tenella*. A disease-causing agent with a life cycle, one moiety of which is spent in the host plant and the other in an insect, would be something entirely new in plant pathology, and throw open to investigation a very wide territory indeed. In one or two cases, such as Bean Mosaic, and very rarely in Mosaic of Cucumber, the virus is carried in the seed, whilst in the quercina disease of Thorn Apple, it is passed by the pollen. There is no evidence that any virus exists in the soil or has a life apart from the plant.

There has in the past been considerable, if somewhat sterile, discussion as to the actual nature of the virus, whether it is a kind of self-augmenting ferment or a definite organism too small to be seen under the microscope, the balance of opinion leaning to the latter view. Many years ago, Iwanowski described bacteria-like bodies in mosaic tissues, and within the last year three observers have described bodies of various kinds in Maize and Tobacco suffering from mosaic disease. Mr. Kenneth Smith, of Manchester University, has also found what may be an organism in the tissues of Potato plants suffering from leaf curl, and demonstrated it to this meeting. Taking a wide view of the whole subject of virus diseases in plants, one cannot help but feel that extremely difficult, and at times almost disheartening, as these investigations are, great progress has already been made, and that we are on the eve of a much fuller understanding of this vastly important, and hitherto very obscure, group of diseases.

In his paper on "Virus Diseases in Animals and Man," Dr. Arkwright briefly reviewed the chief points of interest common to plant and animal virus diseases, and then considered the causal relationships of the principal diseases coming within the sphere of the discussion. The

physical and biological properties of the viruses were discussed, and the interpretation of certain of the viruses considered on the analogy of Twort's lytic substance and the bacteriophage of d'Herelle. In the discussion which followed, Dr. Jackson Clarke described his observations and experiments on the causal organisms of molluscum tumours, and Mr. Kenneth Smith and Dr. W. F. Bewley their work on virus diseases of Potatoes and of Tomatoes respectively.

BRITISH MYCOLOGICAL

THE twenty-sixth autumn foray and annual meeting of the British Mycological Society was held at Keswick, September 15th-21st. Over sixty members and friends were present.

The first day's outing was to Thirlmere. Fisher Crag and Great How were explored in what was described as Lake District weather. The woods were much too rocky for good hunting, but several interesting species were found:—*Synchytrium Taraxaci*, *Leotia lubrica*, *Taphrina aurea*, *Gymnosporangium clavariaeforme*, *G. Juniperi*, *Coleosporium Melampyri*, *Thecopsis Vacciniorum*, *Lactarius uvidus*, *Entoloma griseocyanum*, *Cortinarius saturninus* and *Dictyolus muscigena*.

In the evening the annual meeting was held. Professor O. V. Darbishire, of Bristol, was elected President, Mr. W. N. Cheeseman Vice-President and Dame Helen Gwynne-Vaughan and Mr. Somerville Hastings members of the Council. The remaining officers of the Society were re-elected. Mr. J. Ramsbottom was appointed delegate to the British Association at Liverpool next year. The Spring Foray was fixed for Bristol, but the locality of the Autumn Foray was left for the Council to arrange. Other matters decided during the meeting were the drawing-up of a list of popular names for plant diseases, and the arrangement of a day's phytopathological excursion on the recommendation of the sub-committee for plant pathology; and the purchase of systematic works, and one or more microscopes for use at the forays on the recommendations of the library committee. Sunday morning was free.

In the afternoon the Pine woods on Latrigg were worked and gave several interesting additions, including *Tricholoma leucocephalum*, *T. psammodus*, *Pholiota flammula*, *Galera mycenopsis*, *Inocybe cerviculus*, *I. Godeyi* and *Exidia nucleata*. On Monday the members drove to Lodore and then split into sections, some working through Barrow Wood to Great Wood, others working Borrowdale and the remainder coming back round the other side of Derwentwater through Manistey Park and Brandlehow and on to Portinscale. The main additions were *Trichoglossum hirsutum*, *Elaphomyces granulatus*, *Xenodochus carbonarius*, *Milesina Blechni*, *Hygrophorus obrussus*, *Pluteus nanus*, *Flammula rubicundula*, *F. scamba*, *F. gummosa*, *Inocybe proximella*, *I. calamistrata*, *Cortinarius armillatus*, *C. bolaris*, *Boletus rugosus*, *Clavaria fumosus* and *Lycoperdon umbrinum*.

In the evening Mr. F. T. Brooks gave a stimulating presidential address on "Some present-day aspects of mycology." In it he discussed the origin and phylogeny of the fungi, maintaining their derivation from protist organisms without direct relationship with the algae and emphasising their development upon novel lines as an entirely separate and characteristic group of plants. Arguments were advanced against the ideas commonly held that the fungi are phylogenetically related to the green and red algae, or that they have been evolved from trans migrant seaweeds in ancient times. A monophyletic origin of the fungi was favoured, and the interrelationships of the constituent groups were discussed.

The relation of mycology to plant pathology was considered, a matter of considerable importance seeing that most plant diseases are caused by fungi. The need of a broad outlook, both physiological and morphological, upon the fungi was stressed, and an appeal was made for closer co-operation in future between systematic mycologists and plant pathologists. Attention was called to the inadequacy of the diagnosis of certain genera and species of pathological importance, and to the great influence

of environmental conditions upon the growth of all kinds of fungal organisms.

Finally, the training of mycologists and plant pathologists was discussed. The view was held that the mycologist or plant pathologist must be essentially a botanist with the necessary training in chemistry and physics. For the plant pathologist a sense of crop values and of the important phases in the growth of crops should be inculcated. Any tendency, however, to divorce mycology and plant pathology from botany was, in his opinion, a profound mistake, and should be resisted to the uttermost.

On Tuesday, Bassenthwaite Woods were worked—again in Lake District weather. Interesting additions to the list of fungi were:—*Leotia chlorocephala*, *Cordyceps ophioglossoides*, *C. militaris*, *Milesina Dieteliana*, *Russula nitida*, *Hygrophorus turundus*, *Plеurotus mitis*, *Psalliota haemorrhoidaria* and *Aleurodiscus amorphus*. In the evening Mr. Somerville Hastings gave a short account of certain observations he had made in the Alps on the growth forms of *Anellaria separata* occurring on old pads before the cows were taken up. The lantern slides showed the fungi to have large caps and very short stems. It was suggested that the characters shown were adaptational and could be compared with those exhibited by Alpine-flowering plants.

Professor A. H. R. Buller followed with a paper on "Luminosity in *Panus*," in which he described the results of his investigations upon *Panus stypticus*, which occurs both in Europe and in North America. There are about thirty species of luminous bacteria and about twenty luminous fungi known. The commonest of the latter is the common *Armillaria mellea*, of which the mycelium emits light, and is the principal agent causing the luminosity of touch-wood. In the American form of *Panus stypticus* the mycelium and fruit body are both luminous. Photographs were exhibited made with the fungus light, and an apparatus was described which permits of the turning off and on of the light instantaneously by controlling the supply of oxygen. Fruit bodies give out light at, and even just below, the freezing point of water. Mycelium grown on blocks of Birch wood remained luminous for six months. The fact was mentioned that many rotting leaves are known to emit light, and the following evening a dark seance was held and rotting Oak leaves were seen giving out a faint glow.

The last day of the foray was spent at Whythop Woods, and the following species were added to the lists:—*Spathularia flavida*, *Helvella crispa*, *Cheilymenia dalmeniensis*, *Russula fragilis* var. *fallax*, *Inocybe praetervisa*, *Cortinarius uraceus*, *C. myrtilinus*, *C. largus*, *Radulum mucidum*, *Ecchyna faginea*. Other interesting species found by members in the Keswick district were *Hypomyces atroviridis*, *Microglossum viride*, *Amanitopsis adnata*, *Lactarius spinulosus*, *Boletus calopus* and *Nidularia confluens*.

On Wednesday evening Miss E. M. Wakefield gave a general account of observations she had made during six months spent in the Lesser Antilles and Trinidad. The paper aimed at giving a brief general sketch of the fungus flora of these islands, using its characteristics to illustrate the distribution of fungi as affected by climate and the differences between tropical and temperate fungus-floras in general.

Dr. J. C. Walker, of the Bureau of Plant Industry, U.S.A., was invited to give a short address and described the distribution in the States of *Phoma Lingam* and *Urocystis cupulae* and how they are dependent upon climatic factors—rain in the case of the former and heat in the latter. It is of interest to plant pathologists in this country to learn how such natural barriers come into play in immense tracts of country.

Mr. Carleton Rea read an interesting and amusing paper on *Edible Fungi*. In it he commented on about one hundred species of the larger kinds—a valuable list but far too lengthy to enumerate here. It is not so necessary for a mycophagist to discriminate nearly related species as it is for a systematist, but he should be well within the limits of variability. A fungus should not only be edible, but should be palatable. It was recommended that all edible

fungi should be cooked in an earthen casserole, having a lid, with a plentiful supply of butter, margarine or other fats and the addition of salt and pepper. To appreciate thoroughly the distinctive flavour of each species they should be cooked separately; the lid will retain the aroma in the food. The length of time necessary for the cooking of different species varies from ten to fifteen minutes for *Amanitopsis vaginata* to over five hours for *Marasmius oreades*; a little experience enables one to judge the approximate time that should be allowed for each species. In practice it is often quite impossible to restrict the trial to one species, and it is then advisable to deal with nearly related forms. *Marasmius oreades*, although excellent, is best dried and reserved for winter use or as a flavouring for soup.

Before *Boletus* spp. are cooked the tubes should be removed. In the case of viscid species it is advisable also to remove the pellicle of the cap. The stems are just as good as the cap if cut in thin transverse slices. *Fistulina hepatica* is best cut up and placed in vinegar much in the same way as Beetroot. *Hydnum repandum* and *Cantharellus cibarius* should be sliced before cooking, and are greatly improved by being soaked for a time in milk. *Clavaria* spp. should only be eaten when in a fresh, growing condition—when dried by wind or sun they are leathery and tough. *Lycoperdon* spp. should be gathered only when the flesh is quite white inside. The skin and sterile bases should be removed and the flesh cut into slices about one quarter of an inch thick. All species of *Morchella* and *Helvella* are delicious, and their flavour is improved and their flesh made more tender if they are cooked in good stock; they can then be served on toast—the liquid being rejected, as it would contain an irritant acid.

The last paper of the meeting was a very brief account by Professor M. C. Potter of preliminary experiments made with the object of testing whether the acidity or alkalinity of the soil had any influence upon the prevalence of wart disease in Potato. The results obtained appear to indicate that if the soil is rendered sufficiently alkaline (approximately Ph. 10.5) wart disease does not develop. Incidentally it may be remarked that soil alkalinity while preventing wart disease has a tendency to diminish the crop.

The foray was a great success. Although from a collecting point of view the quantities of individual species did not reach those of the best years, there was an exceedingly good number found, many of which were quite rare. The present season appears to have been at its best about August; the decrease in numbers towards what is usually considered the most prolific period seems to be analogous to the "flush" in Mushroom growing. A remarkable fact is the large numbers of *Cordyceps militaris* seen in some parts (e.g., Keswick), and in many others the great abundance of species of *Helvella*.

ROYAL CALEDONIAN HORTICULTURAL.

OCTOBER 3.—The ordinary monthly meeting of this Society was held at 5, St. Andrew Square, Edinburgh, on this date, Mr. W. J. Thomson, vice-president, in the chair.

A paper on "Exotic Plants," by the late Mr. Osgood H. Mackenzie, of Tournai, Poolewe, West Ross-shire, in which the remarkable mildness of the climate in that part of Scotland was amply demonstrated by the record of large specimens of introduced plants, which in the eastern parts of the country are only cultivated under glass, but flower profusely, and in most cases fruit, annually in that district, was read by the secretary. The late Mr. Mackenzie was an enthusiastic cultivator of these plants, and the results he obtained were, in many instances, remarkable.

Among the largest were the *Eucalypti*, of which some 50 to 60 specimens were grown, the oldest (25 years) being about six feet in circumference near the base. *E. coccifera* and *E. unguis* formed almost perfectly cylindrical boles three feet in girth and about 35 feet high, and Mr. Mackenzie considered that, for such purposes as pit timber, they could be grown

more profitably than either Japanese Larch or Sitka Spruce. The most interesting species were *E. coccifera* Gunnii, *urnigera*, *cordata*, *Muelleri* and *vernica*, all of which were laden with seed annually. Besides the *Rhododendrons*, which were the special feature of the place, such plants as *Pieris formosa*, *Hydrangea Sargentiana*, *Myrtus Luma*, *Azara Gillesii*, *A. micropphylla*, *Griselinia littoralis*, *G. lucida*, *Leptospermum Nicholii*, *Olearia insignis*, *O. semidentata*, *Abutilon vitifolium*, *Embothrium coccineum*, *Magnolia conspicua* (Yulan), *M. Kobus*, *M. Lennei*, *M. Soulangeana*, *M. stellata*, *M. parviflora*, *M. Watsonii*, *Plagianthus Lyallii*, *Eucyphia pinnatifolia*, *Aristotelia racemosa*, *Diunys Winteri*, *D. aromatica*, *Tricuspidaria lanceolata*, *Calceolaria violacea*, *Beschorneria yuccoides*, *Guevina Avellana*, and *Eryngium pandanifolium*, all of which succeeded admirably, most of them flowering and fruiting profusely. *Cordylina australis* and *Trachycarpus excelsa* were as hardy as the Scots Pine, and others which grew vigorously were the new Chinese Willow, *Salix magnifica*, *Populus lasiocarpa*, *Podocarpus Totara*, *Cornus capitata*, *C. Kousa*, *Arundinarias*, especially *A. anceps* and *A. nitida*, and the Tree Ferns (*Dicksonia*).

The exhibits were:—From Messrs. DOBBIE AND CO., LTD., Edinburgh, *Antirrhinum* (awarded a Cultural Certificate), and *Marigolds* (awarded a Cultural Certificate); from Mr. ROBERT FIFE, Duddingston, Apples James Grieve and Rev. W. Wilks; from Mr. A. McLEOD, Yester, Seedling Dahlia; from Mr. A. INNES, Dean Cemetery, Edinburgh, Apples and Carrots; from Mr. D. THORBURN, Airdrie, Seedling Potato; from Mr. HAL JONES, Letchworth, Apple The Mc'Coy; from Mr. R. CATHIE, Pilrig House, Edinburgh, Siberian Crabs; from Mr. J. CAMERON, Auchterarder, Plums.

ROYAL HORTICULTURAL.

TRIAL OF DAHLIAS AT WISLEY.

The following awards have been made to Dahlias by the Council of the Royal Horticultural Society after trial at Wisley. The Dahlia trials at Wisley were judged by the Joint Dahlia Committee, consisting of members of the R.H.S. Floral Committee and the National Dahlia Society.

CLASS 1.—FLOWERS SINGLE.

Award of Merit.—No. 2, *Clematis*, and No. 4, *Bishop Crossley*, both sent by Messrs. TRESSEDER.

Highly Commended.—No. 8, *Mamie*, sent by Messrs. J. CHEAL AND SONS; and No. 72, *Amy Barrillet*, sent by Mr. BOWLES.

CLASS 2.—MIGNON SINGLE.

Award of Merit.—No. 9, *Albion*, and No. 12, *Janet*, both sent by Messrs. J. CHEAL AND SONS.

Highly Commended.—No. 11, *Kathleen*, sent by Messrs. J. CHEAL AND SONS; No. 14, *Coltress Gem*, sent by Mr. PURDIE; and No. 13, *Mincio*, sent by Messrs. J. CHEAL AND SONS.

CLASS 3.—COLLERETTE.

Award of Merit.—No. 24, *Rona*, No. 26, *Linnet*, and No. 27, *Tuskar*, all sent by Messrs. DOBBIE AND CO.; No. 30, *Lolah*, sent by Messrs. J. BURRELL AND CO.; and No. 34, *Scarlet Queen*, sent by Messrs. DOBBIE AND CO.

Highly Commended.—No. 22, *Tiger*, sent by Messrs. DOBBIE AND CO.

CLASS 4.—ANEMONE-FLOWERED.

Highly Commended.—No. 18, *M. C. H. Dupont*, sent by Messrs. J. CHEAL AND SONS.

CLASS 5.—PAEONY-FLOWERED.

Award of Merit.—No. 41, *Aphrodite*, from Mr. CHARLES TURNER; No. 43, *Faithful*, No. 49, *Enchantress*, No. 51, *Scarlet King*, and No. 78, *Psyche*, all from Messrs. J. BURRELL AND CO.

Highly Commended.—No. 53, *Nelson's Xarifa*, from Mr. R. H. BATT; No. 99, *Vesuvius*, sent by Messrs. VELTHUYS; No. 145, *Extase*, sent by Mr. HORNVELD; and No. 88, *The Rose*, sent by Messrs. VELTHUYS.

CLASS 6.—SMALL-FLOWERED PAEONY.

Highly Commended.—No. 65, *Trixie*, and No.

66, *Norah Dell*, both sent by Messrs. J. BURRELL AND CO.

CLASS 6.—DECORATIVE.

Award of Merit.—No. 80, *Mrs. Courtney Page*, from Messrs. J. BURRELL AND CO.; No. 87, *Salmonia*, sent by Messrs. VELTHUYS; and No. 90, *Hanny van Waveren*, sent by Messrs. VAN WEVEREN.

CLASS 9.—SMALL-FLOWERED DECORATIVE.

Award of Merit.—No. 105, *Aglais*, and No. 104, *Vida*, both from Messrs. J. BURRELL AND CO.

Highly Commended.—No. 152, *Marianne*, from Messrs. DOBBIE AND CO.

CLASS 11.—CAMELLIA-FLOWERED.

Award of Merit.—No. 102, *Fedora*, and No. 106, *Mrs. F. J. Sage*, both sent by Messrs. J. BURRELL AND CO.

Highly Commended.—No. 94, *Artis*, sent by Messrs. TOPSVOORT.

CLASS 12.—SHOW.

Award of Merit.—No. 116, *Dorcen*, sent by Messrs. J. CHEAL AND SONS.

CLASS 14.—STAR.

Highly Commended.—No. 61, *Seafield*, sent by Messrs. DOBBIE AND CO.; and 137, *Reigate Star*, sent by Messrs. J. CHEAL AND SONS.

CLASS 16.—DWARF CACTUS.

Highly Commended.—No. 153, *Reg*, sent by Mr. W. TRESEDER.

TRIAL OF STOCKS (OUTDOOR) AT WISLEY.

The following awards have been made to Stocks (outdoor) by the Council of the Royal Horticultural Society after trial at Wisley:—

Award of Merit.—No. 4, *Bianca Beauty*, and No. 18, *Mammoth Pyramidal White* (Ten Week), sent by Messrs. HURST AND SON, and considered identical; No. 11, *Pure White* (Ten Week), from the WALLER SEED CO.; No. 17, *White* (Ten Week), from Messrs. HEINEMANN; No. 21, *All the Year Round*, from Mr. S. MORTIMER, and No. 24, *East Lothian White Wallflower-leaved*, from Messrs. FORBES—these two were considered identical; No. 30, *Canary Yellow* (Ten Week), from Messrs. HEINEMANN; No. 31, *Canary Yellow* (Perpetual Branching), from the WALLER SEED CO.; No. 33, *Mammoth Pyramidal Yellow* (Ten Week), from Messrs. HURST; No. 45, *Flesh* (Ten Week), from the WALLER SEED CO.; No. 54, *Mammoth Pyramidal Salmon Rose* (Ten Week), from Messrs. HURST, and Nos. 55, 56, *Heatham Beauty* (Ten Week), from Messrs. BARR AND SONS and Messrs. WATKINS AND SIMPSON.—Nos. 54, 55, and 56 were considered identical; No. 64, *Rose* (Perpetual Branching), from the WALLER SEED CO.; No. 76, *Rose of Nice* (Beauty), from Messrs. HURST; Nos. 81, 82, *John Bright* (Ten Week), from Messrs. DICKSON AND ROBINSON, and Mr. DICKS; No. 97, *Blood-Red* (Ten Week), from Messrs. HEINEMANN; No. 100, *Mammoth Pyramidal Blood-Red* (Ten Week), from Messrs. HURST; No. 124, *Light Blue* (Ten Week), from Messrs. WATKINS AND SIMPSON, and 132, *Light Violet* (Beauty), from Messrs. HURST—Nos. 124 and 132 were considered identical; No. 117, *Silvery Lilac*, from the WALLER SEED CO.

Highly Commended.—No. 10, *Snowdrift* (Ten Week), from Messrs. WATKINS AND SIMPSON; No. 58, *Bright Pink* (Ten Week), from the WALLER SEED CO.; No. 60, *Giant Perfection Rose* (Ten Week), from Messrs. TOOGOOD; No. 66, *Brilliant Rose* (Ten Week), from the WALLER SEED CO.; No. 83, *La Brilliant* (Beauty), from Messrs. HURST; No. 123, *Light Blue* (Ten Week), from Messrs. HEINEMANN; and No. 145, *Summer Night* (Ten Week), from Messrs. WATKINS AND SIMPSON.

TRIAL OF LATE CULINARY PEAS AT WISLEY.

The following awards have been made by the Council of the Royal Horticultural Society to Late Culinary Peas after trial at Wisley.

FIRST-CLASS CERTIFICATE.

No. 131, *Ne Plus Ultra*, reselected, sent by Messrs. J. CARTER AND CO.

AWARD OF MERIT.

Nos. 67, 68, 69, 72, 73, and 74, *Autocrat*, sent by Messrs. DOBBIE AND CO., Messrs. TOOGOOD, Messrs. BARR AND SON, Messrs. WATKINS AND SIMPSON, Messrs. W. NUTTING AND SON, and Messrs. J. CARTER AND CO. No. 82, *Freedom*, sent by Messrs. HURST AND SON.

HIGHLY COMMENDED.

No. 4, *Glory*, and No. 10, *Perfection*, both sent by Mr. UNWIN; No. 14, *Passport*, sent by Messrs. HURST AND SON; No. 66, *Queen*, reselected, sent by Messrs. SHARPE; No. 77, *Glory of Devon*, sent by Messrs. R. VEITCH AND SON; No. 97, *Wm. Richardson*, and No. 106, *Alliance*, both sent by Messrs. J. KELWAY AND SON; No. 140, *Goliath* or *Improved Mammoth Sugar*, sent by Messrs. ZWAAN AND DE WILJES.

COMMENDED.

No. 7, *Dwarf Giant*, No. 9, *Renown*, and No. 17, *Conquest*, all sent by Mr. UNWIN; No. 40, *Michaelmas*, sent by Messrs. J. CARTER AND CO.; No. 48, *Captain Cuttle*, sent by Messrs. J. R. PEARSON AND SONS; No. 59, *Matchless Improved*, sent by Messrs. HURST AND SON; No. 127, *Alderman Selected*, sent by Messrs. DOBBIE AND CO.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

The monthly meeting of this Society was held in the R.H.S. Hall, on Monday, October 9, Mr. W. H. DIVERS presiding. Three new members were elected, and two members withdrew interest amounting to £7 3s. 2d., while two other members withdrew £27 from their deposit accounts. The sick pay for the month on the ordinary side amounted to £40 6s. 1d., and on the State side to £49 19s.; maternity benefits came to £2. Mr. H. Prince, of Polesden Lacey, was co-opted a member of the Committee in the place of Mr. A. Turner, recently resigned.

NATIONAL CHRYSANTHEMUM.

The Floral Committee met at the Royal Horticultural Hall on October 16. There was a good attendance, but only one award was made. Baron SCHRODER was an exhibitor, and his old-bronze variety named *Luna* attracted attention. From the Bridgewater Nurseries came two single varieties: the one named *Unique*, golden bronze, was very good.

The next meeting of the Floral Committee will be held at the Royal Horticultural Hall, Westminster, at 3.15 p.m., on Monday, October 30.

FIRST-CLASS CERTIFICATE.

Viscount Chinda.—A large, loosely incurving, broad-petalled variety of a pleasing golden-yellow shade of colour. This variety has been shown on several previous occasions, but never so finely as on this. Shown by Messrs. W. WELLS AND CO., Merstham.

BARNET AND DISTRICT.

THE Barnet and District Allotment Holders' Association held its 4th Annual Show in the Pennefather Hall, Barnet, and the exhibits in all classes were extremely good. A Challenge Cup was offered by Mr. W. Mather, and valuable prizes by Mr. Cutbush, for the best collection of vegetables (nine kinds), and the competition in this class was unusually keen; there were four entries, and each exhibit showed a high standard of excellence. The Cup was won by Mr. NEARY, and as this is the third time he has won it, it now becomes his property; Mr. JACKMAN ran him very close, and Mr. P. H. BARRETT was 3rd. There were prizes for children under 10 years, and from 10 to 16 years for wild flowers, and a drawing competition for those under 16 years: (1) A pen and ink sketch (any subject), and (2) a water colour drawing of Roses. Honorary exhibits were limited on account of space, and the committee regretted they had not more space at their disposal.

TRADE NOTES.

THE King's Root Crop Trophy, offered for the best root crops of 1922, has been won by Mr. Robt. E. Purser, Sutton Farm, Langley, Bucks, whose produce was from seeds grown and supplied by Messrs. Toogood and Sons, Southampton.

A meeting of the Council of the Chamber of Horticulture was held on the 18th inst., at 18, Bedford Square, W.C.1, the President, Mr. G. W. Leak, being in the chair.

Mr. P. F. Bunyard again raised the question as to the agitation which is on foot to stop the sale of poisonous weed killers by seedsmen and sundriesmen. This matter is engaging the close attention of the Horticultural Trades' Association, report of which will be made to the Chamber in due course.

The Secretary submitted his report, which dealt, amongst other things, with the following matters:—

The adjourned conference with affiliated associations took place on September 27, Mr. W. G. Lobjoit presiding, when the report of the committee appointed at the conference of March 29 last was presented, stating, that by reason of that committee as assembled holding practically only one view, it would be futile to propose any new constitution in accordance with the terms of reference given to the Committee. Further, the committee recommended the advisability of a round-table conference of all parties concerned. After discussion, it was unanimously agreed that the report be received and the committee discharged.

The Conference also unanimously agreed "That the whole question of organised horticulture be referred to a committee to report to an adjourned conference." This new committee is to consist of five members of the Chamber, three of the Federation of British Growers, and two of the Horticultural Trades' Association, the meeting to take place at the Ministry of Agriculture on October 20.

Representatives of the railway companies and traders are meeting and discussing in detail all objections to the companies' proposals, with a view to arriving at agreement on as many points as possible and so lessening the number of objections to be heard by the Railway Rates Tribunal.

The railway companies have recently notified the Chamber that they agree to carry, as from November 1, 1922, non-poisonous and non-inflammable insecticides by passenger train, as enumerated by the members of the Chamber's Insecticides Committee, provided the same are packed in accordance with a specification submitted, no consignment containing more than 112 lb. of insecticide.

The re-classification of nicotine is under consideration, and a decision promised within a few days, which is anticipated to be favourable.

Application was made through the Tribunal for a further reduction in the new classification for plants and shrubs in 30 cwt. lots. The Railway Clearing House have since notified the Tribunal that the request has received very careful consideration, but that the companies cannot agree to any further reduction. The Chamber's sub-committee will reconsider this matter with a view to stating a case before the Tribunal.

Mr. Brunton referred to the point raised from time to time by commercial associations as to the admittance of non-trading societies' representatives to the Council, and suggested that the difficulty might be overcome by such representatives being actual traders and attendance requisitioned only when matters concerning these bodies were down for discussion.

A letter was read from the Ministry of Agriculture, stating that following representations to the French Government as to the heavy duty imposed on British cut flowers into France, the Ministry is informed that as the duty was only imposed as recently as April, 1922, the question of its revision cannot be considered at the present time, but that the representations put forward on behalf of British interests will be borne in mind when

review is possible. It was resolved that the matter be referred to the British Florists' Federation, to prepare a case for presentation by the Chamber.

The question of railway charges and horticultural produce was adjourned from the last meeting, and the Secretary explained that a deputation from the National Federation of Fruit and Potato Trades' Associations, the National Farmers' Union, and the Federation of British Growers, was shortly interviewing the companies as to charges for vegetables.

ANSWERS TO CORRESPONDENTS.

CLEARING A POND OF WEEDS: *G. A. S.* Only the lower orders of plants can be destroyed by copper sulphate in a pond, in quantity that would not be harmful to other vegetation. Running water soon cleans itself, but if much copper sulphate were used it would get deposited to a greater or less extent upon the vegetation in its passage, and that would make it dangerous for horses and cattle still being pastured there. It would be possible to kill weeds by means of common or agricultural salt, which is not poisonous; but it is doubtful even if that would kill the roots, because many of the common water weeds can live in water that is quite brackish. A good depth of water limits the variety and number of weeds. Shallow water and plenty of mud increases both number and variety. Few plants, except Water Lilies, can come up from a depth of four or five feet, so it might be possible for you to deepen the water. Floating weeds get blown to the sides wherever the pond is exposed to gales, and can be cleared out. If none of these suggestions apply, the pond could be run dry and the mud wheeled out, and that alone would remove most of the weeds growing in the bottom. If the springs are strong there will be deep pools, but in such cases there are usually no weeds in them, on account of the shifting sand or gravel. By running out the water now the whole winter would be available for clearing the pond, even if Water Lilies are grown in it. They would be quite safe covered with a few spadefuls of mud.

FASCINATION OF AGAPANTHUS UMBELLATUS: *W. H. St. Quintin.* We presume the portion sent is a branch from the scape of the main umbel of flowers. In that case it is clearly a case of fasciation, or union of two scapes. The several flowers from the side of this secondary scape are part of its umbel of flowers. The first branch carrying three or four flowers carries three inner bracts at its base, so that the two primary ones forming the involucre of the umbel were most likely to be found at the base of the umbel, which was not sent. The two flowers carried higher up the scape were part of the same umbel, and had a tiny third flower at their base, together with the inner bracts, in the axils of which they grew. The uppermost of these three flowers was the most interesting, because one side of it got carried up the scape for an inch higher than its growing point, which was thus reversed on the axis. The larger of the two coloured flowers was in its natural, erect position; but the smaller one, as well as the embryo flower, appeared growing towards the base of the scape, owing to the above unequal-sided growth. It might be suggested that all these scattered flowers were the umbel of a third small scape, but the absence of the two large involucral bracts does not support that idea.

GARDENERS' NOTICE TO LEAVE: *Constant Reader.*

1. You must accept a month's notice from the day when it was given, irrespective of the time. A notice for less than a month would be bad and a new notice must be given. 2. An employer cannot be compelled to give a reference, but if he gives one it must be honestly given without malice; otherwise the servant can claim damages if he can prove the libel. Your difficulty would be that you cannot compel your present employer to disclose the source of his information.

GREENGAGE-TREE PRODUCING SMALL RED PLUMS: *J. R. B.* The small red Plums have doubtless been produced on a shoot arising from the stock below the union with the scion.

GRAPES FAILING TO COLOUR: *J. T. W.* The trouble is due to shanking, which is generally due to an unsatisfactory condition at the roots. Seeing that the border is an outside one on which you are cultivating crops of other things, it is probable that the upper surface is very impoverished and the roots have grown into the cold, wet sub-soil. Later in the autumn, when the vines are defoliated, make an examination of the border, and if the conditions are such as we suspect, endeavour to bring the roots nearer to the surface by lifting them and planting them in a suitable compost for vines. It may also be necessary to provide drainage.

GRUBS IN SOIL: *C. F. G.* The grubs are the larvae of Cockchafters and not very easily got rid of, but hens penned on the border for a week or two in spring, when the border is beginning to get dry, might considerably lessen their numbers. If this is impossible, aim at the following conditions: (a) firm soil underneath, i.e., digging should be done early in the winter; (b) deep summer cultivation, i.e., a soil mulch of at least three inches should be obtained by surface cultivation. A heavy dressing of soot in early spring would be helpful.

NAMES OF FRUIT: *J. McC.* 1. Cox's Orange Pippin; 2. King of the Pippins; 3. Beurré Hardy; 4. not recognised; 5. James Grieve; 6. Le Lectier.

NAMES OF PLANTS: *A. N.* 1. *Berberis vulgaris* var. *purpurea*; 2 and 5, *B. subcaulialata*; 3 and 4, *B. polyantha*; 6, *B. pruinosa*; 7, *B. virescens*; 8, *B. aristata*; 9, *B. sinensis*; 10, *B. Lycium*; 11, *Ribes Diacantha*; 12, *Pyrus eleagrifolia*; 13, *Pyrus Ringo*; 14, missing; 15, *Rosa moschata* hybrid; 16, *Clematis ligusticifolia*.—*W. B.* We cannot undertake to name florists' flowers.—*A. S.* 1, *Staphylea colchica*; 2, *Berberis stenophylla*; 3, *Viburnum Tinus*; 4, *Pernettya mucronata*; 5, *Olearia Haastii*.—*E. B.* 1, *Cotoneaster frigida*; 2, *C. bullata*; 3, *C. horizontalis*; 4, *Simonsi*; 5, *C. bacillaris*; 6, *Begonia* President Carnot.

PEAR TREE SHOOTS ATTACKED BY FUNGUS: *T. G.* The Pear tree shoots show a very bad attack of the scab fungus, *Fusicladium pirinum*. All the young wood similarly attacked should be cut away and burnt. The fruits were badly bruised and soft-rot fungus (*Rhizopus*) had attacked them.

VIOLETS AND BEGONIAS: *Constant Reader.* Violet leaf spot is caused by the fungus *Ascochyta violae*. Very badly diseased plants should be burned, and fresh stock obtained from a new source, planting them in ground as far away from the old bed as convenient. The disease may be kept in check by spraying the plants with potassium sulphide at a strength of ½ oz. in two gallons of water. This specific turns white paint black, and should not be allowed to come in contact with painted woodwork. The rust on your Begonias is probably caused by a mite. Dip the plants in an insecticide, such as nicotine in solution.

YOUNG GARDENER AT KEW: *Amateur.* Many important positions in the gardening world are held by men who have been trained in the Royal Botanic Gardens, Kew, but it does not necessarily follow that you would be successful in obtaining a position as a lecturer in gardening after having completed a two years' course. Much would depend on your abilities and the advantages you took of the opportunities while serving as a young gardener. In addition to practical training at Kew, you would have the advantage of a course of lectures in sciences pertaining to gardening, such as botany and chemistry.

Communications Received.—*W. K.*—W. J. F.—W. J. B.—T. S.—W. J.—J. E. I.—H. H. R.—F. R.—Constant Reader—W. F. B.—J. H. F.—D. M. G.—W. S.—T. T. (thanks for 2s. for R.G.O.F. Box)—F. A. A.—G. V.—F. C.—Eusign—W. A.—E. D.

THE

Gardeners' Chronicle

No. 1871.—SATURDAY, NOV. 4, 1922.

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich. 46.9.

ACTUAL TEMPERATURE.—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, November 1, 10 a.m. Bar. 30.2; temp. 52°. Weather—Raining.

No more useful service to the natural history could be performed than that which the Hon. Geo. M. Thomson has undertaken* in tracing the history of the efforts made by Nature and by man to acclimatise new plants in a new land. It is a work of urgent importance, for with every passing year the records, never complete, grow fainter, and, also with the passage of years the foreign element of the New Zealand flora increases. Though the imported lean kine may not devour the native fat kine, they have in many cases, in establishing themselves firmly in the land of their adoption, dispossessed native plants. Thus, whereas Sir J. D. Hooker enumerates in his *Handbook to the New Zealand Flora*, written in 1864, one hundred and sixty-five species of introduced plants, Mr. Thomson's lists contain the names of over six hundred species which reproduce themselves by seed and appear to be naturalised in the islands. The isolation of New Zealand by over one thousand miles of sea from the nearest land-mass—Australia, its comparatively recent settlement by Europeans and the existence of records of attempts at acclimatisation (albeit far from complete) make it possible to do for New Zealand what is perhaps impossible for any other country, namely, to trace in some detail and with

some fidelity, the story of its colonisation by plants. The part played by Nature, though more obscure and extending over vastly greater periods of time, is indicated by the computation of the native New Zealand flora. According to Mr. Cheeseman, the flowering plants of New Zealand number 1,396 species, of which 1,069, of 76.6 per cent., are endemic. The non-endemic species, 327, consist as to 134 of species found also in Australia and Tasmania, 129 species common to New Zealand, Australia and also other countries, leaving only some 64 species of Antarctic, Polynesian or other origin. Thus, eighty per cent. of non-endemic forms are also found in Australia, and it is therefore to be inferred that Nature has bridged the oceanic gulf between the southern continent and the islands, and that winds, birds and other natural agencies have been the cosmic carriers, bringing, at long intervals and at much loss, yet nevertheless with ultimate certainty, the Australian contingent to New Zealand. As for man's part in introducing plants, it dates from long before Captain Cook's first voyage thither in 1769, for according to Maori tradition, Polynesian settlers reached New Zealand about eight hundred years ago, and the Polynesians were great cultivators. It is believed that the Hue Gourd (*Lagenaria vulgaris*) was introduced and cultivated by them at an early date and that they brought *Ipomoea Batatas* in the fourteenth century, from which period also may date *Colocasia antiquorum* and *Cordyline terminalis*. The modern history of plant introduction begins in 1772, when the French expedition under Marion du Fresne reached New Zealand. Crozet, who succeeded him "formed a garden on Montonaro Island in which I sowed the seed of all sorts of vegetables, stones and the pips of our fruit, Wheat, Millet, Maize, and in fact every variety of grain which I had brought from the Cape of Good Hope."

I planted stones and pips wherever I went in the plains, in the glens, on the slopes and even on the mountains." Captain Cook, on his second voyage in the "Resolution," 1773, also cleared ground and planted seeds, Cabbage, Onion and Leeks among others. Other later explorers did the like and so when the first settlement schemes were launched in 1839, a goodly number of plants had already been introduced, though how many had established themselves is not known. Between 1840 and 1850, settlers came apace, and the paucity of wild animals, the emptiness of the streams and, as it seemed to them, of wild flowers also, led them and those who came after them to make unsystematic attempts to introduce animals and plants of their native countryside. Of these many plants, the Primroses and Bluebells, Heather and Wood Violets failed, but the Briar Rose remains as a monument to their effort to clothe the New Zealand landscape with the wild flowers of Great Britain most pleasing to countrymen. The change which has taken place in the New Zealand flora is, however, due no less to the grazing by animals than to the introduction of foreign plants. Hence it is good to have Mr. Thomson's assurance that the total extinction of no species is to be attributed to this cause. Many, however, are becoming increasingly rare—*Pomaderris apetala*, as a consequence of goats' voraciousness, *Myosotidium nobile* browsed almost out of existence by cattle and pigs, *Marattia fraxinea* by the Maoris and also by pigs. Fires, also overstocking with sheep and rabbits have conspired to create a desert of thousands of acres in Central Otago which once supported heavy tussock grasses, but it is satisfactory to know that the land is being won back for vegetation by enclosure. In

the closely settled districts the introduced plants dominate over native plants and change the aspect of the land; but in the wilder districts the endemic plants maintain themselves, though they may be often hard pressed. The danger of extinction becomes less as the distinguished band of New Zealand botanists come to have greater weight with authority:

Test of Fruits for Commercial Purposes.—We are glad to learn that the Ministry of Agriculture and Fisheries and the Royal Horticultural Society have set up a Joint Committee to administer a scheme for the official testing of new varieties of fruit for commercial purposes. Under the scheme the Royal Horticultural Society's gardens at Wisley will serve as the Central Station, at which all varieties will be tested in the first instance. In later years varieties selected as showing merit will be sent for further testing to sub-stations, which the Committee hope to establish in various fruit districts throughout the country. Tests will be confined for the present to hardy fruits (Apples, Pears, Plums, Cherries, Nuts, Gooseberries, Currants, Raspberries, Strawberries, etc.). The Committee is now prepared to receive applications for the reception of plants, buds, and grafts sufficient to allow the following number of trees, bushes and plants to be grown of each variety. Apples and Pears, 20 half standards, plus 20 bushes; Plums, Cherries and Nuts, 10 half standard; Currants, Gooseberries, Raspberries and other berries, 20 bushes; Strawberries, 100 plants. Buds or grafts will be worked on approved stocks. In no circumstances will be central station or a sub-station permit trees, buds or grafts to be taken off the station. The Committee will, after a consideration of the reports of the recording staff and selected specialists, issue reports in which recommendations of special varieties will be made. No report on a variety will, however, be issued until sufficient time has elapsed to enable a fair test to be carried out. The Committee for this purpose consists of:—Professor W. Bateson, F.R.S. (Chairman); Mr. W. G. Lobjoit, Mr. H. V. Taylor, Mr. J. C. F. Fryer, and Professor B. T. P. Barker, appointed by the Ministry of Agriculture; the Chairman of the Wisley Committee, the Director of Wisley, the Chairman of the R.H.S. Fruit Committee, Mr. E. A. Bunyard and Mr. Cuthbert Smith, appointed by the Royal Horticultural Society. All communications concerning the scheme should be addressed to the Director, Royal Horticultural Society's Gardens, Wisley, Ripley, Surrey.

Association of Economic Biologists.—A general meeting of this Association will be held at 2.30 p.m. on Friday, November 10, in the Botanical Lecture Theatre of the Imperial College of Science, Prince Consort Road, South Kensington, when Dr. E. S. Russell will read a paper on "The Work of the Fisheries Laboratory at Lowestoft." At 3.30 p.m., Sir Sidney F. Harmer, F.R.S., will read a paper on "The Present Position of the Whaling Industry." The Council will meet at 2 p.m. on the same day.

Royal Society of Edinburgh.—At the meeting of the Royal Society of Edinburgh held on the 23rd ult., Prof. Frederick O. Bower was re-elected President, and delivered his presidential address, his subject being "The Primitive Spindle as a Fundamental Feature in the Embryology of Plants." After reviewing the embryology of the lower plants he stated that the end of all higher embryology was the establishment of a leafy plant with its shoot pointed upwards. Where the archegonium pointed downwards endoscopic orientation would lead directly to this result. But if the archegonium be inclined or inverted the spindle would have to be inconveniently curved to secure that end. Many Lycopods, Selaginellas and some Ferns showed awkward curvatures of the embryo to carry it out. But some of them had no suspensor; in these the awkward curves were absent. It was suggested that the inconvenience had been removed by abortion of the vestigial suspensor, which tied their ancestors down to

* *The Naturalisation of Animals and Plants in New Zealand.* By the Hon. Geo. M. Thomson, M.L.C., F.R.S. Cambridge University Press, 1922. Pp. 607. Price 42s. net.

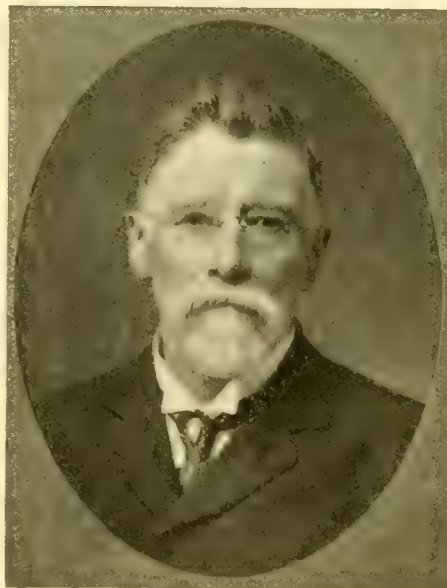
the endoscopic orientation so inconvenient where the archegonium pointed obliquely or actually upwards. The Horsetails, Isoetes, and the Lep-tosporangiate Ferns would all be derivative in this respect. Having no suspensors, their initial polarity could be freely determined so that the apex would point from the first in the convenient direction. Upon the spindle thus defined, whether complete or abbreviated by abortion, straight or curved, the appendages were attached. The leaves were possibly in phyletic origin, results of distal dichotomy of the apex. But in fact they were attached laterally, and together with the axis they constituted the terminal bud. The first root was always of lateral origin in Pteridophytes, and phyletically it was an accessory organ, absent in fact in the most primitive types. It was only in seed plants that it appeared to continue the axis downwards. Lastly, the "foot" which was so inconstant in its development was clearly accessory also, in fact, a sucker formed laterally where it was required. And so the primitive spindle, defined on the one hand by the apex of the shoot and with the tip of the suspensor as its base, appeared to be a real and constant feature in the embryos of plants. But as it was liable to be ab-rogated by the abortion of its base, and complicated at the apex and also lower down by the formation of lateral appendages of various sorts, it was often effectively disguised. Nevertheless, an adequate morphological and biological comparison of plants showed that all their embryos were referable in origin to a filamentous source, such as was prefigured in the Algae.

Flowers in Season.—Mr. H. Juniper has sent from Dryham Park Gardens, Barnet, some excellent flowers of *Trachymene* (*Didiscus*) *coerulea*, Queen Anne's Lace Flower. Mr. Juniper writes "this pretty Australian annual was cut from the open border, and is a welcome addition amongst flowering plants, being especially valuable for use as cut blooms, as the flowers remain fresh for a long time in water. The plants were raised in gentle warmth in May and transplanted, when of a suitable size, into boxes, and subsequently hardened ready for planting out at the end of May in a sunny, well-drained border."

Flowering Plants of South Africa.—The October issue of the *Flowering Plants of South Africa* (No. 8, Vol. 2), is no less interesting than the preceding issues, all of which have been noticed in these pages. Part 8 brings the second volume to its conclusion, and it is dedicated to Senator the Honourable Charles G. Smith, of Durban, Natal, to whose generosity botanical science in South Africa is much indebted. Ten plants are described in the issue under notice, and the first of these is *Daubenyia aurea*, var. *coccinea*, a rare and interesting Liliaceous plant and the representative of a monotypic genus. The plant is bulbous, of low stature, and the inflorescence consists of two white outer bracts and two inner, broad, greenish bracts, around a ten-flowered capitulum. The outer flowers are two-lipped, brilliant scarlet, and altogether more important and attractive than the small, inner flowers. Another bulbous plant illustrated is *Ornithogalum Roodeae*, a handsome species, with an inflorescence of purple, white margined flowers. Other plants included are *Stapelia Pillansii*, var. *attenuata*, with large, dark purple flowers, each segment tapering to a long, revolute point; *Mesembryanthemum crassipes*, a beautiful plant when in flower owing to the contrast between the deep pink petals and the rugose, grey leaves; *Roodia digitifolia*, an interesting plant closely allied to *Mesembryanthemum*, and fully described by Mr. N. E. Brown, who has established a new genus for it; it is a succulent plant with *Mesembryanthemum*-like flowers of bright magenta hue; *Leucospermum tottum*, var. *glabrum*, a South African Protead, which makes a spreading bush five to six feet high and carries large heads of broad, reddish bracts and slender flowers with elongated red and yellow styles; *Protea recondita*, with greenish heads; *Crossandra Greenstockii*, an Acanthad with spikes of orange-pink flowers, the latter appearing from amongst numerous green bracts;

Bauhinia Galpinii, a semi-climbing shrub known in the Transvaal as the Pride of de Kaap, and a common plant in the low veld east of the Drakensberg; it has the usual twin leaves common to this genus, and the chief attraction of the flowers is the long-clawed, bright reddish-pink petals; and *Klattia Stokoei*, a quaint and remarkable plant discovered near Somerset West by Mr. T. P. Stoko, and belonging to the tribe Sisyrinchieae of the Natural Order Iridaceae.

Henry Eckford Memorial Medal.—The award of the Henry Eckford Memorial Medal to Mr. S. B. Dicks is a very pleasing recognition by the National Sweet Pea Society of many services Mr. Dicks has rendered in connection with the popularisation of the Sweet Pea. Before the bi-centenary of the introduction of the Sweet Pea into England, Mr. Dicks had consulted old and rare books and compiled a most interesting history of this popular annual flower, and ever since that time he has continued his researches and is now recognised as the historian of the Sweet Pea. In many other ways, such as the classification of varieties, Chairman of Com-



MR. S. B. DICKS, AWARDED THE HENRY ECKFORD MEDAL OF THE NATIONAL SWEET PEA SOCIETY.

mittee, and a member of the Floral Committee, Mr. Dicks has shown himself to be an ardent florist, and advanced the cause of the flower he loves so well, and the Society which makes the Sweet Pea its special concern. About a year ago we published an appreciation of Mr. S. B. Dicks, in which we referred to his work among garden vegetables, and other activities on behalf of the seed trade during his long service with Messrs. Cooper, Taber and Co. His numerous friends in many countries where he has travelled, no less than his friends at home, will add congratulations to those he has already received in connection with the above award, which was made on the 31st ult.

Ghent Horticultural Exhibition, 1923.—Although six months are to elapse before the opening date of the Ghent "Florales," the organising committee is already making active preparations for the event. During the past few days several important meetings have been held, for instance, with the railway authorities, on the subject of the decoration of the South and St. Pierre stations during the continuance of the exhibition, and also with M. Van Werveke, the curator of the Archeological Museum, to make arrangements for visitors to the exhibition to view the numerous objects of archeological interest in the city. It is announced that in addition to large numbers of the finest and rarest plants cultivated in Belgium, there will

be whole sections from France, England and Holland, which will constitute a new departure. Mr. Brunton, while on a visit to the organisers of the exhibition, assured them of the hearty support of the English. Mr. Krelage, of The Hague, promises a large and important contribution from Holland, so that the foreign sections bid fair to be a great success. Not only England and Holland, but also France, thanks to the kind efforts of the Consul of Fourmestreaux, promises a contribution worthy of the high horticultural traditions of that country. Applications for space in the horticultural sections are very heavy, and the best positions are being rapidly booked. Horticultural societies, both Belgian and foreign, are already making arrangements for their members to visit the exhibition, and everything points to a record attendance. Information on all points will be sent, on application, to the Secretary, Florales Gantoises, Palais des Fêtes, Ghent, Belgium.

Mr. B. S. Faudel-Phillips.—The Hertford Horticultural Society gave a dinner in honour of the retiring President, Mr. B. S. Faudel-Phillips, on the 18th ult. Mr. Faudel-Phillips has occupied the post of President of the Society for ten years, and for a much longer period has taken a deep interest in its welfare. The chair was occupied by the new President, Sir Brodie Henderson, K.C.M.G., and he was supported by Sir Edward Pearson, who was also a President for many years. In proposing the health of Mr. Faudel-Phillips, the Chairman stated that they were all very happy to join in this festive gathering to show some little appreciation of their guest, whose gardens at Balls Park were amongst the most beautiful in the country. He associated with the toast Mr. Faudel-Phillips' father and sister, both of whom, ever since the foundation of the Society over thirty years ago, had done everything they could to promote its welfare. The Hertford Horticultural Society is a very flourishing association with a membership of about 320, and much of its success is due to the interest taken in it by the members of the Faudel-Phillips family, whose beautiful gardens at Balls Park were described and illustrated in *Gard. Chron.*, March 21, 1914.

Lectures on Potatoes, at Sheffield.—The programme of lectures to be given on November 10, on the occasion of the joint exhibition of the National Potato Society, and the Sheffield Chrysanthemum Society, in the Artillery Drill Hall, Sheffield, is as follows:—At 4 p.m.: Lecture by Mr. F. J. Chittenden (R.H.S. Gardens, Wisley, Ripley, Surrey), on "The Cultivation of Potatoes"; chairman, Mr. W. G. Lobjoit, Ministry of Agriculture and Fisheries. At 6 p.m.: Lecture by Mr. A. D. Cotton (The Herbarium, Kew Gardens, Surrey), on "Leaf Curl and Diseases of Potatoes"; chairman, J. R. Poad, Esq. (of Messrs. Isaac Poad and Sons, Ltd., Walmgate, York). At 8 p.m.: Lecture by Mr. W. Cuthbertson (of Messrs. Dobbie and Co., Edinburgh), on "The Story of the Varieties of Potatoes," illustrated by specimen tubers; chairman, Mr. H. V. Taylor, Ministry of Agriculture and Fisheries.

Export of Potatoes to Algeria and Uruguay.—The Ministry of Agriculture states that all exporters of Potatoes should remember that many of the Dominion and foreign Governments place restrictions on the entry of Potatoes, therefore, before making arrangements, exporters should ascertain the requirements, if any, of the country to which they propose to export, and should satisfy themselves that they are procuring Potatoes from a district free from Wart Disease. The Ministry will be happy to furnish inquirers with all available information on these points. Numbers of inquiries have recently been received with regard to the export of Potatoes to Algeria and Uruguay: both these countries require consignments of Potatoes to be accompanied by a certificate of health, which can only be issued after an examination of the actual Potatoes. The Ministry is prepared to arrange for the necessary examination of Potatoes grown in England and Wales on payment of a fee, provided that application is made at least ten days before the consignment is shipped.

South African Plants.—The *New Bulletin*, Vol. xxxiii., Part 7, is fully occupied by a "Revision of South African Species of *Dianthus*," by Mr. J. Burt Davy. Seventeen species are fully described and three are illustrated. In addition to this issue, we have received, in the form of *Bulletins*, Parts 1, 3 and 4 of "New or Noteworthy South African Plants," by Mr. J. Burt Davy, and we understand that Part 2 appeared in the *New Bulletin*, 1921, p. 191; ten species are described in Part 1, ten in Part 3, and twenty in Part 4.

Loans for Allotments Purposes.—The Ministry of Agriculture and Fisheries has been informed by the Treasury that the rate of interest on loans advanced on or after October 2 from the Local Loans Fund under the Allotments Acts has been reduced from five and a half per cent. to five per cent. per annum, whatever the period of the loan.

Appointments for the Ensuing Week.—Tuesday, November 7: Birmingham Chrysanthemum Society's Show (three days); St. Neots Chrysanthemum Show; Surbiton and District Chrysanthemum Society's Show (two days); Bournemouth Gardeners' Association's meeting. Wednesday, November 8: East Anglian Horticultural Society's meeting; Sheffield Chrysanthemum Society's meeting; Wimbledon and District Gardeners' Society's Show; Eastbourne Horticultural Society's Show (two days); Bromley Chrysanthemum Society's Show (two days); Sevenoaks Gardeners' Chrysanthemum Society's Show; Marlow Chrysanthemum Show. Thursday, Nov. 9: Bristol Gardeners' Association's meeting; Gloucestershire Root, Fruit and Grain Society's Show; Hitchin Chrysanthemum Society's Show; Grange-over-Sands Horticultural and Chrysanthemum Society's Show; Nottingham and Notts Chrysanthemum Society's Show (three days); Bedford and District Chrysanthemum Society's Show; Finchley Chrysanthemum Society's Show (2 days); Doncaster and District Chrysanthemum Society's Show (three days). Friday, November 10: Sheffield Chrysanthemum Society's Show (two days), in conjunction with the National Potato Society's Show, at the Artillery Drill Hall. Saturday, November 11. Ringwood Society's meeting.

"The Gardeners' Chronicle" Seventy-five Years Ago.—*Ornamental Planting.*—I am surprised that *Crataegus* are not more extensively planted, as ornamental trees, than they have hitherto been. It is rare to meet with anything like a good collection, except in an arboretum; and yet how ornamental *Crataegus* appear in shrubberies or plantations. Even at this season their foliage is handsome, and exhibits various pleasing tints; for example, *Crataegus Crus-galli* and its varieties are more or less beautiful glossy sub-evergreens, while *C. flava* and its varieties are now assuming a beautiful rich red and yellow colour; again, there exists great variety in the shape of their leaves. *C. tanacetifolia* and its varieties are pinnatifidly cut, while *C. pyrifolia* and some varieties of *Crus-galli*, as well as other sorts, possess a somewhat round and ample foliage. *Crataegus* are also our first shrubs which assume the green leaf in spring. *C. oxyacantha praecox* often puts on its summer dress in January, in mild winters; the fragrant blossoms of this tribe, too, should not pass unnoticed, than which what is more agreeable? Their fruit is likewise another object of much interest; for how beautiful are these! and being different in colour, they contrast well with one another. *C. Aronia* (var. *Azarole*) bears large yellow fruit in abundance; and *C. cordata* (var. *microcarpa*) is another equally beautiful variety, which bears fruit in corymbs, that are well shown off by the dark green foliage. With merits like these, surely *Crataegus* deserve to be more generally planted in shrubberies, etc., than they are, the appearance produced by their intermixture with other things being very effective. *S. Hood, Brooklands Nursery. Gard. Chron., November 6, 1847.*

Publications Received.—*Beautiful Flowers and How to Grow Them.* By Horace J. Wright and Walter P. Wright. Illustrated. T. C. and E. C. Jack, Ltd., 35 and 36, Paternoster Row, E.C. Price 10s. 6d. net.

TREES AND SHRUBS.

LONICERA HILDEBRANDTII.

READERS of the *The Gardeners' Chronicle* will remember the interest shown in the raising of *Lonicera Hildebrandtii* from seed when the matter was discussed in these pages during 1920 and 1921. Mr. Sydney Morris, of Earham Hall, Norwich, has been particularly successful in cultivating this handsome Honey-suckle, and in the issue of October 30, 1920, his experiences in the successful raising of plants

It is a tall, wide-spreading bush up to ten or twelve feet high, with arching branchlets. The leaves vary very much in size from $\frac{1}{2}$ inch long and $\frac{1}{4}$ inch wide to $1\frac{1}{2}$ in. long and 1 inch wide. The rich yellow blossoms are freely borne in drooping panicles during June and early July, fifty to one hundred flowers in a panicle being not uncommon. The greatest beauty of the bushes is reached in the autumn, when the leaves are falling, and the panicles of fruits assume their rich salmon-red colour. As a lawn specimen and for the back of the shrubbery border *Berberis polyantha* is a distinct addition. A. O.



FIG. 105.—FRUITING SPRAY OF BERBERIS POLYANTHA.

from seed were given at some length. At the exhibition of the Royal Horticultural Society held at Holland Park Skating Rink on October 3, Mr. Morris showed flowering and fruiting branches of *Lonicera Hildebrandtii*, and probably this was the first occasion on which many gardeners had the opportunity of seeing the fruits, specimens of which are illustrated in Fig. 105.

BERBERIS POLYANTHA.

AMONG the many Barberries introduced to cultivation from China during recent years, *Berberis Polyantha*, the subject of the accompanying illustration (Fig. 105), is one of the most distinct and valuable additions to our gardens. The spray illustrated was cut from a bush grown from seeds collected by Mr. E. H. Wilson in Western Szechuan in 1904.

INTERESTING TREES AND SHRUBS IN AUTUMN.

THE following trees and shrubs have been especially beautiful in these gardens this autumn. *Clethra Fargesii*, *C. alnifolia*, *Kirengeshoma palmata*, *Rhododendron micranthum*, *Buddleia Veitchii magnifica* *superba*, *Caryopteris Mastacanthus*, *Ceanothus Gloire de Versailles*, *Coriaria japonica*, *Desmodium penduliflorum*, *Pavia macrostachya*, *Lonicera Halliana*, *Nandina domestica*, *Olearia Haastii*, *Prunus Pissardi*, *Romneya Coulteri*, *Tamarix aestivalis*, *Rosa Moyesii*, *Eugenia apiculata*, *Hibiscus* (*Althaea*), in variety, *Abelia chinensis*, *Euonymus europaeus*, and the Blue Cedar, *Cedrus atlantica glauca*, which, on our light soil, has been one of the most attractive objects in the garden. W. A. Cook, *Drynam, Walton-on-Thames.*

NOTICES OF BOOKS.

Plant Materials of Decorative Gardening.*

THE book is designed for the identification of plants by their stems, leaves and other visible parts, as well as by the general structure of the wood and pith, without the aid of the floral organs. It includes 247 genera, 782 species, 375 minor forms, or 1,150 distinct kinds, falling under 83 natural families. The list is meant to cover the cultivated trees, shrubs and woody climbers in the Eastern United States and Northern Europe. The plan followed is the use of a key, consisting of two contrasts or alternatives (sometimes three) placed under each figure of successive numbers from 1 onwards till each group is diagnosed. The four groups are trees, shrubs, under-shrubs and woody climbers. The reviewer runs down the common Lilac in seventeen contrasts, ranging between 1 and 205. There was a hitch at 200 as to which of the two contrasts should be taken. Both of them, however, led to Syringa, which includes two groups. The genus Acer was found under five contrasts; the Ivy under four and Prunus under fourteen. Turning to the page where the species of Syringa are described with a key to separate the species, there was no difficulty in tracing the specimen examined to *S. vulgaris*. Fifty-three species and varieties of Acer are described, and amongst them the specimen in hand agreed with Acer Pseudo-platanus. Under Prunus a specimen of the Morello Cherry was traced till the contrasts used were percurrent and deliquescent. This being a new meaning of the words applied to trees, the glossary at the end had to be consulted. Here deliquescent means that the tree soon breaks up into numerous small branches, instead of having a main trunk with a leader like a pyramidal tree. This pointed to Prunus Cerasus. Under woody climbers the Ivy was easily run down to Hedera in four contrasts. The key is quite simple, but those who use it must make a close and correct observation of the specimens they wish to identify.

Winter Botany.†

THIS volume, by the same author who wrote keys for the groups of trees, shrubs and woody climbers in summer, is meant for the identification of the same woody plants in winter. The writer of this note run down the Goat Willow to Salix in thirteen contrasts, and the common Oak to Quercus in eighteen contrasts. Both trees run through eight contrasts before the Oak took a separate course. The identification of the species Salix Caprea and Quercus Robur can be traced on the page where they are described under the genus. The Oak is the more difficult in the last contrast, because the twigs are described as reddish, which is not always the case, and may depend on exposure. A specimen of Euonymus japonicus was traced through nineteen contrasts; and Ligustrum ovalifolium through twenty-one. Both kept company through the same figures till the sixteenth contrast was reached. They parted company on the question whether the pith was spongy or continuous. After the Euonymus twig had been cut open for an hour or less the pith shrunk considerably. The twigs of the Privet are really more woody and the pith very narrow; so these contrasts show how necessary it is to be careful in such a simple observation. It is astonishing to find how many differences the author of the book asks the reader to observe; and the observation often makes the most common trees or shrubs interesting. In winter it is necessary to examine the leaves (evergreen) or their scars, with the leaf trace of the woody bundles, the presence of spines, prickles, or their absence, the pith, the sap sometimes, whether the twigs are aromatic or not, etc. The extent to which this study can be carried is, of course, limited to the plants described in the book.

Fruit Packing for Market.*

THE packing of fruit for market has received increased attention from growers in recent years, but there is still much to be done before the marketing department of their business rises to the level of the cultural. Experts have long known that Britain can produce fruit fully equal to the best in the world, but this fact has been obscured to the general public by the absence of proper grading and by inferior packing. Imported fruit sells best, not because it is better than home-grown, or even so good, but simply because it is graded and packed on honest and businesslike lines.

The Worshipful Company of Fruiterers, whose publications have always gained the respect of growers by their sound practical value, have done further service to the industry by issuing this book on modern methods of packing fruit for market. It is of the same sound character as their previous publications, and deserves to be accepted as the standard handbook on the subject.

No better choice of author could have been made than Mr. W. P. Seabrook, who, as a commercial grower, has been boxing Apples for both home markets and export for many years, and, as vice-president of the Federation of British

visit to the Imperial Fruit Show at the Crystal Palace. Every grower, in his own interests, should learn how to pack his fruits. Packing in sieves, chip "bonnets," barrels, and Peach boxes is also described. The author, whilst recognising that the returnable baskets supplied by the salesmen must still remain with us, makes out an unanswerable case for non-returnable packages wherever their use is possible. But no matter what package is in use, he rightly urges the necessity for perfect grading and guaranteed sizes, weights, and quantities. The secret of the freer sale of imported fruit, he claims, does not lie so much in the choice of a particular package, as in the fact that the merchant, the retailer, and the consumer all know by a glance at the label what each package contains, both as to quantity and quality; and not only that, but they can rely on getting other packages of the same quality and quantity if they want them. Home growers have really no other course to adopt than to organise similar methods if they are to regain and extend the home markets. Mr. Seabrook also writes hopefully of our chance of establishing a lucrative export trade.

A chapter dealing with our present system of distribution contains a very interesting contribution from Mr. Duncomb Gibbs describing the working of the Pershore Co-operative Market, the success of which appears to render it worthy of imitation in other districts where similar conditions obtain. The Editor, Mr. Walter P. Wright, has written a thoughtful supplementary chapter on "First-class Hardy Fruit for Market," in which he touches on varieties, pruning, manuring, pests, and diseases, and cold storage.

GARDEN KALENDARS.

THERE are a few omissions in Mr. Jacob's list of calendars, some of which I may be able to supply the titles of, but I do not go much beyond the beginning of last century. To take them by dates, seriatim, the first is that in London and Wise's *Complaisant Gardener*, 1699. "The Gardener's Kalender. Directing what is to be done in the Kitchen Garden, Every Month in the Year." In 1706 *The Husbandman's Kalender* is appended to Mortimer's *Art of Husbandry*, in which are lists of many strange Apples and Pears, local sorts, no doubt. I have not seen Bradley's *Calendarium Universale*, 1718, which may be the same as Whitmill's as noted in Mr. Jacob's list. *The Complaisant Seedsman's Monthly Calendar* is rather a catalogue of garden plants with descriptions, in 1725, 1738, etc. Switzer has a calendar appended to his *Practical Kitchen Gardener*, 1727, and Part II of Batty Langley's *New Principles of Gardening* is arranged as a calendar, not monthly, however, but in quarterly sections. *The Flower Garden Display'd* (1732), and *The Fruit Garden Display'd*, so far as they go are both arranged in monthly sequences, very much in the same way as the *Seedsman's Monthly Calendar* noted above. *Eden*, published anonymously in 1757, but by John Hill, a very large illustrated folio, is also similarly arranged. The sections are Flora, Chloris, Pomona, the Greenhouse and the Seminary.

In 1771 "James Meader, late gardener to the Earl of Chesterfield," published, from MSS. left by T. Hitt, *The Modern Gardener*, or *Universal Kalender*, arranged in the same manner as Abercrombie's *Every Man his own Gardener*. *The Planter's Guide* by Meader, of which I have a copy, too, is dated 1779, and is an oblong folio with two large, folding plates, the letterpress being simply a series of tables of trees and shrubs, but there is no calendar. Abercrombie's *Gardener's Daily Assistant* (1794) is arranged as a calendar, and very much condensed in comparison with his first book. In 1809 Walter Nicol published in calendar form *The Villa Garden Directory* and, in 1810, *The Gardeners' Kalender*. He died the same year and left partly written what was published in 1813 as *The Planters' Kalender*, which was continued and finished by his relative Sang, a nurseryman of Kirkcaldy. R. P. Brotherston.



FIG. 106.—*BONATEA UGANDAE*.
(SEE P. 265.)

growers, and chairman of its Packing and Grading Committee, has done the lion's share of the work of preparing the Federation's Grading and Packing Schedule. That schedule, which has been approved by the Ministry of Agriculture and the leading market salesmen, lays down standards for the proper grading and packing of all kinds of fruit grown in this country. It represents the first attempt ever made to standardise our marketing methods.

The author has naturally followed the Federation standards closely in this book, but he has amplified them with clear working instructions for the packing of each kind of fruit. Readers can accept his directions with confidence that they indicate correct modern commercial methods; and they will find the numerous illustrations helpful.

The packing of Apples in British standard non-returnable boxes receives full attention. Rules are given for quickly finding the correct pack for any particular sample, and handy tables show at a glance the number of Apples in any properly-packed box. In these boxes we undoubtedly have the ideal package for high-grade dessert Apples, as few will gainsay after a

* *Fruit Packing for Market*. By W. P. Seabrook. Issued by the Worshipful Company of Fruiterers, with the editorial assistance of Walter P. Wright. London: George Allen and Unwin, Ltd. Illustrated Price 2s. 6d. net.

* *Plant Materials of Decorative Gardening: The Woody Plants*. Second edition, revised. By William Trelease, Professor of Botany in the University of Illinois, Urbana. Price 1 dollar.

† *Winter Botany*, a companion volume to the author's *Plant Materials of Decorative Gardening*. By William Trelease, Professor of Botany in the University of Illinois, Urbana. Price 2.50 dollars.

SOME UGANDA ORCHIDS.

(Continued from p. 239).

EULOPHIA.

EULOPHIA (*Eria*) *guineensis* (see Fig. 107) is another terrestrial Orchid of great beauty. It had been collected and named from other parts of Africa, but I believe I discovered the first specimen in Uganda in 1913. Its manner of discovery is interesting.

It was my custom to place my Orchid finds on the shady earth verandah of my bungalow. Early in 1913 appeared two growths from a small pseudo-bulb lying on the floor. I had not seen this before, but I cultivated the plant, which eventually flowered and proved to be *Eulophia guineensis*. Part of the plant I sent to Sir Frederick Moore, the other part I cultivated to increase it, and eventually sent it to Kew, where it flowered last year. Where the bulb really came from I never knew. I must have brought it in unnoticed amongst other plants, but all search in likely places to find it growing wild was unsuccessful.

The plant flowers from the new growth as the leaves unfold. The spike runs to 1 foot in height, and bears up to 10 flowers. The lip of the flower is $1\frac{1}{2}$ inch across, and a beautiful pink in colour. The base of the growth forms into a round bulb $1\frac{1}{2}$ inches through, and the resting period is complete. I found the plant responded to rich soil and manure when growing, and the fullest sunlight.

BONATEA UGANDAE.

This is another terrestrial species of great interest. I found the plant first in 1904 within a stone's throw of the source of the Nile. Dried specimens were sent to Kew, where it was found to be a new species. Later, roots were sent to Kew, Glasnevin, and the late Sir Trevor Lawrence, and the plant has flowered in all three collections. Its habitat was restricted to a very small spot on the Nile bank, and, as soon after this the banks of the river were cleared and burnt off to destroy tsetse fly, *Bonatea* no longer exists there.

In 1907 I found a solitary plant of a *Bonatea* in Unyoro, 200 miles away, and this was referred by Mr. Rolfe to *B. ugandae*, but not decisively named. Possibly the plant may not be found again for many a long day.

This Orchid has tubers and a growth similar to those of *Habenaria*. The plant in flower is 3 feet in height; flowers greenish white, with a spur over 6 inches long. After flowering, resting is complete. It is a sun lover, and was found associated with *Aloe* and *Euphorbia*.

Habenaria zambesiaca is a pretty swamp Orchid. It reaches $1\frac{1}{2}$ foot in height, the spike being crowded with white flowers spotted with purple. This Orchid grows wild in full sunlight.

K. Brown, F.L.S.

(To be concluded.)

ORCHID NOTES AND GLEANINGS.

HYBRIDS FROM BROCKHURST.

FLOWERS of four excellent new hybrids raised in his gardens are sent by Frederick J. Hanbury, Esq., F.L.S., Brockhurst, East Grinstead.

CATTLEYA MARIE MCLEOD. Raised between *C. illustris* (*iridescens* × *Acis*) and *C. Dowiana*

white column, which they enfold at the base; the narrow isthmus is striped with yellow and the expanded front lobe is reddish violet.

CATTLEYA JESSIE C. MURRAY (*Chamberlainiana* × *Octave Doin*). A very pretty flower with some resemblance to *C. Hardyana alba*, the *C. Leopoldii* in *C. Chamberlainiana* not appearing. The sepals and petals are white, the lip Tyrian purple, with large, clear yellow disc



FIG. 107.—EULOPHIA GUINEENSIS.

aurea; the well-formed flowers of this hybrid have clear, chrome-yellow sepals and petals. The lip, which shows strongly the influence of *C. bicolor* and *C. velutina* in its ancestry, has short, rounded, orange-coloured side lobes that are only half the length of the fleshy, wax-like

on a white ground and with gold lines from the base.

CATTLEYA MURIEL HENDERSON. By crossing his useful winter-flowering hybrid of 1913, *C. Thomasii* (*Bowringiana* × *Peetersii*) with *C. Fabia* (*Dowiana* × *labiata*), a good combination has been effected, the form of the flower being nearest to *C. labiata* and the colour to *C. Bowringiana*. The sepals and petals are bright violet-mauve, the lip darker in tint and with thin gold lines from the base to the centre, which has an orange shade.

CATTLEYA JANET P. CRAWFORD (*Mantini* × *Dorothy Bushell*). In colour this hybrid is of the *C. Mantini* class, the sepals and petals being rosy-mauve, the white mid-ribs appearing at the base. The lip, which is broadly expanded in front, has short side lobes coloured rosy-mauve, the base having yellow lines to the ruby-purple coloured front. The stout column is white and is an effective feature.

CATTLEYA DUPREANA ALBA.

The original *Cattleya Dupreana*, raised between *C. Warneri* and *C. Warszewiczii*, is one of the finest richly coloured *Cattleyas* of its class and flowers of a large white form raised between albinos of the two species named, and now flowered by Messrs. Sanders, St. Albans, show that the new combination gives a remarkable addition to the large-flowered, white, hybrid *Cattleyas*, the shape and broad expansion of the lip carrying on the characters for which *C. Warneri* is noted as a parent, but with clear white flowers of fine substance. The disc of the lip is tinged with chrome yellow.

NEW HYBRIDS.

(Continued from page 249.)

Name.	Parentage.	Exhibitor.
Brasso-Cattleya Dr. G.G. Macdonald	B.-C. <i>Ilene</i> × <i>C. Peetersii</i>	Flory & Black.
Brasso-Cattleya Scotia...	<i>C. Hardyana</i> × <i>B.-C. Moneta</i>	Charlesworth.
Cattleya Blotchley Prince	<i>Cornet</i> × <i>Warszewiczii</i>	Sanders & Sir H. Leon.
Cattleya Chambersiae	<i>Prince John</i> × <i>Rhoda</i>	Sir H. Leon.
Cattleya Cynthia...	<i>Dowiana</i> × <i>Tilius</i>	Charlesworth.
Laelio-Cattleya Benita	<i>C. Schroderae alba</i> × <i>L.-C. Fascinator</i>	Charlesworth.
Odontioda Aidan...	<i>Mossiae</i> var. <i>Ulysses</i>	Charlesworth.
Odontioda Bianca	<i>Oda. Bohnhofae</i> × <i>O. ardentissimum</i>	Charlesworth.
Odontioda James O'Brien	<i>O. Lambeauianum</i> × <i>Oda. Diana</i>	Charlesworth.
Odontioda Rob Roy	<i>oakwoodensis</i> × <i>Chantecler</i>	Charlesworth.
Odontioda Urania	<i>Oda. Charlesworthii</i> × <i>O. President Poincaré</i>	Charlesworth.
Odontoglossum Alastor	<i>O. Epicasta</i> × <i>Oda. Frunette</i>	Charlesworth.
Odontoglossum Canopus	<i>Airew. rth</i> × <i>Dusky Monarch</i>	Charlesworth.
Odontoglossum Hesperus	<i>illustrissimum</i> × <i>Prince Albert</i>	Charlesworth.
Odontoglossum Kenneth	<i>amabile</i> × <i>Alexandrina</i>	Charlesworth.
Odontoglossum lutescens	<i>percultum</i> × <i>l'Empereur</i>	Charlesworth.
Odontoglossum Moreno	<i>Lawrenceanum</i> × <i>Rolfae</i>	Charlesworth.
Odontoglossum Nereus	<i>President Poincaré</i> × <i>Harryanum</i>	Charlesworth.
Odontoglossum Orthus	<i>The Czar</i> × <i>Prince Albert</i>	Charlesworth.
Odontoglossum Pegasus	<i>Lambeauianum</i> × <i>Olympia</i>	Charlesworth.
Odontoglossum Priapus	<i>Lambeauianum</i> × <i>President Poincaré</i>	Charlesworth.
Odontoglossum Sylvanus	<i>Mallardianum</i> × <i>Alexandrina</i>	Charlesworth.
Odontoglossum Thescus	<i>eximium</i> × <i>Aquitania</i>	Charlesworth.
Odontoglossum Vedas	<i>Aglaon</i> × <i>The Czar</i>	Charlesworth.
Odontoglossum Zenith	<i>Rolfae</i> × <i>Leviathan</i>	Charlesworth.
Odontonia St. Mungo	<i>Olympia</i> × <i>percultum</i>	Pantia Ralli, Esq.
Sophr.-Laelio Katrina...	<i>M. Bleuana</i> × <i>O. Georgius Rex</i>	Charlesworth.
Sophr.-Laelio-Cattleya Marisia	<i>S.-L. heatonensis</i> × <i>S.-L. Carna</i>	Charlesworth.
Vuyistekeara Robertsonii	<i>S.-L.-C. Marathon</i> × <i>S.-L.-C. Isis</i>	Charlesworth.
	<i>M. Bleuana</i> × <i>Oda. Zenobia</i>	Charlesworth.

The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Cymbidium.—Strong, healthy plants of *C. Tracayanum*, *C. Lowianum*, *C. giganteum*, *C. insignis*, and many other hybrids are developing their flower spikes, and should have plenty of water at the roots. Others which have completed their growth, and which are not yet showing their spikes, should be kept rather dry for some little time longer, otherwise growth will commence and the plants fail to bloom. *C. grandiflorum*, which is generally a most difficult Orchid to flower satisfactorily, has also finished its growth, and flower spikes are developing from the pseudo-bulbs of the previous year. To ensure success in flowering this beautiful species, the plants should be fully exposed to the light, in a cool house, and the roots kept on the dry side during the winter. The many hybrids of this family comprise a most interesting and beautiful class of plants, which produce fine spikes of bloom that last a considerable time fresh, either as cut flowers or on the plants. They do not require a very high temperature.

Phalaenopsis and its Allies.—With the short days this bulbous group of Orchids, which includes *Vanda*, *Aerides*, *Saccolabium*, and *Angraecum*, will need less water, both at the roots and in the atmosphere. When the tips of the roots are sealed over, the plants will only need water in sufficient quantities to prevent the leaves showing signs of distress. All should enjoy a light position during the dark days of winter. The species of *Phalaenopsis* which produce their spikes early should have sufficient water to keep them plump and healthy. Although these Orchids never entirely cease to make leaf growth, it is important that they should enjoy a short season of rest. When in active growth, sufficient moisture should be afforded to keep the compost moist, and the Moss on the surface green and in a growing condition. During the resting period the Moss may be allowed to become of a whitish green colour before water is applied. *Angraecums* that are in full growth may still be watered whenever they become dry, but care must be taken that they are in need of moisture before it is applied. Any species of these plants that are pushing forth their flower spikes require to be kept moist at the roots until their flowers are open.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir C. NALL-CAIN, Bart., The Nod, Codicote, Welwyn, Hertfordshire.

Freesia.—The earliest batch of *Freeseas* are growing freely, and the young shoots need some support. Place four neat stakes around each receptacle, and tie the shoots round with raffia at intervals; or twigs from an old Birch broom may be inserted in the pots amongst the shoots. The plants should be grown on a shelf in a cool greenhouse. Keep the roots well supplied with water. The later batches should be grown as sturdily as possible, admitting air to the house on all possible occasions.

Souvenir de la Malmaison Carnation.—Young plants of this Carnation, raised from layers rooted in July and August of the present year and growing in 60-sized pots, may be transferred to pots 6 inches in diameter, in which they may be allowed to flower; the compost for this final potting should consist chiefly of good, open loam. Pot with medium firmness and incorporate with the soil a quantity of wood ash, old mortar rubble and silver sand, adding a 6-inch potful of bone-meal to each barrow load of soil. If the loam is inclined to be of a heavy nature, a little spent mushroom manure should be added after passing it through a fine sieve. After

potting them the plants should be stood in a cool, airy house, using only sufficient fire heat to expel damp. Afford the roots water sparingly during the dull, winter months.

Humea elegans.—Young plants of *Humea elegans* raised from seed sown as advised in a previous calendar should be potted off into small receptacles as they become ready, using a light, open compost. The plants should be grown under cool conditions and fresh air should be allowed to circulate freely around them whenever the outside conditions will permit of ventilating. *Humeas* should be kept at an even state of moisture at the roots, as they are somewhat impatient of extremes of drought and wetness.

Camellia.—Where it is found that the flower buds of *Camellias* have set too freely they should be thinned to a single bud, or they will be liable to drop. Bud dropping is also often caused through excessive dryness at the roots; the soil should therefore be kept in an even state of moisture.

Retarded Plants.—All retarded plants required for blooming at Christmas and in the early winter months should now be placed in a house having an intermediate temperature; syringe the plants freely until the flowers begin to open.

HARDY FRUIT GARDEN.

By H. MARSHAM, Gardener to the EARL OF STRAFFORD, Wrotham Park, Barnet.

Pruning Large Standards.—Although the work of pruning and thinning large Apple and Pear trees is usually done after the leaves have fallen, it may safely be commenced as soon as the fruits have been gathered. The heads should be moderately thin, but not excessively so, as if the branches are too open and far apart they are very apt to sway during stormy weather, and if carrying good crops the fruits are liable to get bruised on the trees. Neglected trees soon become thickets of useless wood which cannot possibly bear good, clean crops of fruit except probably at the tips of their top and outside branches. To keep the trees in a good bearing condition and the heads evenly balanced a certain amount of pruning should be done annually. All trees that are in good bearing, and more especially those growing in a rather light porous soil should have their roots well supplied with nourishment. A heavy mulching of rich farmyard manure will greatly assist the trees. The manual properties of the dung will get washed well down to the roots during the winter. If manure for use as mulching is not available, a few applications of liquid drainings from the stockyard will prove highly beneficial to the growth of wood, and increase the size of the fruits the following year.

Winter Moth (*Cheimatobia brumata*).—Grease bands should be employed where this pest is troublesome, and those who placed them around the trunks early should examine them at frequent intervals to remove and destroy any of the insects that have been caught and make good the grease if its adhesiveness has been destroyed by heavy rains and exposure to the weather. With constant attention many of the wingless females may be caught and killed. In this way the crop will be little affected with maggots, that takes such a large toll of the best fruits in many orchards and gardens.

Apples.—Those who are planting Apples this autumn will find in the following list of varieties suitable sorts for furnishing a supply of fruit over a long season: Dessert: Quarrenden, Ellison's Orange, Worcester Pearmain, Beauty of Bath, Egremont Russet, Cox's Orange Pippin, King of the Pippins, Allington Pippin, Ribston Pippin, Wyken Pippin, Claygate Pearmain, Duke of Devonshire and May Queen. Cooking: Lord Grosvenor, Lord Derby, Ecklinville Seedling, Warner's King, Lodington, Round Winter Nonesuch, Crawley Beauty, Bismarck, The Queen, Chelmsford Wonder, Bramley's Seedling, Newton Wonder and Lane's Prince Albert. To those planting on a large scale I would strongly advise the planting of comparatively few early varieties, the later kinds being more useful.

THE KITCHEN GARDEN

By JAMES E. HATHAWAY, Gardener to JOHN BRENNAND, Esq., Baldersby Park, Thirsk, Yorkshire.

Broad Beans.—On a warm border make a sowing of Broad Beans. The soil should be well worked and made moderately firm afterwards when it is in a suitable condition. Sow the seed in double rows in drills made 3 feet apart, placing the beans 6 inches apart, and allowing a space of 9 inches between each row. Long-pod varieties are best suited for this sowing.

Leeks.—The main crop of Leeks should be earthed up for the last time. Make the soil fine by breaking it up with a fork.

Broccoli.—Where these plants have made leggy growths they should be heeled over before severe weather sets in. This may be done by removing the soil on the north side, placing the spade its full depth on the opposite side and gently levering the plant over until it rests in a slanting position. Cover the stems with soil and make them firm; the latter will protect the stems from frost.

Potatoes.—Sets intended for forcing should be set up in boxes and placed in a warm house. As soon as the sprouts are large enough the tubers may be placed in 12-inch pots half filled with old potting soil. The forcing may be done in heated pits or any house where a sufficiently warm temperature can be maintained. If heated pits are available, the tubers may be planted in rows 15 inches to 18 inches apart on a gentle hotbed. Sets intended for planting in spring should be examined on wet days, and if the sprouts get too large they should be rubbed off. All seed tubers should now be set up in boxes and kept in a cool place until required for planting.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

Vineries.—The pruning and cleansing of vines and vineries will now be continuous until all the vines are ready for starting for next year's crop. Soap and water and Gishurst compound are old-fashioned mixtures and better than strong insecticides, which often do more harm than good. When the colonies of mealy bug have been greatly weakened, daily attention with a camel's hair brush dipped in methylated spirits will crown the labour with success from the time the vines break in the spring.

Succession Houses.—Vineries containing the remains of crops should now be cleared of the bunches to economise fuel, and allow the vines to be rested before they are pruned. All thin skinned Grapes will now keep as well, and, possibly better, in the Grape room, as on the vines. The grape room should be cleansed and the walls lime-washed before the Grapes are brought into it. Muscat Grapes are perfectly ripe, and the house must not be overdone with fire-heat, neither must the berries be allowed to suffer from damp, to which they are so liable during the fall of the leaf. A temperature ranging from 50° at night should be suitable, but much depends on the house and its surroundings, whether it is in a low, damp situation or on very heavy soil. Of two evils, it is better for the Grapes to be allowed to shrivel a trifle than rot, but by careful attention to details, there should be no difficulty in maintaining a middle course.

The Late House.—If Lady Downes and other thick-skinned Grapes are not well finished, the water-pipes should be kept sufficiently warm to justify a steady circulation of fresh air, care being taken that sudden fluctuations in the temperature do not produce a check. Give the surface roots a moderate watering with diluted liquid manure or soot water warmed to 80°. Choose a fine, bright morning with warmth in the pipes and a circulation of air through the house. Houses, on the contrary, in which the vines were started early, and the Grapes are now finished, should be kept dry and not too warm, an excess of fire-heat being liable to destroy the colour of the berries. Every lateral may now

be pinched or cut out, as this late growth will keep the roots in action, and retard the ripening of the premier leaves.

Figs.—Figs in pots should now be placed on pedestals or inverted pots, and receive repeated supplies of tepid water until the balls of soil are thoroughly moistened through. Fermenting material, consisting of Oak or Beech leaves, and a little well-turned stable litter may be introduced, loosely at first, until it touches the bottoms of the pots, and the heat begins to decline, when the whole mass may be made more firm. Another layer of leaves may then be added, and so on until the pit is full, and the crooked part of the pots receives genial warmth. The temperature of the pit may then range from 50° at night to 55° by day, always with a little ventilation, unless the weather is very severe, and these temperatures cannot be maintained. The trees may be syringed with tepid water once or twice during the early part of the day. As the days are decreasing in length, and severe weather may set in, there should be no attempt at forcing, as it is better to allow the warmth to decline a few degrees at such times, and redeem lost time after the turn of the year when the conditions will be favourable for rapid development.

THE FLOWER GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

Herbaceous Borders.—Herbaceous borders should be replanted every two, or, at most, three years, whilst some of the more rampant growers amongst the plants should be lifted and divided every year in order to prevent them overrunning and possibly smothering their more delicate neighbours. As a commencement to this work, a spare piece of ground should be selected into which the plants can be laid as they are lifted from the flower borders. Select a fine day for this work, when the soil is in good condition for working; lift the plants and lay them in, taking every possible care that the labels are securely attached to them. When the borders have been completely cleared of the plants, the ground should be heavily dressed with well decayed manure, and, for preference, carefully trenched to a depth of, say, 30 inches. If trenching is not possible, then digging should be resorted to, but practise the former method if means will permit. Leave the borders for a time to allow the soil to settle again, and when this is sufficiently effected, then break the surface well down by means of a fork to render it fine enough to plant in. Before planting, the arrangement of the border should be carefully considered, and the factors governing this are the height of the plants, the colour of their flowers, the strength of growth, so that ample room for development may be permitted to obviate crowding; and the season of flowering.

Planting.—The old plants should be broken up for replanting, and the younger and more robust outer portions used, discarding altogether the probably worn-out centres. To break up large stools, two forks should be inserted back to back through the plant, and by pulling the handles together the portions will be levered apart, and suitable-sized pieces can thus be selected for replanting. This is far better than chopping up old stools with a spade as is too frequently done. If large clumps are required of particular subjects, it is far better to plant a number of small portions a little distance apart, say, three or five pieces, than to insert one large plant. The ultimate result will be far better, the work of staking more easily controlled, and the need of breaking up the clumps each year obviated. Plant carefully and firmly, and label each item as it is inserted. Some of the plants will need covering entirely with soil, and their positions should be marked by means of a few short sticks or old labels. When all is completed, the ground should be levelled as neatly as possible and the surface receive a top dressing of such material as manure from a spent Mushroom-bed or leaf mould. The surplus plants may be grown in a reserve border from which a supply of cut flowers can be obtained.

HARDY FLOWER BORDER.

VERBENAS.

In the *Gardeners' Chronicle* of March 29, 1845, p. 209, under the heading "Verbena," a writer states: "I am a great lover of the Verbena, and to no flowers are our gardens more indebted for gaiety and brilliance of colour than to this little favourite." The writer expressed the general opinion of gardeners of that period, and for many years after the Verbena played a very important part in flower gardens and pleasure grounds.

It was used by Squire Holford in the long, raised, terrace border, with Bath stone edging at Westonbirt, under a wall clad with rare flowering shrubs and climbers, many years before and after 1860. This border was always planted with Verbenas of distinct showy colours, and was one of the most attractive features in the fine gardens there.

In the same gardens the little Argentine Verbena venosa, used both for beds and for growing in pots for decorative purposes, was always much admired. One of the best com-

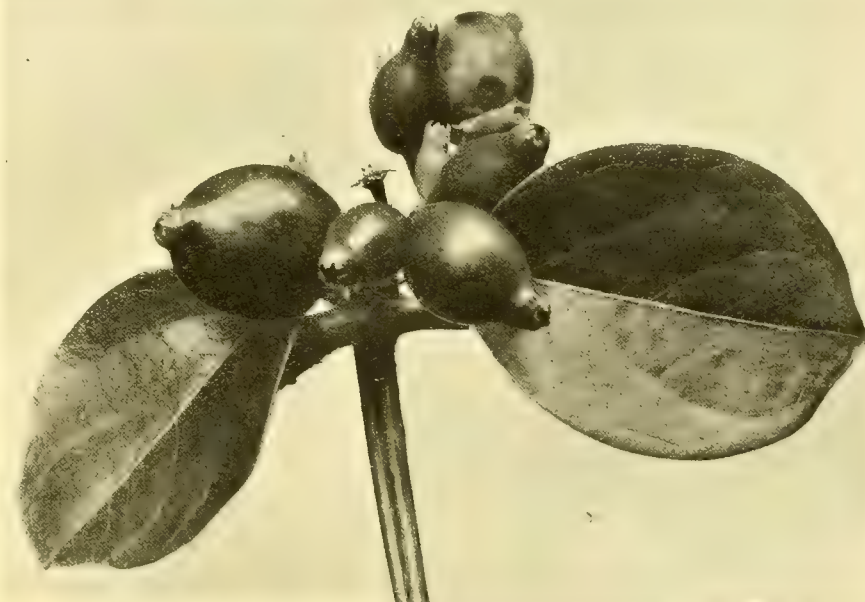


FIG. 103.—FRUITS OF *LONICERA HILDEBRANDTII* (SEE P. 263).

binations with it was in beds of the trailing Mangles' Silver bedding Pelargonium, the numerous slender stalks with terminal heads of bright magenta flowers, above the green and silver foliage beneath, forming a perfect picture.

Named varieties of Verbenas, which were mostly grown in order to make sure of the colours desired, were struck late in summer or autumn and winter under glass, care being taken not to keep them in a temperature above 60° or 65°, or red spider and rust disease would cripple the stock for the year. Seeing this, some grew Verbenas from seed annually, sowing them in pans, covering the seeds lightly, and placing them in the temperature named in the end of February or beginning of March; the plants were duly pricked off and hardened ready for planting in the beds in May.

My many years of pleasant recollections of the Verbena, and the knowledge that it has declined in favour in large gardens, prompt me to call attention to these pretty plants, which are extensively planted in the Harrow Council's Estate, the owners of whose small gardens probably bought the plants from market stalls.

Since Squire Holford's time florists have greatly improved the Verbena, and we have in such varieties as Helen Willmott, bright salmon rose, with a white eye; and Defiance, dazzling scarlet, easily raised and inexpensive plants with beautiful flowers suitable for a variety of purposes in the garden. J. O'Brien.

CONVALLARIA.

THE present is a suitable time to transplant Lily-of-the-Valley. Thoroughly trench the ground, and freely incorporate well-rotted manure and sand with the soil. Select and separate the crowns singly and plant them 2 inches apart. Previous to planting, make the ground moderately firm; afterwards apply a light mulching of rotten manure to the surface. This beautiful flower is a favourite with everyone and should be planted extensively to supply cut blooms. A shady part of the kitchen garden may be set apart to form a bed of Convallaria, the usual place being along the path, near the espalier fruit trees. T.

PAPAVER UMBROSUM.

SEEDS of this showy annual may be sown during the next few days to secure strong plants for flowering in the early summer of 1923. Sow the seeds where the plants are required to flower, and give early attention to the thinning of the seedlings. If required for early flowering, all annual Poppies may be sown now. Grown in irregular masses by the

sunny side of woodlands, Poppies are very attractive. S. L.

THE ALPINE GARDEN.

VERONICA CHATHAMICA.

THE peculiar merits of this distinct and beautiful species of Veronica should be born in mind by all who are planting rock-gardens. It is a dwarf, creeping shrub, with thin, wiry branches and clean-cut, oval-pointed leaves that will hug the face of a rock as closely as Ivy. The smooth foliage is an unusual shade of glaucous green, approaching emerald, and the clinging veil with which it drapes the face of the stone becomes in late summer covered with little cone-shaped spikes of rosy-lavender flowers. *V. chathamica* appears to be hardly enough in most places; it is very easily propagated from cuttings, and rooted portions set-out in spring will cover several square feet in their first season. Though it will creep on the flat, a downward direction would seem to be the natural inclination of the plant, which means that the latter should be set above the rock face which it is intended to cover. Full exposure, with a cool soil, or half-shade seem to suit this species equally well, but a well-drained, stony root-run is desirable. A. T. J., N. Wales.

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MR. KINGDON WARD'S SEVENTH EXPEDITION IN ASIA.*

THE START.

AFTER several weeks spent in Rangoon in a vain endeavour to find a suitable travelling companion, I left Bhamo solitarily on February 26 on my seventh journey to China. Having safely covered the first stage by the main road, however, my muleteers took fright at rumours of a Lashkar operating on the frontier, and dashed off at a tangent. Thus we proceeded to climb the high ranges to the south, instead of keeping to the river gorge—a change of tactics in harmony with my own wishes. Nevertheless, it was only by marching long hours that we succeeded in reaching T'eng-yueh in the regulation eight days. Crossing the strip of plain, where the huge papery leaves of the Teak crashed down at intervals, and the flaring flowers of the Cotton Tree (*Bombax* sp.) were snapping off one by one, we soon reached the foot of the hills. The rock is all granite, very coarse grained, and crumbling to a white powder, which is most distressing. It was the beginning of the hot weather, so there were few flowers visible in the monsoon jungle. Orchids are quite rare till about 5,000 feet is reached; and then, of course, it is scarcely monsoon jungle. Lower down, the first flush was stealing over the bracts of *Congea tomentosa*, and an occasional "Flame-of-the-Forest" (*Butea frondosa* in Burma, Goldmohr in Africa; something else in Java) was seen. In the undergrowth were merely a few mean *Acanthaceae*, which, however, always intrigue me, their flowers are so pleasing. But do not ask me to name them!

By the time we reached the summit of the range, at about 5,000 feet, two species of Violet, almost identical as regards their flowers, but with very different foliage; *Hemiphragma heterophylla* (in fruit); a wee blue Gentian; and a *Chirita* (not in flower), had introduced themselves.

On one of the large, isolated boulder-like outcrops I found a plant in fruit, flattened against the wall, and thoroughly desiccated, which might pass for a *Didissandra*; but as it was like no *Didissandra* known to me, I collected seed of it. Masses of Orchids also carpeted these hot and cold rocks, though none of them was in flower. At this altitude the open, park-like slopes were chequered with masses of snowy white Apple blossom, sweetly fragrant; the villages smothered in a mist of Peach blossom.

* The previous articles by Mr. Kingdon Ward were published in our issues of May 11, June 18, July 23, August 20, September 3, October 8, October 29, 1921; January 7, January 21, March 11, March 25, April 8, April 22, May 6, May 20, June 3, June 17, July 1, July 15, July 22, August 5, August 26, September 9, September 23, October 7, and October 21, 1922.

One of the commonest shrubs was a Labiate growing sometimes as much as 25 feet high. It possesses stout, erect spikes, about four inches long, of small, cream-coloured flowers, each of which, as it opens, gradually becomes filled with a brownish purple fluid exactly like *Condy's Fluid* in appearance. What is more, it smells like it! A plant which can disinfect itself is a novelty, to me at any rate! Up on the summits the streams take their rise in bogs filled with Rushes; but flowers there was none. However, on one of the high banks of granitic sand I found a *Rhododendron* seedling. After crossing the first range, we descended to the plain of the Nam Wan, and marched all day through typical Shan country; here rolling grassy downs, with a *jhil* or two enveloped in clumps of Bamboo; there across paddy land, dull and colourless. Derelict pagodas, *Ficus* trees, and slatternly villages were scattered over a corrugation of Rice fields and river terraces.

On the fifth day out, having followed the Nam Wan to its puny source, we crossed another range. Here the opium Poppy was rampant in all its glory. And now came that startling change in the appearance of the country, familiar to all who have crossed the Burma-Yunnan frontier in this region. The forest ceased abruptly. Grass and Bracken clad hills, honey brown, spread away in front of us. Patches of Alder copse, and, higher up, a mangy fur of Pine trees, alone relieved the herbage.

We descended to another river, which, like the Nam Wan, is also a tributary of the Shweli—a sufficient tribute to the fright of my muleteers. It necessitated another boring march up the almost level valley. In the damp ditches a small, rosy-leaved *Drosera* was about to flower.

On March 4 we entered a narrower valley, which presently became a ravine. Here and there a flamboyant *Melastoma*—or is it *Osbeckia*?—displayed itself, and there was a white flowered *Buddleia*, which recalled the fragrance of Cowslips, dear to an Englishman. But there was nothing else to relieve the stony monotony, except for a few weeds by the stream, truly of no nationality, cosmopolitans in the worst sense of the word. Not knowing their names, I refuse to invent nonsensical names for them. They are Ishmaelites.

Crossing an imperceptible pass, we presently caught sight of the gravelly bed of the many-channelled Taping below us, and rejoined the main road a day's march from T'eng-yueh. The city was reached next day, March 5.

I met Mr. Forrest in T'eng-yueh, and we compared notes of last season's work. By means of sketches and description I elicited the names of some of my plants; he had long names ready for them, and reduced me almost to tears and chagrin by mentioning casually that some of my finest discoveries at Mu-li had been in cultivation since the year one. Being an optimist, of course, I did not believe him—perhaps I described them ambiguously. Moreover, he left me a possible *Rhododendron* or two, and maybe two or three *Primulas*, besides odds and ends. Nor was Mr. Forrest by any means convinced that my glorious *Primulina Meconopsis* (No. 4421) is *M. Henrii*—a suggestion of my own, provisionally endorsed by Sir David Prain. If it is not *M. Henrii* it certainly ought to be called *M. Wardii*. I have suffered enough humiliation from having vulgar and obtuse plants associated with my name. Here is an opportunity, perhaps, to right a great wrong. I want a *Cyanthus Wardii*, too—my No. 4730. But this species may be known, though it is not in cultivation. By the way, my dwarf *Primulina Poppy*, No. 4008, is *M. lancifolia*, as I am informed by Sir David Prain. *Meconopsis*, No. 4640, is, therefore, all the more likely to be new. Another opportunity to do something graceful. If no one takes the hint, presently, as in the case of a well-known queen who was particularly fond of fleur-de-lis, the word "Calais" will be found engraved on my uprooted heart. *P. Kingdon Ward.*

HOGG ON FLORIST FLOWERS.

AMONG the first out-of-date books on gardening that I had an opportunity to purchase was that of Thomas Hogg, florist, of Paddington Green, Middlesex, relating to the culture of various florist flowers, etc. It is the second and best edition, published exactly 100 years ago, and following the first edition by two years, though London says ten. In addition to the one coloured plate in this, there are several in the second considerably better, of other flowers besides the Carnation. The author was a schoolmaster previous to turning nurseryman, and his book shows him to have been a pleasantly humorous individual, not acrimonious, like some later florists, nor so vastly conceited, but he could confess in an apophthegm, in Latin, as became one who daily had thought in that tongue. We cannot all succeed in everything.

Like John Parkinson, who called the Carnation the "Queene of Beautie and of flowers," Hogg loved it best. "The Carnation," he declared, "may justly be said to hold the first rank." Rea, however, was nearer the truth than both when he put this aspiration into rhyme:—

'If ask and have were in my power,
After the Rose, give me the Gilloflower.'

We conclude, therefore, that Hogg was more interested in the Carnation than the Auricula, Tulip, or any other flower of which he treats, and the Carnation, accordingly, is found holding first place, and most space in his book. Though very precise directions are given regarding composts in the finely-graded fractional proportions usual at the period, Hogg allowed that growers might attain as happy an end without being so meticulously exact.

He agreed that it was important, perhaps essential, to dress Carnations, but he himself never dressed them. Whether he employed Kit Nunn, the barber of Enfield, whose ability to change the appearance of a bloom must have been uncanny, and whose mantle seems to have descended on the late Ben Simonite, he does not say, but if he showed his blooms, they must have been dressed by someone else, in his own words, he must have been "obliged to return home without either silver cup, silver spoons, punch ladle, copper kettle, or set of china."

Hogg used a great variety of manurial agents in addition to leaf-mould, which he esteemed very highly. Night-soil, soap boilers' lye, sugar-bakers' scum, cow dung, wood shavings "when rotten and decayed, sawdust, tan, the bark and small branches of trees, in general—make a good ingredient in compost for many plants." Soot and salt were also used, and blood laid up for two years before using. But these strong manures were apt to cause the colours to "run," unless they were applied with much discretion. Hogg was aware of the value of old turf laid up long enough for the grass to decay, and afterwards turned so that it might be partially pulverised. Rich soil was judged by the pleasant smell it emitted, and was soft and oily to the feel.

Knowing how beautifully and regularly Picotees were marked less than twenty years subsequent to the date of this book, one is somewhat amazed to learn that florists excluded them from gardens where show Carnations were grown on account of a dread lest these should be spoiled by intercrossing. Hogg, however, was so little of a bigot, that he admitted them, and that because he admired them. They were "pencilled and marked by the inimitable hand of Nature in her more sportive mood: at one time, on a snow-white ground, a vast profusion of small, irregular spots appear—red, black, or purple." This reminds one of the marking of Mrs. A. Brotherton—"at another, a few straight lines or dashes of the pencil only are seen on some of the larger petals: then a fanciful mixture of both together, most beautifully blended: at another time the edges or extremity only of the flower leaves shall be tinged and leaved all round, or the whole covered with a netted and motly mixture of shining colours." Not unlike these, our fancy Carnations! A coloured illustration of a "yellow Picotee"

demonstrated how poor were these, yet, in the next decade, illustrations show really beautiful flowers. Hogg mentions how they were constantly imported from the Continent "by the families of the nobility and gentry," and Queen Charlotte and her daughters had a "very superb collection" at Frogmore, obtained principally from Germany.

Of the "true old Clove," he states, if the testimony of very old gardeners may be credited, it "is now lost," yet to-day we hear of it repeatedly, and indeed, I have seen it produced in quantities for sale—if the "old" Clove. In the very lengthy list of Carnations and Picotees, not one is now in cultivation; while, in the fairly good chapter on the Auricula, several names are familiar. It is noteworthy that Hogg retains for Auriculas the very old name of edged flowers—"painted or variegated." Sometimes there might be a difficulty to understand just what the early writers mean by these terms, and we are indebted to Hogg for making it once and for all clear.

A gardener by profession named Matthew Kenny was the doyen of Auricula growers in the early years of that century, and we learn that Maddocks was not esteemed highly as a florist. The green-edged Auricula illustrated is rather a poor specimen, perhaps the fault of the artist. There is not much said about the Tulip, and it may be gathered from remarks that though Hogg admired Tulips, he could not afford to get a collection together, which he states would cost one thousand pounds!

The rest of the flowers may be passed over, with one or two exceptions. Of Moss Roses, he notes, red, white, single, scarlet, bluish, Mossy Rose de Meaux, and Mossy Sweet Briar; these, and the few others named, he states, present "a select catalogue of the finest sorts distinguished alike for varied tints, fragrance and beauty." Of the Russian and Danish Stocks, which were the familiar ten-week German of a later date, he remarks that no flowers "are sought after at this moment with greater avidity." There were eighteen distinct colours in all, and before their introduction, he was acquainted with only the scarlet, purple, and white. He states also that some biennial or winter Stocks had lately been introduced. On the testimony of a gardener, the ten-weeks had been introduced from Germany 30 years previously, so difficult is it to get reliable information.

The volume is concluded by an essay on Prize Gooseberries and their weights, and this is included because "several florists are great cultivators of Gooseberries."

Previous, however, to discussing the qualities of Gooseberries, several of which maintain their popularity to this day, e.g., Crown Bob, Langley Green, Whitesmith, Roaring Lion, and a few more, Hogg presents his readers with the history of a "Flower Christening," a humorous account of Sam Greenhorn's visit to a London tavern, where a meeting was held to contend for a silver cup and to celebrate the annual feast. The owners of the Carnations met with their flowers in an upper chamber of the inn, and their gardeners, or helpers, downstairs. There Sam finally gravitated where, at his expense for wine to drink to their prosperity, the flowers were supplied with names appropriate to their supposed qualities. Much of it fictitious, no doubt, but enough of fact to illuminate for later generations the doings of select gatherings of florists a century ago.

R. P. Brotherston.

NOTES FROM GLASNEVIN.

COLQUHOUNIA VESTITA.

This interesting shrub has been one of the surprises of the late autumn weeks. Planted at Glasnevin against a wall with a western aspect, it has flowered more freely than ever before. Hitherto the same plant has produced but an occasional weak spike of small flowers, but this autumn nearly all the shoots are terminated by numerous flowers of orange scarlet. An interesting Labiate from the Himalayan region, it would probably flourish in

many places if planted against a warm wall, and in soil not too rich. Its value lies in its late flowering season.

CARYOPTERIS MASTACANTHUS.

Although very well known in gardens, this delightful October flowering shrub is always welcome. In favoured situations it may succeed as a bush in the open, but here it flourishes best against a wall with much the same treatment as suggested for Colquhounia. Planted near the latter it would make a pretty contrast with its panicles of small blue flowers. A Labiate also, *Caryopteris Mastacanthus* hails from China and Japan, and should be hard pruned back in spring to encourage strong summer shoots.

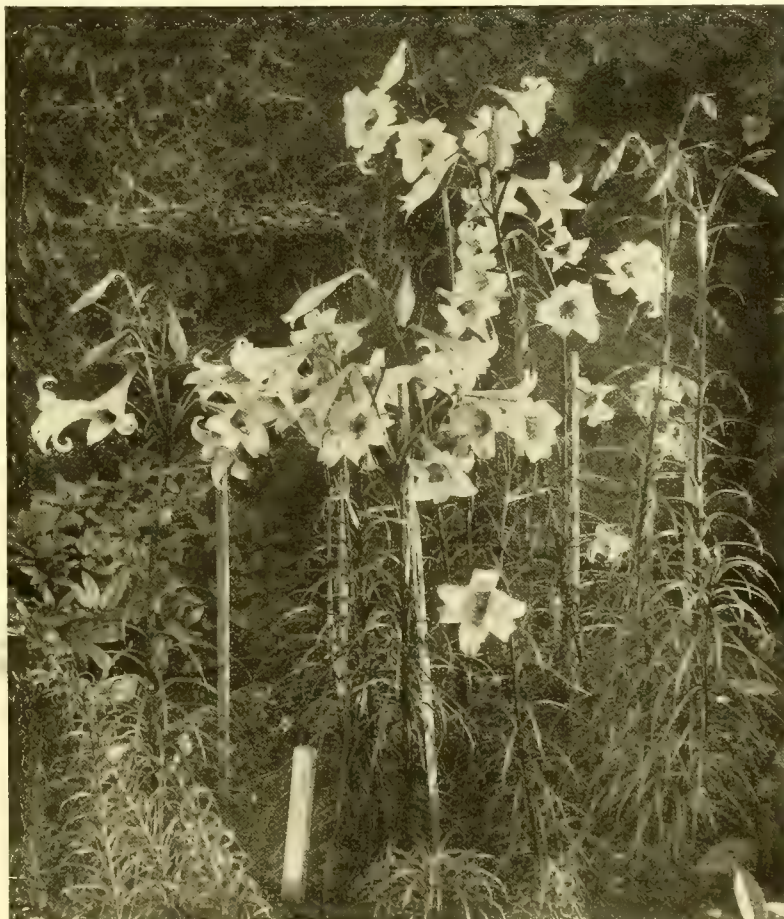


FIG. 109.—*LILIUM PHILIPPINENSIS* VAR. *FORMOSANUM*.

CORNUS PAUCINERVIS.

This interesting and pretty shrub is one of Mr. Wilson's introduction from China. Here it passed out of flower in the middle of October, although it is reputed to flower earlier in some districts. During late September and early October it attracted considerable attention from lovers of shrubs by reason of its corymbs of white flowers. It is distinct in its narrow leaves, and is suitable alike for a bed or shrubbery.

ELSOLTZIA STAUNTONII.

This, too, is an October-flowering shrub of comparatively recent introduction from China. At mid-summer it would not perhaps excite much admiration, but at this season it has claims to inclusion in the garden. It likes a position similar to *Caryopteris*, and where sunny, low walls are available for shrubs it may well be included for its interest late in the year. The small pink flowers are borne in panicles at the ends of the current year's shoots. It should be pruned in spring.

LILIUM PHILIPPINENSE VAR. FORMOSANUM.

This is the latest of all the Lilies to flower here, and for the past two years it has made a beautiful display in October. The position is a shaded one facing north, and the soil is cool and moist. It is very likely that in a sunnier position the flowers would be produced earlier, but our experience points to the need for a fairly moist rich soil. The plants illustrated (Fig. 109) were raised from seeds sown in March, 1919, and have been in their present position for 2½ years; they were planted out as soon as large enough to transplant from boxes. Since being planted in the open they have not experienced any prolonged hard frost, but they do not apparently mind a soil that is certainly cold, and wet both winter and summer.

ZIZANIA AQUATICA.

The "Wild Rice" is an interesting annual aquatic, and is rather attractive when grown in the shallow water close to the margin of lake or pond. In the spring of 1921 a quantity of seed imported from America was sown in the pond at Glasnevin. Plants grew well during the long, warm, summer months, and produced good seeds which were allowed to fall in the water naturally. Seedlings appeared in profusion this summer, and they in turn have developed seed, which is now dropping in the water.

The perennial *Zizania latifolia* also grows vigorously, but flowers very sparsely. The broader leaves, however, are ornamental, and a good group by the edge of the pond forms a pleasant variation along with groups of Bulrushes, Reedmace, *Glyceria aquatica* and a large mass of *Cladium Mariscus* in which, for some time, an Otter has made his lair, spending his time between the pond and the river near by. W. J. Besant, Glasnevin.

DAHLIAS FOR PARKS AND GARDENS.*

BECAUSE I am interested keenly in Dahlias and have tried to provide a good display in Regent's Park, my reward is this ordeal of speaking to a large number of experts who know far more about Dahlias than I do. It is not my task, however, to discuss the history of the Dahlia—is this not written by my friend, Mr. Harman Payne, with his usual thoroughness and erudition?

Though much has been written that is interesting on the early history and introduction of the Dahlia, the development of the Dahlia is equally fascinating. We had an opportunity recently of seeing several of the Dahlia species exhibited from the Royal Gardens, Kew, and no one with any imagination at all could fail to marvel at the race of flowers these small though elegant wildlings had given birth to.

Among the species shown *Dahlia imperialis* was not exhibited, no doubt for the reason that this gigantic plant does not flower till late in the year. I wonder if this noble species has borne any part in the development of the Dahlia? The flowers are displayed in the form of a branching panicle, thus differing from all our modern varieties. It might be worth while to consider whether such a type could be developed that would flower at the ordinary time. In the *Botanical Magazine* for 1870 it is stated that Messrs. Salter, of Hammersmith, grafted this species on to the tubers of a dwarf Dahlia, and on the authority of Mr. Fitch it is stated that the plants flowered luxuriantly at a height of from 6 feet to 8 feet. The method of grafting, however, is not very clearly stated, and I have twice failed in my attempt to dwarf this fine plant. Even without flowers *Dahlia imperialis* is a fine subject for a sub-tropical bed or a group on the grass. *Dahlia imperialis* is not difficult to procure if anyone wishes to experiment with it, and I may add that it is easily flowered by the common method of starving the roots.

It is a common observation that the modern Dahlia is as near perfection as it is possible for any plant to be, which is, of course, quite a mistake. There is room yet for several new types, and I hope to see single Paeony-flowered Dahlias closely resembling the single Paeony, with the petals cup-shaped and overlapping, as in the case of our lovely single garden Paeonies; and why should we not expect Dahlias with thread-like florets like the Chrysanthemums?

What has been achieved is much more remarkable than what is suggested. A few weeks ago I paid a visit to a new garden not far from London, and in this garden there was a bed of seedling Dahlias. I glanced at the plants in passing, and one single red Dahlia struck me as being peculiar. I turned back to see what made the plant look so odd, and at once noticed that all the flowers were borne flatly and quite erect; when I reached home I looked at thousands of Dahlia blooms, and with the exception of an occasional flower on the Pompons and on that fine Dahlia of Messrs. J. Cheal and Sons, called *Crimson Flag*, the whole lot faced sideways. This erect flat habit gave the plant a most distinct appearance, and it appeared to be a feature worth encouraging.

Dahlia Mercki is, perhaps, the most elegant of the Dahlia species, and ought to be used to see if a class of real miniature Dahlias could not be produced. Nothing could be more desirable than this little Dahlia in a variety of colours.

During the ten years or so that I have had to do with park gardening I have given the public displays of such flowers in named collections as Phloxes, Pentstemons, Sweet Peas, Gladioli, and Roses; but I am sure nothing gives the park frequenter so much pleasure as a named collection of Dahlias. I account for this from the fact that Dahlias are so easily grown, and they are also cheap. As town plants, they are not half so much grown as they deserve to be.

It is a remarkable fact that while the part of the Dahlia above ground is very tender and is destroyed by a few degrees of frost, the root, with the slightest of protection, will come unharmed through any average winter such as we get in London. There are Dahlias in Regent's Park growing along the edge of a shrubbery that were planted five years ago, and never have had any protection further than that provided by the shrubs; to-day they are huge plants several yards in circumference bearing sheaves of bloom. I think they represent the old variety called *Empress of India*.

It was my privilege while at Greenwich Park to judge the gardens attached to many working-class homes; this property belonged to a wealthy and very old Trust, and prizes were given annually for the best displays. In many of these quite small gardens Dahlias were the chief occupants; these were never lifted during the winter, and they often were in flower before the plants I had propagated for the park. The hardness of the Dahlia in town gardens at least has not yet been appreciated; further, what other plant that can be purchased for a few shillings per dozen will provide a household with flowers for at least three months, and which require very little skill to grow?

Nor has the Dahlia yet come into its own as a park plant. Although the border in Regent's Park contains 500 plants and over 200 varieties, I would like to see it double the length, as there is the greatest difficulty in deciding which to grow among such a wealth of fine varieties as is available nowadays.

I have also a vision of a border planted exclusively with Dahlias, Michaelmas Daisies, and Chrysanthemums; such a combination, skilfully arranged, would, I think, surpass in effect any other possible combination. I hope to achieve it one day.

Having little knowledge of the Dahlia trade, I hope I shall not be considered presumptuous when I express doubt about the planting of Dahlias being advocated with sufficient enthusiasm. I took the trouble to turn over the advertisement pages of three of the chief gardening papers for May and June, and found that little was done by the trade in the way of keeping the Dahlia in front of the public. If some enterprising grower or combination of growers would occupy a page of the *Times* with an attractive advertisement, I am certain Dahlias would be sold by the million. Our Dutch friends chartered an aeroplane to bring over their Dahlia flowers to a London show, and are not afraid to ask prices for their novelties in excess of any asked at home. Our Press were far too extravagant in their praise of these Dutch Dahlias. This season I have seen many Dutch and American varieties, but the home raiser has nothing to fear from the raisers of either country. I hope to see British raised Dahlia blooms go by air route to America and sweep the boards at some great show.

In discussing the planting of Dahlias in parks and gardens, I have already stated that it is the mixed border of all types that appeal to the public, and the interest taken is much greater when each variety is named. Beds of one variety, however brilliant, do not attract like the mixed collection. This is very strikingly apparent at Greenwich Park, where the superintendent has planted in one border a choice collection of Dahlias; the grass fronting this border has vanished long ago, being trodden out of existence, while fine beds of one variety seem to have escaped notice.

For general autumn effect, however, no plant can excel the dwarf Dahlias when massed together. Among scarlets, West's *Dazzler* is a wonderful plant; *Crimson Glow*, from Messrs. Burrell and Co., will make a striking bedder; and *Crimson Flag*, from Crawley, is already greatly in evidence in public gardens. No doubt there are many other good dwarf scarlet ones of different types, and I might mention *Orlole* as one of the brightest of all dwarf Dahlias.

Among yellows I have gone back to *Brentwood Yellow*, one of the finest of all dwarf Dahlias. I know of no Dahlia so effective as this when massed; it is now an old variety, but distinct in habit from any other, and a type worth trying to increase. I have had a bed of

250 plants, which I am certain will do much to give this old variety a new turn of popularity. Another notable yellow Dahlia of good habit is *Dobbie's Bedder*; for quantity of flower it is one of the very best, and the shade of yellow is very delightful.

(To be concluded.)

FLORISTS' FLOWERS.

SELECTION OF UP-TO-DATE SWEET PEAS.

THE Floral Committee of the National Sweet Pea Society presents the following as an up-to-date selection of varieties placed in alphabetic order. *The "asterisk" indicates the variety which the Floral Committee considers the best in each of the Colour Classes. †A "dagger" indicates a variety of special value for cultivation under glass.

BICOLOR (Light).—*Dora (A.M., 1915), Mrs. Cuthbertson, and Sparkler.

BICOLOR (Dark).—Adelaide, *†Magic, and Marks Tey.

BLUE.—*Mrs. Tom Jones (A.M.).

BLUE (Light).—*Colne Valley (A.M.), and Margaret Fife (A.M., 1915).

BLUE (Dark).—*Commander Godsall, and Jack Cornwell, V.C.

BLUSH (Pink).—Mrs. Hardcastle Sykes (A.M., 1905), and *†Valentine.

BLUSH (Lilac).—Agricola (A.M., 1912), and *Elegance.

CARMINE.—John Ingman (F.C.C., 1904), *Mascott's Ingman, and *Renown.

CERISE (Pale).—Doris, *†Hawlmare Cerise (A.M.), and Glory.

CERISE (Deep).—Brilliant, Fiery Cross (Silver Medal, 1915), and *Royal Salute.

CERISE (Scarlet).—Alex. Malcolm, and *†Royal Scott.

CREAM.—*†Matchless, and Majestic Cream.

CREAM PINK (Pale).—Bridesmaid, Cecily, and *Mrs. Arnold Hitchcock.

CREAM PINK (Deep).—Giant Attraction, Market Pink, and *Picture (A.M.).

CRIMSON.—*Charity (A.M.), Field Marshall, and Sunproof Crimson (A.M., 1909).

FANCY.—*†Artistry, and Prince George.

FLUSHED. Conquest, *Fairy Queen, and Mrs. J. T. Wakefield (A.M.).

LAVENDER.—Austin Frederick, Powerscourt (A.M., 1921), and *R. F. Felton (A.M., 1912: S.M., 1913).

LAVENDER (Pale).—*†Elsie Dene, Lavender (King's), and Victory (Bolton's), (A.M., 1915).

LILAC.—Dorothy, Italia, and *†Mascott's Helio.

MARbled AND WATERED.—*Birdbrook, Helen Pierce Spencer, and May Campbell (A.M., 1911).

MARoon (Red).—Hawlmare Maroon, Maroon (Dobbie's), and *Splendour.

MARoon (Dark).—Ravenswing, The Sultan (A.M., 1921), and *Warrior.

MAUVE.—*King Mauve, Queen of Norway, and Shamrock.

ORANGE.—Golden Glory, Orange (Dobbie's), and *†Tangerine Improved.

ORANGE (Pink).—*†Geo. Shawyer (A.M.), and King Alfred.

ORANGE (Scarlet).—*†Gloriosa (A.M.), The President, and Thos. Stevenson (F.C.C., 1911).

PICOTEE EDGED (Cream Ground).—Cherub, and *Jean Ireland (F.C.C., 1915).

PICOTEE EDGED (White Ground).—*Annie Ireland, and Elsie Herbert (A.M., 1906).

PINK (Pale).—*†Daisybud (A.M.), Mavis, and Pink Pearl.

PINK (Deep).—*†Hawlmare Pink (A.M.), Hebe, and Pink (Unwin's).

PURPLE.—Le Madhi, *Royal Purple (A.M., 1914), and Royalty.

ROSE.—Private Jack Smellie, Rosabelle, and *Sunset (Bolton's), (A.M., 1921).

SALMON.—*†Barbara (F.C.C., 1911), Liberty, and Melba.

SCARLET.—*†Hawlmare Scarlet, Mascott's Scarlet, and Scarlet (Dobbie's).

STRIPED AND FLAKED.—Loyalty, Phyllis, and *Senator Spencer.

WHITE.—*†Edna May Improved, King White (A.M., 1912), and Mascott's White.

WHITE (Tinted).—These are dark seeded varieties. *Constance Hinton, and Miss Burnie.

* A paper read by Mr. T. Hay, Superintendent of Regent's Park at the Dahlia Conference, held at the Royal Horticultural Hall Westminster, on October 17.

FIRST EARLY POTATO TRIALS.

An interesting feature of the Royal Agricultural Society's show at Cambridge this year, was the National Institute of Agricultural Botany's elaborate plot trial of First Early Potatoes arranged in the form of a chequer board. The results of the trial are now to hand, but their full significance is marred both by the prevalence of wireworm in the ground, the spring drought, and the dissimilarity of soil and climate under which the stocks of the eight different varieties were raised by their respective owners.

Each variety was represented by five separate plots in the chequer board, which, of course, helps to reduce the margin of error in a cropping test. Even so, the statistical analysis of the result showed that any difference of less than 28 per cent. could not be considered as indicating inherent superiority of one variety over the others.

The eight varieties yielded the following crops, calculated as tons per acre:—

1 Duke of York (Messrs. Daniels, Bros., Norwich)	7.4
2 Dunnottar Castle (Messrs. Sutton and Sons, Reading)	7.4
3 America (Messrs. Dobbie and Co., Edinburgh)	6.7
4 Colonist (Messrs. E. Webb and Son, Stourbridge)	6.7
5 Immune Ashleaf (Mr. A. W. McAlister, Dunfries)	6.7
6 Di Vernon (Messrs. I. Poad and Sons, York, and Messrs. Dobbie and Co., Edinburgh)	3.6
7 Sharpe's Express (Messrs. Sharpe and Co., Sleaford)	2.7
8 Dunvegan (Messrs. Sutton and Sons, Reading)	1.9

From these figures it is only possible to say that the group containing the varieties 1—5 displayed a definite superiority in cropping over that composed of the varieties 6—8, and No. 6 a definite superiority over No. 8.

The unfavourable conditions mentioned above were the cause of much irregularity in the growth of the plants of every variety, consequently the estimation of the relative times of maturity of the different varieties had to be abandoned.

The problem of measuring and comparing the cropping of different varieties of Potatoes with any degree of accuracy is one of peculiar difficulty. The National Institute of Agricultural Botany has attacked it on a large scale and in detail this year at its Potato Testing Station at Ormskirk. Full particulars of all the Potato and other trials carried out by the Institute in 1922 will be published in the early spring of 1923.

FRUIT REGISTER.

APPLES OF QUALITY.

I ALWAYS follow with interest the awards recommended by the R.H.S. Fruit and Vegetable Committee to new Apples, and no doubt it interests all pomologists that these new fruits should be brought forward annually for consideration, and I would not have things different. We must confess, however, that not many of these new introductions are of such outstanding merit as to rival such old, tried sorts as Blenheim Pippin or Cox's Orange Pippin; indeed, it seems to be a most exceedingly difficult thing to raise a really good new Apple.

I have myself experimented in a modest way for some years, and out of very many seedlings, I have found only one really worth considering, and that is not in any way superior to the great majority of passably good Apples. Blenheim Pippin, though not quite equal to Cox's Orange Pippin in quality, may be taken as a very good standard of what a really satisfactory, general purpose Apple should be, its chief fault being the long time required to get it into profitable bearing, but well grown, it is of the most admirable quality, delicious as a cooker, requiring no added sugar, and very good for dessert purposes.

The effort to get new Apples of merit is to be encouraged, but it seems little use to keep adding to the list of mediocre varieties. The raiser who can produce an early Blenheim Pippin and a late Blenheim Pippin will deserve to be ranked with the greatest benefactors of mankind; Kempster, who raised Blenheim Pippin, deserves to be held in honour. He must have possessed exemplary patience to have waited so long for his famous seedling to fruit, and I can well imagine his delight when he found he had drawn such a prize in Nature's lottery. Unless we can equal or excel such an Apple, although we may interest each other by showing our results, we have really accomplished nothing very valuable. Could we raise a Blenheim Pippin that would fruit more quickly, that would, indeed, be a distinct advance worthy of everlasting fame.

There are many Apples that I like, each possessing various degrees of merit, but if I were restricted to growing a few, I would have St. Edmund's Russett, Blenheim Pippin, Cox's Orange Pippin, King's Acre Pippin, Rosemary Russett, and Court Pendu Plat. I used to think



FIG. 110. APPLE ELLISON'S ORANGE; HALF NATURAL SIZE.

well of James Grieve, but experience shows that it is most prone to fall from the tree in an unripe state, and that this fault is too grave to make it valuable. Cox's Orange Pippin is very subject to scab. Orleans Reinette is a superior sort of Blenheim Pippin for flavour and worthy of a place in all collections. Gravenstein I like very much; it is a sweetly scented fruit of good size. The tree is a strong grower. I often see Ben's Red recommended, but I can only wonder greatly that anyone should waste good land on such a rubbishy fruit. Reinette du Canada is excellent as a cooker, and in seasons that suit it, very good for dessert. It is not generally grown, but it is worthy of a place in the garden or orchard. It is good till May or June, then fine for dessert. The tree is a grand cropper; the shape of the fruit is somewhat angular, or probably the variety would be more grown.

What should be looked for in new varieties of Apples are prolific, healthy types of such sorts as Blenheim Pippin, Cox's Orange Pippin, and Gravenstein, and until we can equal or excel these, we must write ourselves down as men who have failed to attain the ideal. Yet, if an ideal has been set so high, we have failed worthily, and the more who engage in this fascinating quest the better, even if all fail, but all will not fail, for some day another obscure Kempster will draw a prize and bless the world with an Apple of surpassing nobility. W. J. Farmer, *Ye Hive, Redruth*.

APPLE ELLISON'S ORANGE.

AMONGST the newer Apples the variety Ellison's Orange (see Fig 110) is becoming increasingly popular with growers, and especially those in private establishments, on account of its excellent flavour and handsome appearance. It was raised by the Rev. C. C. ELLISON, of Bracebridge, Lincoln, and received the R.H.S. Award of Merit on October 10, 1911, when shown by Mr. WILLIAM CRUMP, of Madresfield Court Gardens, Malvern, who found the tree to be a good grower and very fruitful. In the same year Messrs. PENNELL AND SONS, of Lincoln, introduced the variety to commerce. The fruit somewhat resembles Cox's Orange Pippin, but it is rather more conical. The skin is a beautiful golden colour striped with crimson, and there is a slight flush on the side exposed to the sun. The flesh is tender, of yellow colour, and has much of the flavour of Cox's Orange Pippin. An average fruit measures about 2½ inches high, and rather slightly less around. The variety is in season from September to October, and those who desire an early dessert Apple of the Cox's

Orange Pippin type are recommended to plant this excellent sort. T.

APPLE CHRISTMAS PEARMAIN.

I RECENTLY saw a very excellent crop of Apple Christmas Pearmain grown in a small orchard belonging to a small-holder, and the thought occurred to me why this excellent late Apple is not grown more extensively, especially for the shops. The tree is an excellent grower and not susceptible to canker. It bears with great freedom, and for this reason is one of the best varieties for small gardens. The fruit is very attractive in appearance, somewhat conical in shape, and coloured dull yellow with a brownish-red flush, overlaid with a pleasing russet brown. G.

DAMSON MERRYWEATHER.

I RECOMMEND those who have not grown this variety of Damson to do so. At Wrotham Park gardens young trees have borne heavy crops of large, firm, good flavoured fruit, that keep sound and good on the trees long after other sorts. The tree grows freely, making strong, fruitful shoots. The individual fruits are as large as small Plums, but have the true Damson flavour. So highly pleased am I with the behaviour and usefulness of this Damson, that I hope to plant more trees this autumn. I feel sure that any grower who includes this Damson in his collection of stone fruits will have no cause for regret. H. Markham, *Wrotham Park Gardens, Barnet*.

HOME CORRESPONDENCE.

Acclimatisation.—Mr. R. Irwin Lynch has done good service in his article on this subject (p. 224, in your issue of October 14). For centuries we have been acclimatising plants from all parts of the globe. Can we say they are all naturalised? For instance, the Fig and Peach have become acclimatised; are they yet naturalised? The Rhododendron and Aucuba have been acclimatised and naturalised. They reproduce themselves from seed if allowed to do so. I have yet to see the Cupressus or the Araucaria from self-sown seed in this climate. The question is mainly one of environment. At Bitton Rectory, near Bath, much was done to acclimatise plants. On p. 226 Mr. Thatcher cites a case of the Rhus from Japan and from China, bearing on the subject. In his very delightful notes on p. 193, September 30, Sir Herbert Maxwell mentions a case of Genista from Sicily flowering in "Bonnie Scotland" this year. When we consider the very local and restricted habitat of many exotic plants, it is wonderful the number that have become acclimatised. Can we say the Eucalyptus is acclimatised? I have had plants stand two or three mild winters and even flower on one occasion, but all were killed when severe frost came. Yet I know of a tree near the sea coast in the same county, 20 years of age, its stem 15 inches in diameter. Is that tree to be considered as acclimatised? J. P.

"Fungal" or "Fungous"?—Once more I put the above question. I do so because in a recent short article of mine the word "fungal" was altered to "fungous." I had previously made up my mind to use the former as the adjectival rendering of the noun, fungus. Mycologists generally appear now to adopt it. Some may complacently consider either correct, but alternatives of this kind are not usual; and further, it would surely be foolish for science to adopt one form and horticulture the other. "Fungoid" has been used also in place of the above two renderings, but this plainly is incorrect, as the "oid" ending signifies resembling only. A fungoid growth, for example, really means a growth resembling that caused by a fungus, but not one actually due to it. J. P. Carlisle.

[Webster's Dictionary defines fungal, of or pertaining to fungi, and fungous, of the nature of fungi; in A Glossary of Botanic Terms fungal is defined, relating to fungi, and fungous (1) spongy in texture, (2) relating to a fungus, (3) produced by a fungus.—Eds.]

Rosa Species with Ornamental Fruits.—Rosa Sweginzowii, which was illustrated in Fig. 54, is one of the best of the ornamental fruited species, but there are others almost equally beautiful when in fruit. Some of the more notable species include Rosa omeiensis, which has very elegant foliage of Fern-like grace and small, scarlet fruits with yellow stalks; R. Moyesii, an exceedingly handsome species both in flower and in fruit. The blooms are deep blood red and are succeeded by deep red fruits that are very similar in shape to those of R. Sweginzowii. R. sertata has showy, rosy-purple blossoms and develops a number of deep red fruits, each about three-quarters of an inch long. R. setipoda, which Wilson in *Plantae Wilsonianae* states is closely related to R. Sweginzowii, has showy flowers about two inches across developed in loose, corymb-like cymes of a pale rose colour, and the flowers are succeeded by deep red ovoid fruits. T.

Wasps.—I am at a loss to understand how a "cold, wet spring" (see p. 197) can be held responsible for "a large number of wasps' nests later," as it usually has just the opposite effect, especially if followed by such a very cool summer, as we have had this year. Perhaps, however, the Criccieth wasps revel in that sort of spring, and although Mr. Bayliss noticed very few queens at that time, evidently those that survived were very prolific! I believe N. Wales is noted for its prevailing wetness, so no doubt the wasps have become inured to that sort of thing. What does Mr. Bayliss mean by "spring"? Queen wasps are usually on the move in my district in April and May. C. Nicholson.

SOCIETIES.

IMPERIAL FRUIT SHOW.

THE second Imperial Fruit Show at the Crystal Palace, organised by the *Daily Mail* in association with the Ministry of Agriculture, was opened on the 27th ult. by Sir Arthur Griffith-Boscawen, Ministry of Agriculture in the late Government and now Minister of Health. This year the scope of the show was somewhat enlarged and provision was made for Grapes, Citrus fruits, Pears, Tomatos, and Potatos, whilst classes have been added for Australia, Canada, Channel Islands, and Ireland. There were also many exhibits of a scientific nature in the gallery and displays of implements, baskets and other necessary appurtenances for fruit growers, whilst several Cider firms had imposing stands on which they displayed their beverages, with much information as to the process of converting Apple juice into Cider. Specimens of old Cider presses were particularly interesting. An extensive exhibit illustrated the work of the *Daily Mail* Young Farmers' Club, and included a model of a garden, poultry houses with an exceptionally fine pen of birds, and beehives.

The opening ceremony was performed, as stated, by Sir Arthur Griffith-Boscawen, who was introduced by Mr. Thomas Marlowe, the Editor of the *Daily Mail*. Mr. Marlowe stated that the Ministry was responsible for all technical matters and the *Daily Mail* for the organisation and finance of the exhibition. He stated that 8,000 parcels of fruit were entered in the 152 sections and that in most cases the competition was very keen. In one case, only half a point separated the first and second prize-winners, and half a point the second and third prize-winners. Mr. Marlowe, on behalf of the organisers, especially thanked Mr. W. G. Lobjoit, Controller of Horticulture at the Ministry of Agriculture, Mr. H. V. Taylor, Deputy Controller of Horticulture, and Mr. P. G. Dallinger, Chief Inspector.

Sir Arthur, in declaring the show opened, stated that he had hoped to have brought with him the new Minister of Agriculture, Sir Robert Sanders, but Sir Robert was unable to be present. He had, however, sent him a letter in which he greatly appreciated the public spirit of the *Daily Mail* in organising the exhibition. Sir Arthur Griffith-Boscawen stated that the show had a great educational value and its main object was to try and help the British grower to help himself. He was glad to know that the efforts of his old officials of the Ministry of Agriculture had brought home to the British grower the importance of packing and grading, and these shows have greatly assisted them in this direction. He understood that the Irish exhibitors were greatly in fault in these respects to-day, and by these methods they hope to help their Irish friends.

Although it was officially stated that the show was larger and the exhibits greater in number than last year, it was difficult to agree with this estimate, while from a spectacular point of view, the competitive show was distinctly depressing. The arrangement of the Apples on the main floor was sadly suggestive of sheep pens, and small wonder that many of the visitors contented themselves with passing down and returning to seek attractions elsewhere. Those who were interested in fruit from a business point of view did examine the many very fine exhibits critically, but such do not require educating, and we take it that the primary object of the show was to educate and to enthuse the lay public in all matters appertaining to fruits produced in our great Empire. This being so, everyone concerned must have regretted that the fullest advantage was not taken of so great an opportunity.

The bright spot amongst the competitive exhibits was the amateurs' section, and this, unfortunately, was tucked away at one end of the gallery, which only a small proportion of those who attended visited.

The nurserymen's non-competitive collections were, of course, attractive in every way. We write, "of course," advisedly, because, as the show-attending public is well aware, our trade growers have long been in the habit of staging

superb fruit in a highly attractive manner. The graceful stand of Messrs. G. BUNYARD AND Co., Maidstone, for instance, at once took the eye and compelled the visitor to realise the merits of the many dishes of Apples, Pears, and other hardy fruits. Even the most casual amongst them could not fail to admire the beautiful colour of the Roosevelt Pears, a variety which also carries high flavour, while others admired the Beurré Alexandre Lucas and the uncommon sheen on the shapely fruits of Double de Guerre, a particularly good culinary Pear. Many of the Apples were especially highly coloured. On the other side of the main floor Messrs. LAXTON BROS. also had in an especially attractive setting a large collection of hardy fruits. Apples predominated, and amongst them were to be found all the best varieties; Rival was in really beautiful colouring, though the greatest prominence was given to their new variety Laxton's Superb.

Splendid little pot trees, bearing perfect fruits, was the dominant feature of an exhibit by the KING'S ACRE NURSERY Co., and of these, Gascoigne's Scarlet was the most attractive. There were also many baskets of superb Apples and Pears. Gathered fruits of high quality were freely shown by Messrs. SEABROOK AND SONS and the BARRHAM NURSERIES Co., while Messrs. ISAAC HOUSE AND SONS had branches and gathered fruits of their showy Apple, John Standish.

The only exhibit of vegetables, other than in the Potato competitions, was a fine collection of the seasonable kinds of Messrs. J. CARTER AND Co., who also showed good samples of spring bulbs for present planting.

The best traditions of Covent Garden Market were exemplified by the leading salesmen. Messrs. GEORGE MONRO, LTD., again had a representative exhibit of market fruits of high quality in the packages as received from the best growers. In another place they had a comprehensive stand of horticultural sundries. A representation of an enormous wicker hamper of Apples was the central feature of an interesting exhibit by Messrs. J. BRADNUM, LTD.

Messrs. RIDLEY AND HOULING combined shop and market most successfully (Fig. 111), and this attracted many of the visitors as much through the novelty of the arrangement as the very high quality of the Apples. The enormous quantity of fruits of many kinds shown by Messrs. T. J. POUPART, LTD., had a very imposing appearance, while just inside the door the stall of the Chamber of Horticulture was very attractively decorated with flowers and fruit. The only displays of flowers in quantity were the beautiful Carnations staged by Messrs. ALLWOOD BROS. and Mr. C. ENGELMANN, and a generous bank of decorative blooms of Scabiosa caucasica interspersed with Michaelmas Daisies by Mr. W. Wells, jun.

COMPETITIVE EXHIBITS.

The British Empire classes for Apples, which require 20 boxes each of any dessert or culinary variety, resulted in a very large competition. There were 21 entries from Australia, Canada and South Africa, while the 24 entrants from Great Britain included such well-known fruit growers as Sir WALTER BERRY, Lt.-Col. A. C. BORTON, Messrs. W. J. LOBJOIT AND SON, Mr. HERBERT MOUNT, Mr. S. W. MOUNT, Messrs. W. SEABROOK AND SONS, besides various associations, including the HORTICULTURAL DEPARTMENT (Mr. A. J. Cobb), UNIVERSITY COLLEGE, Reading. This competition was a triumph for Nova Scotia in that both first prizes were won by Messrs. H. L. MORSE AND SONS, Berwick, Nova Scotia. Messrs. W. SEABROOK AND SONS were second, and Mr. S. W. MOUNT was third in the class for culinary Apples, while in the dessert class, the second prize was won by the POMOLOGICAL AND FRUIT GROWING SOCIETY of the Province of Quebec, and the third prize by Mr. F. P. NORBURY. The classes for Citrus fruits were disappointing, but the first prize six shallows of Black Grapes, shown by the MENPES FRUIT FARM, were very good, though these growers were beaten by Messrs. DOUGLAS BROS. in the Great Britain section. In this section Mr. S. W. MOUNT was a very successful competitor in the Apple classes.

The general quality of the Apples in the various district sections of England was very high, but far too often the packing of the boxes was faulty and, as packed, they would not travel well. A noteworthy exception was the half a dozen boxes of Cox's Orange Pippin, which won the first prize in the Kent and Southern Counties Section. These were exhibited by Mr. A. J. COBB from the Horticultural Department, University College, Reading, and he informs us that the excellent packing was mostly done by the students. It was admirable in every way and served to display the splendid fruits to the best advantage. In the class for Worcester Pearmain, their packing was again excellent. The best Blenheim Pippin was a splendid sample by Lt.-Col. A. C. BORTON. The barrels of Apples in this section were also of high quality, and Mr. S. W. MOUNT was a frequent first prize winner. The classes for any other variety of Apple, in most sections, brought forward an interesting variety of admirable sorts, but to the general public, the value of these classes was lost because the varieties were not named. In the Kent and Southern Counties section, the three prize half barrels, were of excellent fruits of King Edward VII., Mère de Ménage, and Lord Derby, but the exhibits bore no indication of these names.

The poor quality of the Irish Apples was very noticeable, and in the words of a well-known expert, "They would disgrace a coster's barrow." This was literally true and in addition to this very poor quality, the packing was exceedingly bad.

As we have previously remarked, the disposition of the amateurs' exhibits in the gallery was deserving of high praise, and the general quality was excellent. There was a great improvement on last year's show in that for the most part it was the very best varieties that were shown. Unfortunately, there was no collection of fruit.

POTATOS.

Classes, arranged and organised by the National Federation of Fruit and Potato Trades' Association and the National Farmers' Union, were included on this occasion for Potatoes, and the tubers were shown in bags of one hundred-weight. The exhibits were not of the quality we are accustomed to see at horticultural exhibitions, and large size seemed to be regarded by the exhibitors as of more importance than evenness of tuber, cleanness of skin, shallow eyes and other qualities usually associated with exhibition Potatoes by gardeners; moreover, most of the tubers were in a very dirty condition. Each winning bag was spread out for inspection and much the finest sample was Arran Comrade, shown by Mr. G. HOWARD, East Walton, Kings Lynn. Another remarkable exhibit was a bag of Golden Wonder, shown by the NEW TOWN AGRICULTURAL GUILD, Welwyn, Hertfordshire. The specimens of King Edward were not nearly so good as we are accustomed to see, even at local flower shows. The English counties were grouped in four sections and there was a separate section for Scotland. Messrs. W. TASKER AND SONS, Meikle, Perthshire, easily beat all other competitors in five out of the seven classes for Scotland, with tubers of very high quality. The Scottish tubers generally were of small size, better graded, and more suited for the table than the English produce.

EDUCATIONAL EXHIBITS.

The educational exhibit from the UNIVERSITY OF BRISTOL was of especial interest. The Director brought from Long Ashton pot plants and other specimens of Strawberries, Gooseberries, and Black Currants grown in pure silver sand with the object of discovering the effect caused by the elimination of one of the essential plant foods. Perhaps the most striking result was shown in the examples grown without calcium. The plants make short, sturdy growth and retain their foliage longer than normally, but, while flowers are freely produced, no fruit develops. With regard to Apples, the experiments show that without nitrogen, the fruits have an acid taste and produce a large number of pips, while when potash is eliminated, there are few, if any pips, scorching of the margins of

the leaves occurs, and here again no sugar is formed. The absence of phosphoric acid reduced the keeping properties of the Apples. In the control, where no manure was given, the fruits were larger, flavourless and contained many pips.

From the UNIVERSITY OF LEEDS there were valuable data on the cutting of Potato tubers, which showed that "sets should never be cut in sunlight, nor planted in dry soil. But they may be cut, well in advance of planting, if in shade and left scattered in shelter and moist air." The exhibit from the UNIVERSITY OF CAMBRIDGE SCHOOL OF AGRICULTURE gave interesting information and contained specimens affected with Silver Leaf Disease. The EAST MALLING RESEARCH STATION had valuable tables showing which varieties of Apples benefit, or otherwise, from the practice of tipping and from the thinning of the shoots.

ROYAL HORTICULTURAL.

OCTOBER 31.—A bright autumn day, with a brisk atmosphere, brought out large numbers of Fellows and friends to see the brilliant exhibition provided at Vincent Square. The



FIG. 111.—MESSRS. RIDLEY AND HOULING'S DISPLAY AT THE IMPERIAL FRUIT SHOW (P. 272).

best autumn display of Orchids yet seen at Westminster was the feature of the show, and there were no fewer than eleven attractive and interesting groups of these showy flowers, while twenty-one novelties were placed before the Orchid Committee. Next in importance were the Chrysanthemums, and Mr. H. J. JONES won another gold medal, which, we believe, brings his record up to six of these awards in about a dozen weeks. Grapes were also excellently shown, and for his exhibit of these fruits the Hon. VICARY GIBBS secured a gold medal.

There were numerous novelties, and perhaps the best was the beautiful Barberry named after its raiser and exhibitor, Lady BEATRICE STANLEY.

Orchid Committee.

Present: Sir Jeremiah Colman, Bart (in the chair), Messrs. Jas. O'Brien (Hon. Secretary), Gurney Wilson, T. Armstrong, J. E. Shill, Stuart H. Low, F. J. Hanbury, E. R. Ashton, Pantia Ralli, A. McBean, W. H. White, C. J. Lucas, F. K. Sander, H. G. Alexander, Chas. H. Curtis, S. W. Flory, A. Dye, J. Cypher, W. H. Hatcher, H. T. Pitt, and R. G. Thwaites.

FIRST-CLASS CERTIFICATES.

Odontoglossum crispum Beauty Spot.—From PANTIA RALLI, Esq., Ashted Park, Surrey

(Orchid grower, Mr. Farnes). A remarkably fine *O. crispum* of the Pachy type, but improved by being home-raised. The noble spike bore large, pure white flowers of fine substance, with a large reddish spot on each of the sepals.

Vanda luzonica dulcis.—From Messrs. SANDERS, St. Albans. A superb variation from the type originally imported from the Island of Luzon by Messrs. Sanders. The fine spike bore several large, pure white flowers, with mauve bands inside the margins of the segments.

Laelio-Cattleya Dodona (*Haroldiana* × *Nelthorpe Beauclerk*).—From Messrs. COWAN, Southgate. A brilliant flower of very remarkable colour, large size and good form. The ground colour is orange with a rosy-red glow, the broad labellum being violet purple with gold shading around the yellow disc.

AWARDS OF MERIT.

Odontoglossum Princess Yolande (*eximium* × *l'Empereur*).—From R. GERRISH, Esq., Milford Manor, Salisbury (gr. Mr. W. Sorrell). A showy flower of reddish claret colour with white tips and margins, and white front to the lip.

Laelio-Cattleya Venada Rosslyn var. (*L.-C. Baron Schröder* × *C. Dowiana aurea*). From H. T. PITT, Esq., Rosslyn, Stamford Hill (gr.

Mr. Thurgood). A very attractive flower of good shape, the soft rose and red of the sepals and petals being shaded with orange. The effective lip is well formed.

Odontoglossum crispum Silver Moon.—From PANTIA RALLI, Esq. A true crispum of the finest form, with clear white flowers of perfect shape.

Odontoglossum crispum The Marquis.—From H. T. PITT, Esq. A splendidly grown plant with flowers of the true crispum type.

PRELIMINARY COMMENDATIONS.

Odontoglossum Emma (*eximillus* × *Ashtedense*), from PANTIA RALLI, Esq. A promising flower of rich colour.

Odontoglossum Bonar Law (*nitidum* × *amabile splendens*), from Messrs. CHARLESWORTH AND Co. Three very dissimilar forms of this superb hybrid with their large first flowers were shown, varying from white to rose ground with dense spotting of clear claret red.

CULTURAL COMMENDATIONS.

To Mr. FARNES, Orchid grower to Pantia Ralli, Esq., for a well-flowered specimen of *Trichosma suavis*.

To Mr. THURGOOD, gardener to H. T. Pitt, Esq., for a fine specimen of the claret red *Epidendrum* (*Nanodes*) *Medusae*.

GROUPS.

The 30-guinea Challenge Cup offered by Orchid traders for a collection by an amateur and a Silver-Gilt Lindley Medal were awarded to Baron BRUNO SCHRÖDER, The Dell Park, Englefield Green (gr. J. E. Shill), for a superb group in which *Cattleya Tiesias* with a dozen spikes and other *C. Bowringiana* hybrids, with good specimens of that species, were arranged at the back. The Dell forms of *Laelio-Cattleya Ivanhoe* represented the best possible types of *Laelio-Cattleyas* in rich and varied colours and form; the finely coloured *C. Portia* in large specimens being very effective. *Brasso-Cattleya Rutherfordii*, with large, fragrant white flowers, and other *Brasso-Cattleyas* and *Brasso-Laelio-Cattleyas* were also represented, arranged with pretty forms of *Dendrobium Phalaenopsis*, superb *Odontoglossums* and *Cypripediums*, and several specimens of *C. Maudiae*, each with twenty or more flowers.

Sir JEREMIAH COLMAN, Bart., Gatton Park (gr. Mr. J. Collier), was awarded a Silver-Gilt Flora Medal for a very remarkable group, in which a large number of species and hybrids was displayed. *Cattleya Bowringiana*, including the blue-tinted *C. B. lilacina*, *C. Portia coerulea* and other blue-tinted *Cattleyas* of the class raised at Gatton, were prominent features; the collection also contained *Laelio-Cattleya Countess Torby*, and other *Laelio-Cattleyas*; *Cattleya Venus Prince of Orange*, *C. labiata coerulea*, and the fine form *The Empress*; a selection of white *Cattleyas*, numerous *Odontiodas*, and *Odontoglossums*, including *O. crispum* Gatton Park var., *O. Gatton Princess* and other forms raised at Gatton, with a selection of pretty species.

MESSRS. CHARLES WORTH, Haywards Heath, were awarded a Gold Medal for a fine group which included their grand forms of *Laelio-Cattleya Athene*, *Pyramus* and Dr. M. Lacroze, with *L.-C. Britannia* in variety, the best white being the variety *Melanie*. Some very fine white Orchids, including *L.-C. Schröderae alba*, and *Cattleya Eva*, white with a dark lip; also a fine selection of yellow forms and *Odontoglossums* were also shown, one of the best novelties being *Brasso-Laelio-Cattleya Truffautiana* var. *Distinction* (*L.-C. luminosa* × *B.-C. Mrs. J. Leeman*), with greenish-yellow petals and large mauve lip.

MESSRS. J. AND A. McBEAN, Cooksbridge, were awarded a Gold Medal for one of the best arranged trade groups yet shown, every plant being worthy of the show stand and staged to present it at its best. The Cooksbridge establishment is noted for *Odontoglossums*, and *Odm. crispum* and hybrids were well displayed. Forms of *Cattleya Venus* were of remarkable beauty, their *C. Dinah* (*Elina* × *Dupreana*), which had previously secured an award, well sustained its high character; *C. Fabia* varieties, including *alba*, were good, and the brilliant *Odontiodas* gave colour to a very praiseworthy group.

H. T. PITT, Esq. (gr. Mr. Thurgood), was awarded the 20-guinea Challenge Cup offered by traders, and a Silver-Gilt Flora Medal for a very fine group, comprising the best *Odontoglossums* and *Odontiodas*, including his superb *Odontoglossum Bullecourt*, a grand selection of winter-flowering *Cattleyas*, and many remarkable species.

Mrs. MARY JOICEY, The Hill, Witley, was awarded a Silver-Gilt Flora Medal for a select group of rare Orchids, all in fine condition. At the back was the rare *Vanda luzonica* arranged with white *Odontoglossums*, yellow *Laelio-Cattleyas*, including *luminosa aurea* and *Carmen-cita aurea*, all attractively displayed. The old *Odontoglossum grande* and a good selection of hybrids and *Odontiodas* contributed rich colour.

MESSRS. SANDERS, St. Albans, were awarded a Silver-Gilt Flora Medal for a very fine group, in which some of the beautiful species of which they were the original introducers were well shown. Various *Vandas*, now rare, and other species were shown, together with a varied selection of hybrids, several of which were new. White forms, including varieties of *Cattleya Puritan* and hybrids of *C. Lady Veitch*, were staged; among the *Brasso-Cattleyas*, the new *B.-C. R. Seymour Famin*, a grand cream blush flower with yellow zone to the lip, was the best; *Cattleya Peerless*, *Lady Veitch* × *Gaskell-*

liana alba) is a good white variety. Messrs. Sanders also showed a pan of the remarkable *Macodes Sanderianus*, with beautifully coloured leaves, and others of this class.

MESSRS. J. CYPHER AND SONS, Cheltenham, were awarded a Silver Flora Medal for a pretty group arranged in their usual artistic manner, and composed of plants that exhibited highest culture. Among the very handsome *Cattleyas* was a superb specimen of the coloured form of *C. Peetersii* and some splendid white forms of it; there were also various white *Cattleyas*, richly coloured *Laelio-Cattleyas*, a showy selection of *Odontoglossums*, some grand *Brasso-Cattleyas*, and a very interesting selection of species of *Masdevallias*, with graceful sprays of *Oncidium* arching over from the back.

MESSRS. COWAN, Southgate, were awarded a Silver Flora Medal for a very fine group of good hybrids, most of them raised by the firm (formerly Messrs. Hassall and Co.). The *Laelio-Cattleyas* included many crimson and yellow forms, the latter including their type of *L.-C. luminosa aurea*. Specially good *Cattleyas* were also shown.

MESSRS. FLORY AND BLACK, Slough, secured a Silver Flora Medal for an exceptionally good group of hybrids, including a form of their showy *Brasso-Cattleya Viscount Toda*.

Mr. HARRY DIXON, Wandsworth Common, was awarded a Silver Flora Medal for a good and representative group, in which the best white Orchid was *Cattleya The Bride*, of a distinct type.

Floral Committee.

Present: Messrs. H. B. May (in the chair), Sydney Morris, R. C. Notcutt, Reginald Cory, H. V. Warrender, John Heal, J. F. McLeod, W. B. Gingell, J. Jennings, W. Howe, Donald Allan, C. R. Fielder, G. Harrow, G. Reuthe, E. A. Bowles, W. P. Thomson, Chas. E. Pearson, W. B. Cranfield, Chas. E. Shea, Hugh Dickson, Arthur Turner, M. C. Allwood, Jas. Hudson, and Gerald Loder.

Chrysanthemum Wycombe Pink.—A large-flowered single variety with twisted ends to its slightly drooping florets. The colour is lilac-rose pink. Shown by Mr. W. N. TYZACK, High Wycombe.

Chrysanthemum Mrs. B. Carpenter. This beautiful Japanese variety is described on p. 275 in connection with the N.C.S. report. Shown by Mr. B. CARPENTER, Crouch End, Finchley.

Chrysanthemum Miss A. Hazell. This fine crimson and gold Japanese variety secured recognition from the N.C.S. the day previous, and is a brilliant flower. Shown by Baron SCHRÖDER (gr. Mr. Henderson), The Dell, Egham.

Pelargonium Fascination.—An interesting variety of the Cactus-flowered type, which has pointed-petalled flowers. The colour is deep and bright rose pink, and when a mass of flowers is presented the effect is pleasing. The variety is a seedling from the more brilliant *Fire King*. Shown by Mr. W. BUNN, Colwall.

Carnation Thos. C. Joy. To good form and size this white, fringed-petalled variety adds the merit of fragrance; it is distinctly clove-scented. Shown by Messrs. ALLWOOD BROS., Havward's Heath.

Crataegus Fulleriana. This is a large, fruited Thorn with Cherry-like open-eyed fruits of a reddish scarlet colour. No doubt when seen growing and as a good-sized tree, it is most effective, but the leafless branches shown did not do it justice. Shown by the Hon. VICARY GIBBS (gr., Mr. E. Beckett), Aldenham House, Elstree.

Crataegus Elaeagnifolia. This has much in common with the foregoing, but has slightly smaller and duller fruits. The branches have spur-like thorns. Shown by the Hon. VICARY GIBBS.

Nerine Glitter. In this robust variety the flowers are rich orange-scarlet, and the segments are all waved. Shown by Messrs. BARR AND SONS, Covent Garden.

Nerine His Majesty. A very showy variety of good size and with slightly wavy flowers of a glowing light scarlet colour. Shown by Messrs. BARR AND SONS.

Rhodostachys andina splendens. A large growing Bromeliad with spiky leaves that have a silvery under surface, and are grey-green above. The specimen shown had several rounded heads of flowers, pink, with prominent gold-anthers.

Berberis Lady Beatrice Stanley. An exquisitely beautiful Barberry, with pendulous racemes of rounded, bright coral red fruits, which hang in profusion like Currants, along the arching growths. We understand this and several other pretty varieties shown were raised from a packet of seeds distributed from Wisley. It is certainly the finest Barberry we have seen, considered only from its effectiveness in the fruiting state. Shown by Lady BEATRICE STANLEY, Market Harborough.

GROUPS.

Chrysanthemums were in such quantity and high quality as to augur well for the success of the National Chrysanthemum Society's Show on November 16 and 17. Mr. H. J. JONES had an interesting collection arranged in his customary imposing manner. There were many excellent Japanese varieties of the best exhibition size and type, and these included Wm. Rigby, Mrs. R. C. Pulling, Mona Davis, H. E. Converse and the new Viscount Chinda. Amongst the single-flowered sorts, Phyllis Cooper, large, rich yellow, and the pure White Gem, were very beautiful. Bronze Uxbridge and Red Emperor, of decorative size, were also noteworthy. For the sixth time this year Mr. H. J. Jones has won the highest award for a collection of flowers, which certainly must constitute a record (Gold Medal).

Large-flowered Japanese Chrysanthemums of merit were also prominent in a collection staged by Messrs. W. WELLS AND CO., whose chief sorts were Arthur Winter, Mrs. Sidney Dove, Mrs. R. Luxford, James Stedwick and Mrs. G. Monro. They also showed useful sprays of decorative varieties (*Silver Flora Medal*). In an attractive group by Messrs. KEITH LUXFORD AND CO. there were several very good types of the Anemone-flowered Chrysanthemums, such as Mabel Weston, pale blush, and Thora, rosy mauve (*Bronze Flora Medal*).

The best collection of winter-flowering Begonias that has been exhibited for a very long time was set up by Sir CHAS. NALL-CAIN, Bart. (gr. Mr. T. Pateman), The Node, Welwyn. There was a very large collection of 14 varieties and many of the large and floriferous plants were growing in small pots. The most striking sorts were Winter Beauty, deep crimson semi-double flowers, of slightly pendulous habit; Erita, large single orange; Ideala, very free-flowering and of deep rose pink colour, and Flambeau, rich orange, semi-double flowers (*Gold Medal*).

A better collection of stove plants than the award represents was displayed by Messrs. L. B. RUSSELL, LTD. Practically every plant was a model of cultural skill, and it included various *Codiaeums* (*Crotons*), *Cordylines* (*Dracaenas*), such handsome foliaged *Anthuriums* as *A. cristallinum* and *A. Fitzerii*, the beautiful blue-flowered *Tillandsia splendens* and the old-rose coloured *Ruellia macrantha* (*Silver Banksian Medal*).

The large quantity of especially well-grown plants of the double-white greenhouse *Primula*, similar to that which in former years enjoyed a wide popularity, was shown by Gen. Sir CHAS. HADDON, Berkhamstead. These illustrated a good strain and first-class cultivation (*Silver Flora Medal*). A small collection of seedling *Nerines* was staged by Messrs. F. H. CHAPMAN, LTD. (*Bronze Flora Medal*).

Fresh and bright Carnations were displayed by Messrs. ALLWOOD BROS., who included the fragrant Mrs. C. F. Raphael, and a delightful vase of mixed Perpetual-Malmaison varieties (*Silver Flora Medal*). Mr. C. ENGELMANN had the rich crimson Topsy and Nigger, the vivid scarlet Tarzan, and the deep heliotrope fancy Circe in his collection (*Silver Banksian Medal*). In a set by Messrs. STUART LOW AND CO., the beautiful pink Eileen Low, Red Ensign and White Pearl were very prominent (*Silver Banksian Medal*).

The new Cactus-flowering *Pelargonium Fas-*

cination, shown by Mr. W. BUNN (see Awards of Merit), was exceedingly attractive as a cut flower arranged with Maidenhair Fern. In this form it competed successfully with the spikes of *Nerines* (Bronze Flora Medal).

An exceedingly interesting collection of dwarf alpines grown in pots and pans was contributed by Messrs. G. G. WHITELEG and Co.; this filled an entire length of staging, and was composed chiefly of Saxifrages, Sedums and Sempervivums. Amongst the first-named *S. pectinata*, *Aizoon* and hybrids were particularly noteworthy for the autumn colouring on the outer leaves, while the rosettes of *S. longifolia* were beautifully silvered. Other silvery plants were *Raoulia australis*, of graceful creeping habit, and *Teucrium aureum* (Silver Banksian Medal).

Shrubs with glaucous foliage were prominent in an exhibit by Messrs. J. PIPER AND SON, and these were *Juniperus pachyphloea*, *Pittosporum Tobira* variegata and *T. Silver Queen* (Silver Banksian Medal). A neat little collection of hardy *Opuntias* in the group by Mr. G. REUTHE attracted attention, and he also had flowering sprays of *Hoheria populnea* and the brilliant *Salvia Grahami* (Silver Banksian Medal). Mr. F. G. WOOD had a small collection of his little rockeries and hardy flowers (Bronze Banksian Medal). The Misses HOPKINS set up a small rock garden and planted it with appropriate species, while Mr. J. J. KETTLER showed bunches of Violets.

Roses in very good condition and of beautiful colouring were shown. Mr. G. PRINCE included Golden Emblem and Mrs. W. Christie Miller, of exceptional merit (Silver Flora Medal), while the Rev. J. H. PEMBERTON had good vases of *The General* and *Mary Monro* (Silver Flora Medal).

Fruit and Vegetable Committee.

Present: Messrs. C. G. A. NIX (in the chair), J. CHEAL, Geo. F. TINLEY, Owen Thomas, S. B. DICKS, G. REYNOLDS, A. BULLOCK, W. F. GILES, F. JORDAN, J. WILSON, A. METCALFE, E. BECKETT, T. PATEMAN, E. NEAL, J. C. ALLGROVE, A. C. SMITH, E. A. BUNYARD, W. H. DIVERS, J. HARRISON, W. WILKS, and A. N. RAWES.

Several seedling Apples were submitted for award, but none was considered equal to varieties already in commerce.

A selection of the best varieties of Beetroots grown at Wisley under trial this year were shown from the WISLEY GARDENS and Messrs. KELWAY BROS. also showed their Perfect Model Globe Beet and Kelway Barrel-shaped Beet, both of which figured in the trial.

A Gold Medal was awarded to the Hon. VICARY GIBBS, Aldenham House, Elstree (gr. Mr. E. Beckett), for a splendid exhibit of Grapes, including the varieties, Alnwick Seedling, Muscat of Alexandria, Lady Hutt, Alicante, Appley Towers, Gros Maroc, Lady Downes, Prince of Wales, Cooper's Black, and Madresfield Court. This splendid exhibit was one of the best collections of Grapes seen in the hall for a long time; Mr. Beckett is to be congratulated in adding to his other honours the winning of the Gold Medal of this Society for Grapes grown at Aldenham.

Mr. F. J. CHITTENDEN, Director of Wisley, referred to a scheme under the joint auspices of the Royal Horticultural Society and the Ministry of Agriculture, by which hardy fruits would be tested in the Wisley Gardens under trial as to their suitability for commercial purposes, and asked the Fruit and Vegetable Committee to appoint members to represent that body on the General Committee. The scheme will be a very comprehensive one, and it is proposed to devote some forty acres of land to the trial. The Ministry of Agriculture will make a grant covering two-thirds of the cost and the R.H.S. will provide the remainder.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

TUESDAY, October 5.—Present: The Rev. J. Crombleholme (in the chair), Messrs. B. J. BECKETT, A. BURNS, J. EVANS, W. GILES, A. HAMMER, J. HOWES, J. JACKSON, A. KEELING, J. McLEOD, E. W. THOMPSON and H. ARTHUR (Secretary).

FIRST-CLASS CERTIFICATES.

Odontidea Renown (Odt. 'Coronation' × *Odm. Victory*). A large, reddish-brown flower with lighter tips; *Laelio-Cattleya J. Ansaldo magnifica* (L.-C. Hildegard × L.-C. Lustre). A large flower of even colour with deep crimson lip. From S. GRATRUX, Esq.

Brasso-Cattleya British Queen (B.-C. *Empress of Russia* × C. Lord Rothschild). A fine flower, probably the best of the type yet seen; *Odm. Fabia* (*eximium* × *Aglaon*). From Mrs. GRATRUX.

Odm. crispum Fairy Queen. A white flower with occasional spots; *Odm. crispum xanthotes Sunstone*. A variety with small yellow spots on the sepals. From A. HANMER, Esq.

Cypripedium Psyche Daisy Bank var. From B. J. BECKETT, Esq.

Miltonia Lord Lambourne. A fine flower of the vexillaria type and of intense colour. From P. SMITH, Esq.

AWARD OF MERIT.

Cattleya Venus Stonehouse var. From S. GRATRUX, Esq.

GROUPS.

S. GRATRUX, Esq., West Point (gr. Mr. J. Howes), was awarded a Gold Medal for a group in variety.

Mrs. BRUCE and Miss WRIGLEY, Bury (gr. Mr. A. Burns), staged a group of Orchids, for which a Gold Medal was awarded. A. HANMER, Esq., Buxton (gr. Mr. C. Giles), was awarded a large Silver Medal for *Odontoglossums* in variety. A. T. COUSSENS, Esq., Prestwick, was also awarded a Silver Medal for a miscellaneous group.

NATIONAL CHRYSANTHEMUM.

The Floral Committee of this Society met at the Royal Horticultural Hall on Monday, the 30th ult., and had the pleasure of finding a very large display of flowers ready for consideration. No fewer than thirty-eight novelties were submitted, and awards were made as follow:—

FIRST-CLASS CERTIFICATES.

Mrs. B. Carpenter (II. 1.A). A particularly beautiful, large Japanese variety of very refined appearance. It has long, gracefully reflexing florets of a charming shade of rose-pink, and is a sport from Mrs. Algernon Davis. Shown by Mr. B. CARPENTER, Crouch End, Finchley.

Helmuth (II. 1.A). A handsome, deep velvety crimson, Japanese variety with a pale gold reverse to its broad reflexing florets.

D. B. Crane (II. 1.A). A variety of deep chestnut-red colouring and with flattish, reflexing florets.

Bertha (II. 1.A). A deep velvety-crimson variety, somewhat like Helmuth, but with narrower florets. The foregoing three varieties were shown by BARON SCHRODER (gr. Mr. Henderson), The Dell, Egham.

White Gem (II. 1.B). An elegant, medium-sized, pure white variety, which appears to be particularly well suited to cultivation for market, and the certificate was awarded in that connection. Shown by Mr. H. POULTON, Pipbrook, Dorking.

Godfrey's Triumph (V. 1.A). A bright, large-flowered single variety with broad florets of rich buttercup yellow shade. Shown by Messrs. W. J. GODFREY AND SON, Exmouth.

Miss A. Hazell (V. 1.A). A beautiful single variety of large size and excellent form, with a peculiar shade of colour, which may best be described as rosy-terra cotta.

Golden Marvel (II. 1.B). A fine variety for decorative purposes. It has handsome, golden-orange coloured flowers of good size, borne on stiff stems. It gained a certificate for market use. These two varieties were exhibited by Mr. G. CARPENTER, The Gardens, West Hall, Byfleet.

Rose Day (II. 2.A). A very pretty Japanese variety of large size and loosely incurving form. The colour is silvery lilac-rose. Shown by Mr. KEITH LUXFORD, Sheering, Harlow.

David Bennett Nicoll (II. 1.A). This variety is of rich amber colour, heavily shaded with red; its broad florets incurve a little at the tips. Shown by Messrs. W. WELLS AND CO., Merstham.

Felix (II. 1.B). A handsome, decorative variety with clear, bright chestnut-red colouring. Evidently an excellent variety for market purposes.

Alfred Durbin. Another excellent market variety of good form and with stiff stems. The colour is reddish-terra cotta. These two varieties were shown by Messrs. CRAGG, HARRISON AND CRAGG, Heston.

COMMENDATIONS.

Clytie (V. 2.A). A bright canary yellow single variety of good form, which produces its flowers in elegant sprays. It is therefore suitable for cut flowers and market purposes. Shown by Messrs. CRAGG, HARRISON AND CRAGG.

AWARD FOR COLOUR.

Purple Emperor (II. 1.A). A medium-sized, reflexing, Japanese variety, with probably the deepest purple-amaranth colour yet seen in *Chrysanthemums*. Shown by BARON SCHRODER.

NEWCASTLE HORTICULTURAL MUTUAL IMPROVEMENT.

At the annual meeting of this society, held on the 24th ult., Mr. R. E. Nicholson was appointed chairman and Mr. A. Standing, 9, York Terrace, Felling-on-Tyne, hon. secretary. The treasurer's report showed a balance in hand of £7 7s. 6d. There was a capital attendance, and the numerous exhibits of vegetables were of excellent quality. Every effort is being made to ensure the success of the Apple and *Chrysanthemum* show, which is to take place on November 10 and 11.

NATIONAL SWEET PEA.

THERE was a large attendance at the annual general meeting of this Society held at the offices of the Chamber of Horticulture on the 31st ult. Limitations of space prevent us from presenting a full report of the proceedings in this issue, but we may observe that the Society has a cash balance in hand of £47, in addition to an investment of £100. Mr. S. B. Dicks was awarded the Henry Eckford Memorial medal for services rendered in connection with the popularisation of Sweet Peas. Mr. Robert Bolton was elected President for the ensuing year, and Mr. A. C. Bartlett was appointed Secretary in succession to Mr. H. D. Tigwell, who has resigned, and to whom a presentation was made by the members in token of their respect and esteem. The presentation took the form of a purse of £50. Arrangements are being made to hold the exhibition of 1923 at Bath.

ROYAL HORTICULTURAL OF ABERDEEN.

The annual meeting of the members of this Society was held in the Music Hall Buildings, Aberdeen, on Saturday evening, October 21. There was a good attendance, and Mr. William Anderson occupied the chair.

In moving the adoption of the annual report, which appeared in our issue of October 21, the Chairman expressed the satisfaction they all felt that the Society, thanks to members and friends, was now in a sound financial position, with a credit balance in their favour. From a horticultural point of view, their annual show was decidedly good, and some of the exhibits would have done credit to the International Exhibition in Glasgow. Mr. Robson seconded, and said that exhibitions without bands or other side-shows had attracted people who were really interested in horticulture. He hoped the annual show would again be held in Union Terrace Gardens, which he considered well adapted for the purpose, being central and easy of access. He drew the attention of members to the fact that in 1924 the Society would attain its centenary, and he thought that something special should be organised for that year in recognition of the event and to mark the importance of the Society. The report was unanimously adopted. Mr. William Grant, Cruickshank Botanic Gardens, Aberdeen, moved an alteration of the rule governing the election of directors, whereby, instead of electing twenty-one every year, seven would

retire by rotation and be eligible for re-election, and that those should be elected irrespective of class. Mr. W. B. Clark, superintendent of the public parks in Aberdeen, opposed the motion, and by a majority of over two to one the proposal was rejected. Affiliation with the Royal Horticultural Society was suggested, but it was unanimously agreed to remit the matter to the directors, with power to act.

The hon. president and vice-presidents were re-elected, while Colonel Gill and Mr. Anderson were reappointed chairman and vice-chairman respectively. Thereafter twenty-one gentlemen, representative of the various classes, were elected directors, and with the re-election of the auditors and the secretary and treasurer a pleasant meeting closed.

Obituary.

W. Wiseman.—A well-known and highly-respected nurseryman, Mr. Wiseman, Forres, N.B., was found dead in bed this week. He had been for a long period the victim of acute rheumatism, and the doctor stated deceased must have passed away in his sleep about four hours previously. About 40 years ago Mr. Wiseman went from Elgin to Forres to take charge of the nurseries which were then the property of the late Mr. Grigor, and ultimately became proprietor. An exceedingly hard worker and a shrewd business man, Mr. Wiseman soon established a very wide connection in Scotland and England. Although keenly interested in the welfare of his adopted town, he took no active part in public affairs. Mr. Wiseman, who was a brother of Mr. Wiseman, seedsman, Elgin, was in his 69th year, and is survived by a widow and grown-up family.

R. Lewis Castle.—We learn with regret of the death of Mr. R. Lewis Castle, which occurred at Kingston about a fortnight ago. For some considerable time Mr. Castle has been ill and in somewhat reduced circumstances, but in his earlier years he occupied a very prominent position in the horticultural world. Born at Chelsea, he spent his earlier years near Edgware, in Middlesex, and later served with his father, who had a nursery at Clapham, and under whom he gained a wide experience in practical horticulture. As a young man he pursued his studies with great enthusiasm and attended lectures given by Profs. Huxley, Tyndall, Dewar, and others. Seeking further experience he entered service at the Royal Gardens, Kew in 1874, where he won the highest appreciation of Sir Joseph Hooker and other members of the staff during his three years' stay. Subsequently, he became gardener at Holmbury, near Dorking, and while there he commenced his career as a journalist by writing for *Science Gossip*. His writings attracted the attention of the late Dr. R. Hogg, who offered him a position on the editorial staff of the *Journal of Horticulture*, a position he held for over twelve years, and during that period he travelled throughout England, Wales, Scotland, Belgium, France, and Switzerland, on behalf of his paper. At one time he was an enthusiastic member of the executive body of the National Chrysanthemum Society, and he assisted in the production of the first Official Catalogue of Chrysanthemums published by that Society. He was a prolific writer and wrote books on Orchids, Cactaceous plants, and Flower Gardening, and he won the Fruiterers' Company's gold medal for the best essay on "Gathering, Packing and Marketing Fruits and Vegetables by Cottagers and others with Small Holdings." After his retirement from the *Journal of Horticulture* he became manager of the Nevill Court Gardens, Tunbridge Wells, and in 1894 he became manager of the Duke of Bedford's Experimental Fruit Farm at Woburn, and held this important position for a number of years. Mr. Lewis Castle was an excellent lecturer, as well as a clever writer, and many years ago he made a tour in Ireland for the purpose of studying and encouraging the fruit-growing industry in that country. He was a most versatile and likeable man, and his old acquaintances deeply regret that ill-health and misfortune attended his later years.

ANSWERS TO CORRESPONDENTS.

APPLE STEM WITH BURROWING INSECT: *C. A. B.* The insect present is the larvae of the Goat Moth, as you suspect. The best way to destroy the grub in the stem is to insert a piece of stiff wire into the cavity made by the larvae.

BEECH DISEASED: *Fagus.* The white material on the bark of your Beech trees is not caused by disease, but the Beech Coccus. The Beech Coccus is often confined to the trunk and main branches of the tree, when it may be eradicated by scrubbing the bark with a strong insecticide. In cases where scrubbing may not be practicable, the trees should be sprayed. The following treatment is recommended:—1, the trees should be sprayed, when in the dormant condition, with the following emulsion-soda wash, as used at the Woburn Fruit Farm: Paraffin, 2 gallons; soft soap, 1½ lb.; caustic soda (98 per cent.), 6 lb.; water, 28 gallons. In order to prepare the wash the soft soap should be dissolved in a gallon of boiling water; the paraffin should then be added, and the mixture churned thoroughly until a cream-like mass results. The thoroughness of the churning is important. The 6 lb. of caustic soda should next be dissolved in the remaining 27 gallons of water, and then poured into the paraffin emulsion. The whole should be well mixed and used immediately. Experimental work at Woburn, however, indicates that there are advantages in using a wash composed of sulphate of iron, 1 lb.; lime, 4 lb.; paraffin (solar distillate), 5 pints; caustic soda (98 per cent.), 2 lb.; and water to make 10 gallons. This may be prepared for use by proceeding as follows: (a) Dissolve the sulphate of iron in about nine gallons of water; (b) shake the lime in a little water and then add a little more water to make into a "milk"; (c) run (b) into (a) through a piece of coarse sacking to remove grit; (d) pour the paraffin into the mixture (c) and churn the whole thoroughly; (e) add the caustic soda in powdered form just before using, and stir thoroughly. In using either of these mixtures the face and hands must be protected, as the mixtures are caustic in character. One advantage of the caustic soda is that it helps to clear the tree of such growths as lichens and algae.

CELERY LEAVES UNHEALTHY: *C. W.* The diseased condition of your Celery is not due to a fungus and there is no red spider present. It is possible that the specific you employed to destroy red spider was used at too great a strength.

CYANIDING VINER.—*Edwards.* After the Grapes have been cut and the foliage ripened, the house should be fumigated with 4 oz. of potassium cyanide (98 per cent.) to every 1,000 cubic feet, the operation being done in the evening and the house left till the next morning, when the ventilators should be opened and left so for an hour.

HERBACEOUS PLANTS FOR SHADY GARDEN: *D. Dawson.* Suitable herbaceous plants for shade are *Campanula persicifolia*, *C. p. alba grandiflora*, *C. p. Telham Beauty*, *Rudbeckia speciosa*, *Troilus europaeus*, *Platycodon grandiflorum*, *Potterium obtusum*, *Iris pallida dalmatica*, *I. Queen of May*, *Monarda didyma* Cambridge Scarlet, *Helenium pumilum*, *H. autumnale Riverton Gem* (4 ft.), *Astilbe Davidii*, *A. Queen Alexandra*, *Anemone japonica alba*, *Anemone italica* *Droopmore* var., late-flowering *Phloxes*, and long-spurred *Aquilegias*. All the above will thrive looking out to any aspect of the sky, and not too closely shut in by houses or trees at a short distance away. Nor should they be directly under the drip of trees. Shrubs that thrive in partial shade are *Kerria japonica* flore pleno, *Daphne Mezereum*, *D. M. alba*, *Berberis Darwini*, *B. stenophylla*, *Pyracantha coccinea* Lalandei, *Spiraea japonica* *Anthony Waterer*, *S. j. alba*, *S. salicifolia*, *S. Douglasii*, *S. Menziesii*, *Pieris japonica*, *P. floribunda* (the two latter are often named *Andromeda*). *Hypericum patulum*, and *Olearia Haastii* (Daisy Bush of New Zea-

land). Bush Roses to grow in a mixed border are *Caroline Testout*, *Madame Ravary*, *Mrs. John Laing*, *Hugh Dickson*, *General McArthur*, *J. B. Clark*, *Madame Leon Pain*, *Gustav Grunerwald*, *La Tosca*, *Duchess of Wellington*, *Lady Pirrie*, and *Mrs. Herbert Stevens*. The last is white, but if you do not object to a tall one, *Frau Karl Druschki* may be selected.

JAPAN AND CHINA: *Anzac.* The hottest months of the year in Japan and China are July and August, the best time to travel to these countries being April and May.

LEAVES OF INDOOR PLANTS DYING: *J. H. F.* The leaf was so dried up when it reached us that it was impossible to determine the cause of its failure, but the under surface was covered with the dead remains of white fly pupae. White fly may be eradicated by fumigation with hydrocyanic acid gas or tetrachlorethane, but which of the two methods is most suitable for your requirements depends upon the kind of plants present in the house to be fumigated.

MOSSY LAWN AND ALPINES: *A. H.* (1) There is no need to wait till spring before applying lime to a lawn. Sift some soil to take out the stones, and mix two parts of it with one part of newly slaked lime, and give the lawn a fair dressing. This will not be strong enough to bring out the worms, so you should get rid of them first. Put a peck of quicklime in a barrel of water, let it stand for twenty-four hours, and then dip out the clear liquid, giving the lawn a good watering. Fill up the barrel with water again, and after twenty-four hours water another portion of the lawn, if necessary, according to size. If enough is given to sink deeply in the lawn, the worms will come to the top and can be swept up and removed. The lawn can then be top-dressed. (2) Suitable Alpines for the limestone rockery are *Dianthus caesius*, *Tunica Saxifraga*, *Alyssum saxatile* compactum, *Aubretia Dr. Mules*, or any other variety, *Gypsophila repens*, *Helianthemum*, *Veronica Teucrium dubia*, *V. spicata*, *V. Royal Blue*, *Iberis cornaeifolia*, *Campanula Portenschlagiana*, and *Linaria pallida*. Shrubs to plant amongst them are *Juniperus communis* compressa, *Retinospora obtusa pygmaea*, and *Cotoneaster congesta* (syn. *microphylla glacialis*).

NAMES OF FRUIT: *J. J. T.* Red Astrachan.—*Gardener, Herts.* (Numbers detached.) Pear, Beurré Capiaumont; 2, Ribston Pippin; striped Apple, Cellini; greenish Apple, King of the Pippins.—*J. W.* 1, Marie Benoist; 2, Beurré Bosc; 3, Zéphérin Grégoire; 4, Allington Pippin; 5, Yorkshire Greening; 6, Small's Admirable; 7, Lady Henniker; 8, Court Pendu Plat.—*S. T.* Queen Apple.—*J. T. R.* 1, Hitchin Pippin; 2, Tom Putt.—*B. M.* 1, Waltham Abbey Seedling; 2, Washington; 3, Detsling Pippin; 4, Sturmer Pippin.—*W. B.* Lady Apple.—*W. T. P.* 1, decayed; 2, Golden Spice; 3, Bramley's Seedling; 4, Peasgood's Nonesuch; 5, Cox's Pomona; 6, Emperor Alexander; 7, Ellison's Orange.

NAMES OF PLANTS: *P. N.* *Berberis vulgaris*.—*M. O. S.* *Crataegus Crus-galli*. *W. A.* *Barnet*. *Caesalpinia* sp. probably *C. Bonducella*, which is widely spread in the Tropics.—*D. C.* *Nerine curvifolia*.—*J. H.* A variety of *Begonia Rex*, very near the type plant.—*J. C. B.* *Peristrophe speciosa*.—*G. W.* We cannot undertake to name florists' flowers.

PHOTOGRAPHS OF FLOWERS IN NATURAL COLOURS: *A. H.* There are processes by which flowers can be photographed in their natural colours. Your best plan would be to apply to the editor of some photographic paper such as *The British Journal of Photography*, 24, Wellington Street, Strand, W.C.2.

PORTUGAL LAUREL DISEASED: *Mrs. B. M. F.* The plant is affected with silver leaf disease, for which no certain cure is known. See *Gard. Chron.*, March 6, 1920, p. 123.

Communications Received.—*R. D.* (Thanks for 2s. for R.G.O.F. Box)—*G. W.*—*J. R. A.*—*W. W.*—*C. F.*—*C. R. F.*—*M.*—*A.*—*J. M.*—*A.*—*P.*

THE

Gardeners' Chronicle

No. 1872.—SATURDAY, NOV. 11, 1922.

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 45.0.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, November 8. 10 a.m. Bar. 29.9; temp. 60°. Weather—Dull.

Soil Temperature.

Everyone concerned with the cultivation of plants is aware that the temperature of the soil plays an important part in determining the rate of growth and ripening of crops. It is a commonplace of horticultural knowledge that some soils are early and others late, and it is recognised that early soils owe their property of precocious crop production not only to their situation in sunny districts, and to their aspect, but also to their texture. For a heavy soil, even if well drained, will hold more water than a light soil, and will in consequence warm up less rapidly in the spring. It is no less well known that the temperature of the soil has a remarkable effect on root action. If it falls below a certain minimum absorption of water it is checked and growth is retarded. It does not matter whether there is or is not ample water present in the soil, for as the temperature falls roots become less and less efficient at absorbing it. Temperature, therefore, determines the availability of water in the soil. Although knowledge of effects of soil temperature on plant growth is fairly satisfactory, it has many gaps and as a first step towards the filling of these gaps, Messrs. Keen and Russell have carried out a very complete series of observations* at Rothamsted on the daily fluctuations of soil temperature throughout the year. The results of their records are of great value both to the botanist and to the horticulturist. They show

that the roots of plants enjoy a more congenial climate than do the aerial parts, for the soil is on the average both warmer and moister than the air above it. As would be expected, the soil-temperature shows a daily periodicity. At a depth of six inches it begins to rise at about 9.30 a.m. and reaches a maximum at about 4.30 in the afternoon. From that time the soil temperature falls slowly and is at its minimum at about 8.30 a.m., so that the roots of a plant remaining at six inches below the surface enjoy a rising temperature for about 7-8 hours and have to submit to a falling temperature for the rest of the twenty-four hours. The soil reaches its daily maximum temperature some three hours later than the air. The maximum in summer is about 22° C. (71½° F.), though this figure is occasionally surpassed. The summer minimum ranges from 18-21° C. (64-69½° F.). In both summer and winter the minimum soil temperature is well above that of the air; so much as 6-8° C. (43-46½° F.) in summer and about 3° C. (37.4° F.) in winter. It is not surprising, therefore, that root growth of many plants should continue throughout the winter months when stem growth is entirely or almost entirely arrested. An interesting fact brought out by the records made by Messrs. Keen and Russell is that maximal soil temperature on a given day is not closely correlated with the number of hours of sunshine on that day. When, however, instead of a sunshine recorder, an instrument for measuring the total solar radiations is employed, the observations show a close connection between maximum soil temperature and amount of solar radiation. Rain reduces the maximum but wind apparently does not. Another observation of great interest is that the transition from winter to summer values is generally quick—a quickness which is reflected in the growth of plants in spring. The rapid rise in soil temperature is to be ascribed in part to the increased solar radiations and in part to the drying of the soil. Similarly, the cooling of the soil in early winter is rapid, and is attributable to clear October nights when the amount of radiation of heat from the soil becomes considerable. The transition from summer to winter state which our plants exhibit is a complex one, beginning early in the summer and extending over a long period of time. The first sign of the approaching change—this going into winter quarters—is, perhaps, the formation of cork in the stems. This is known to begin well before summer is past. Other changes follow in due course and order; the vessels of the wood become thick-walled with narrow cavities, in sharp contrast with the thin-walled, wide vessels of early spring. Growth of tree vegetation also slows down early, while summer is still here; later, the winter buds make their appearance and the leaves prepare themselves for their fall by forming a layer of corky tissue in their stalks. Only too little is known of the immediate causes of these advance preparations for the winter state—though the significance of the changes is evidently the need of the aerial parts to prevent a loss of water which the roots, also becoming less active, could not make good. It is not unlikely that the signal to the plant to set going in the hey-day of summer the work of preparing for winter consists in the change of soil temperature. As each day in spring and early summer brings a somewhat higher soil temperature, the plant's activities wax, but the moment the change comes, slight though it be, when to-morrow's soil temperature is a little lower than today's, the growth of the plant wanes and the orderly and leisurely preparations for winter rest begin.

Mr. E. H. Wilson.—We learn that Mr. E. H. Wilson has returned to the Arnold Arboretum from his recent plant-collecting expedition, in the course of which he visited India, Ceylon, Australia, New Zealand, Tasmania, the east coast of Africa, and the Cape. During his itinerary he visited important horticultural and botanical institutions and the scenes of some of the older famous plant collectors. He has gathered a large amount of material, some of which may confidently be expected to prove of value in gardens.

Royal Horticultural Society's Examinations in 1923.—The dates for the examinations in horticulture conducted by the Royal Horticultural Society in 1923 will be as follows:—Written examinations—general examination (seniors and juniors), Wednesday, March 28; school teachers' examination (preliminary and honours), Saturday, April 21; national diploma, May 26. Practical examinations—teachers' honours, Friday, June 22, and possibly also Thursday, June 21; national diploma, preliminary, June 26 and 27; national diploma, final, June 28 and 29. Entries for the diploma must be made before January 1, 1923. Other changes are that no specialisation will be allowed in the teachers' honours examination and that there will be no sub-division of section 1 in the final diploma examination.

The Surveyors' Institution.—The first ordinary general meeting of the Surveyors' Institution of the new session will be held on Monday, the 13th inst., when the President, Mr. J. M. Clark, will deliver his opening address. The chair will be taken at 8 p.m.

New Public Park.—The Central Committee of the Miners' Welfare Fund has approved a grant of £4,000 for the purchase and development of an estate at Bedworth, Warwickshire, as a public park and recreation ground. The property will be vested in Bedworth Parish Council, and the management will be in the hands of five representatives each of the Parish Council, Warwickshire Miners' Association, and local mine-owners. The estate is nearly fifty acres in extent.

"Gardens in Sun and Shade."—This is the title of an attractive booklet* issued by Miss Minnie Aumonier, who shows paintings of garden subjects from time to time at the Royal Horticultural Society's meetings. There are ten short poems, interspersed with some pretty floral pictures reproduced from water colour drawings by the authoress.

Society of Arts.—Among the many interesting lectures to be given before the Society of Arts, at John Street, Adelphi, during November and December, those of special interest to horticulturists and botanists include "The Economy of Smoke Abatement," by Baillie Wm. Smith, of Glasgow (November 27), and "The Fading of Museum Specimens," by Sir Sidney Harmer, F.R.S., Director of the British Museum (December 13). The lectures commence at 8 p.m.

Horticulture at the British Empire Exhibition.—At Wembley Park, where the British Empire Exhibition will be held in 1924, considerable space will be devoted to horticulture, and it is hoped that the gardens will provide a worthy setting for the great exhibition and show a record of the development and progress of our horticultural industries. The extent and importance of the grounds of the exhibition site have already been referred to in these columns, as have the sylvan beauties of the estate, which we are glad to learn are to be preserved. To these latter, it is proposed to add displays of bog and water-loving plants, hardy trees and shrubs, herbaceous perennials and summer flowers of all kinds, and facilities for making these displays will be offered to nurserymen, who will be assisted by the exhibition staff with regard to planting and upkeep. It is anticipated that the grounds will be ready for such planting by the spring of 1923, so that all hardy plants and trees may be well established by the time the exhibition is opened in April, 1924. In addition to these facilities, pro-

* The Factors Determining Soil Temperature. *Journal of Agricultural Science*, XI. 3. July, 1921.

* *Gardens in Sun and Shade*. By M. Aumonier O. Anacker, Ltd., London, price 1s 6d.

vision will be made for exhibition of tender plants, i.e., Orchids, Ferns, Palms, etc., and the authorities hope that the special horticultural societies will hold their exhibitions in the spacious hall, which will have a floor space of 12,000 square feet, and an abundance of top light. Arrangements will be made for the exhibition of horticultural buildings and machinery, sundries, manures, and insecticides, and these may be of permanent character or of short duration, as may be desired; for these exhibits, a charge for space will be made, but for the exhibits planted in the grounds in accordance with the plans now being prepared, there will be no charge. In either case, application for space should be made as early as possible to the British Empire Exhibition (1924), Horticultural Section, 16, Hobart Place, London, S.W. We understand that Mr. W. Watson, V.M.H., late Curator of Kew, is organising secretary of this section.

Chauca Potatos.—These hardy Potatos are stated in *Plant Imports*, July, 1922, to mature in about five months from the time of planting. They are grown in the Ecuadorian highlands at elevations of between 8,000 feet and 12,000 feet, and give tubers of good size, some of the sorts being of good quality. They have the defect of not keeping well, but are useful for growing for home consumption, and are largely cultivated for that purpose. As soon as the plants come into bloom, the tubers are considered to be mature, and are then dug for eating. The yield is said to be heavy, but not so large as the ordinary type of late main crop varieties. The seed may be set as soon as the tubers are lifted. This strain of Potatos may have a value in this country for very early supplies, especially if the haulm proves to be resistant to injury by late spring frosts.

Horticulture and the General Election.—Under the title of "Horticultural Legislative Programme," the Chamber of Horticulture has set out a list of questions which it hopes horticulturists will put to candidates for Parliament at the forthcoming general election, with a view to obtaining answers thereto, and, if possible, written answers to be returned to the Chamber. The questions are as follow:—(1) Do you agree that the crushing burden of taxation now imposed upon traders is largely responsible for decreased production, diminished trade, and unemployment, and that the general reduction of taxation on industry is vital to the revival and welfare of our horticultural industry? (2) In view of the serious diminution in the quantity of jam manufactured in this country owing to the high sugar duty, will you support a reduction in this duty in order that more home-grown fruit may be utilised for jam making? (3) Are you in favour, given ample safeguards for the protection of the public, of some regulation of the import of foreign horticultural produce, at such seasons and times as there is a sufficiency of home produce to meet all necessary public demands? (4) Do you consider that the Merchandise Marks Acts, 1887, 1894, 1911, should be amended so as to prevent the fraudulent sale of imported foreign horticultural produce as British, and would you be prepared to support an amendment in the House of Commons? (5) Will you support any action that may be taken to obtain further reductions in the postal rates, especially for business catalogues, circulars, and trade papers, and traders' goods despatched by parcels post, together with any action that may be taken with a view to the extension of the telephone service in rural areas? (6) Will you support action that may be taken for providing:—(a) That the various Railway and Canal Traffic Acts be consolidated? (b) That the Ministry of Agriculture be substituted for the Board of Trade in all sections of the Railway and Canal Traffic Acts as regulating the settlement of all differences or disputes arising in respect of the conveyance of horticultural traffic? (c) That neither party shall be allowed to appeal from the decision of any court of law on any matters relating to the Railway and Canal Traffic Acts where the amount in dispute is under £20. (d) For

effectual means of preventing railway companies from according any preferential treatment to foreign horticultural produce? (e) That the railway companies be compelled to supply adequate and suitable rolling stock to transport promptly and properly all horticultural produce to market? (7) Do you consider:—(a) That the whole question of local taxation as affecting land used for food production should be revised. (b) That the cost of national services should be defrayed wholly or to a much greater extent from the National Exchequer? (c) Will you offer all possible opposition in the House of Commons to the financial clause of any measure throwing additional burdens on the rates for purposes of a national character?

Mr. James J. Guttridge.—The City of Liverpool is fortunate in having no fewer than seventy-six open spaces with a total area of 1,517 acres. During recent years remarkable horticultural progress has been made by the Corporation, until now the city can boast of as fine a series of parks and pleasure grounds as any provincial centre. The acquisition of



MR. J. GUTTRIDGE.
SUPERINTENDENT OF THE LIVERPOOL PARKS.

so many open spaces is due to the foresight of the members of the Parks and Gardens Committee, while the horticultural success which has followed is due, in large measure, to the fact that the Corporation has a thoroughly qualified superintendent for its parks and gardens in the person of Mr. James J. Guttridge, whose portrait we have pleasure in reproducing. Mr. Guttridge commenced his gardening career in the gardens of the late Dowager Countess of Ellesmere, at Burwood House, Cobham, Surrey, where he remained four years. Experience in several other private establishments followed, and then came a period of three years spent in the Royal Gardens, Kew, where he eventually became sub-foreman of the tropical propagating department. Mr. Guttridge left Kew to fill an appointment at the Botanic Gardens, Glasgow, where he remained for six years. His next position was that of Curator of the Botanic Gardens and Deputy-superintendent of the parks and gardens at Liverpool, and so successfully did he fulfil the duties of that dual position that in 1906, when the higher position became vacant, he was appointed on the fullest recommendation of the Parks and Open Spaces Committee to the superintendency. Those of our readers who know Sefton Park, the Botanic Gardens, and other open spaces of Liverpool, will agree that Mr. Guttridge has done a large amount of very excellent work in improving

the amenities of this great city and in brightening the surroundings of many homes, in addition to providing playing areas for the youthful members of the population. Mr. Guttridge has won golden opinions from all under whom he has served, as he combines the fullest practical qualifications with first-class organising ability.

Non-Returnable Packages for Fruit.—Judging from the markets and the British Empire Fruit Show, there is no doubt that the British standard box has come to stay as a package for the higher grades of dessert Apples. As it holds about a bushel (40 lb.), it is not too dear at the present price of 8d. or 9d. for fruit of this class; but it is too dear for cooking Apples in most seasons, and it is not suitable for large samples of this section, nor for varieties of irregular shape like Bramley's Seedling. It was hoped that the half-barrel would take the place of the box for cooking varieties, but it now seems unlikely. If made new for the purpose, the half-barrel is much too dear, and it is unnecessarily substantial. If second-hand Grape barrels are used, there is the trouble of getting supplies, and second-hand empties are certainly not ideal. Then the barrel is bulky to store, as it cannot be kept in the flat like boxes. Lastly, it is a wretched thing to pack in, and does not find favour in London and southern markets. Thus we seem as far away as ever from finding a suitable non-returnable package for cooking Apples. All the non-returnable containers on the trade stands at the Empire Fruit Show were, apart from any other faults, too dear. Generally speaking, in sizes to hold only half a bushel of fruit, they cost as much as the British standard box, which holds double the amount. There should be a class at such shows for new inventions in the way of non-returnable packages.

National Chrysanthemum Society.—The annual exhibition of the National Chrysanthemum Society, which is fixed for Thursday and Friday, the 16th and 17th inst., will be held, as in recent years, in the Royal Horticultural Hall, Vincent Square, Westminster. The schedule has been amended slightly in order to revert to the old conditions of allowing amateurs to compete in one of two distinct sections in the amateurs' classes for cut blooms; thus there are five classes for those who employ only one assistant and do not grow for sale, and a similar five for those who employ no paid assistant whatever. In other respects the schedule shows little alteration; it caters for all types of the flower, and the prizes include many valuable challenge trophies, in addition to money prizes. The show last year was a great success, and it may be confidentially anticipated that this year's show will be even better, for the membership is increasing, and growers everywhere are taking the same keen interest in this beautiful exhibition flower as in pre-war days. Although the date is somewhat late for the show, Chrysanthemums also are late this season, and everything points to the quality being exceptionally good.

Pachira macrocarpa flowering at Kew.—For several weeks past many visitors to Kew have marvelled at the exotic beauty of the tall tree of *Pachira macrocarpa* in the Palm house. The flowers, which are easily seen from the gallery, when fully open have much the general appearance of gigantic flowers of the Myrtle or, even more so, those of *Fejoa Sellowiana*. The long, slender, greyish column of a trunk, slightly buttressed at the base, carries at its head branches furnished with digitate leaves the size and shape of those of the Horse Chestnut, but more leathery and shining. From the axils of the leaves spring silky, cylindrical flower buds, nearly a foot long and about an inch across. These open into five petals, curling well back to disclose their white inner surfaces and release numerous filaments as long as the petals, but straw coloured at the base and generously tipped with rosy purple. *Pachira macrocarpa* was introduced from Mexico in 1840 and for a time was known by the generic name of *Carolinia*, which was given by the younger Linnaeus in ignorance of the fact that the genus had been named by Aublet in 1775.

Appointments for the Ensuing Week.—Monday, November 13: United Horticultural Benefit and Provident Society's meeting; Bath Gardeners' Society's meeting; Purley and District Horticultural Society's meeting. Tuesday, November 14: Royal Calceoloman Horticultural Society's meeting; Royal Horticultural Society's Committees meet; Masters' Memorial Lecture by Dr. Harold Wager, on "The Colours of Flowers and Fruits," at 3 p.m. Wednesday, November 15: Hertford Horticultural Society's meeting; Bristol Chrysanthemum Society's show (2 days); Ayr Chrysanthemum Show. Thursday, November 16: National Chrysanthemum Society's Show at the Royal Horticultural Hall, Vincent Square, Westminster (2 days); Aylesbury Chrysanthemum Society's show; Manchester and North of England Orchid Society's show. Friday, November 17: Paisley Florists' Society's meeting; Bolton Hort. and Chrysanthemum Society's show (2 days); Eastbourne Horticultural Society's meeting; Leeds Paxton Society's Chrysanthemum show (2 days); Dunfermline Chrysanthemum Society's show (2 days); Blackburn and Dis. Horticultural Society's show (2 days). Saturday, November 18: British Mycological Society's meeting at University College, London; Morley and Dis. Paxton Society's Chrysanthemum show.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Landscape Gardening.* The style of garden to which I intend appropriating the word gardenesque is that most generally known under the appellation of the English, natural, or picturesque style, which terms, it must be acknowledged, are very ambiguous and convey but a faint idea of the subject they are intended to express. It is impossible to say from whence some of our common words have their derivation. They are, doubtless, many of them coined at particular times to suit particular cases, and many of them are found to answer the purpose extremely well; thus the modern term landscape gardening has now become familiarised to our ears, and its full import is very generally understood. As I wish to show the difference of meaning between the words gardenesque and picturesque, I may add that the latter epithet is chiefly applied to the works of Nature, and especially to those objects which are disposed with an admixture of varied rudeness, simplicity, and grandeur. There are, without doubt, picturesque objects among works of art, and it is possible to make objects so; but the grand scene of picturesque beauty is Nature in all its original variety and in all its irregular grandeur. Some of our eminent painters have taken up this subject with astonishing effect, for who can witness the inimitable productions of Nicolas Poussin, the gloomy grandeur of Salvator Rosa, the old and romantic scenery of the great Titian, the elegant compositions of our own Wilson, and the brilliant simplicity of Gainsborough, without being struck with the vast amount of picturesque beauty which they portray. A flower garden of limited extent, with little variation in its plan, and symmetrical in all its position, although very beautiful in itself, and the combinations of its objects harmonious, cannot properly be designated as picturesque; hence, I wish the term gardenesque applied, as being in character with that style of garden which is free from all apparent formality, and where the exercise of refined taste and artistical skill have been abundantly displayed to the best advantage. It is to a beautiful English flower garden of this description that I propose applying the word gardenesque, and, if necessary, I could quote many examples where the principles of this style of taste could be seen. Of course, it is not to be inferred from the above remarks that I object to the exclusively geometric, or any other style of gardening, as all can be employed at times with the best effect. I have been merely endeavouring to attach a specific meaning to a term which, if adopted in the right sense, I have little doubt would be found of practical utility as an adjunct to the nomenclature of landscape gardening. W. H. Rogers, Grosvenor Villa, Shirley, near Southampton, Nov. 10. *Gard. Chron.* November 13, 1847.

THE ROSE GARDEN.

PLANTING AND MANURING ROSES.

THE time for Rose-planting is again with us, and a few hints may be useful to those whose soil is not quite up to the standard for Roses.

Roses prefer a medium to a heavy loam, and in a sandy soil old turf should be packed round the roots of the new and old bushes; the fibrous medium thus provided will produce blooms of the finest quality.

When the soil is very heavy, it may be made porous by the addition of road grit, littery manure, or anything similar that will allow

litter, which is also excellent for preventing damage to the roots by frost.

Quick-acting artificials should not be used at this time of the year, but basic slag and kainit may be applied now. The former may be used at the rate of half a pound, and the latter at a quarter of a pound, per square yard. The basic slag, while yielding phosphates, will also supply lime. If basic slag cannot be procured, lime (three-quarters of a pound per square yard) may be substituted.

Kainit contains potash, and should be scattered over the soil now, in order that the potash may become available as plant food next spring. W. Miller, Mill House, Horse and Groom Lane, Warley, Essex.



FIG. 112.—CHRYSANthemUM MRS. B. CARPENTER, N.C.S. FIRST CLASS CERTIFICATE, OCT. 30; AND R.H.S. AWARD OF MERIT, OCT. 31 (SEE P. 275).

superfluous moisture to drain away readily. Should the ground be in a sodden condition, deep holes should be dug, and stones, clinkers, or ashes from the kitchen fire placed in the bottom.

Freshly planted Roses need no manure the first year, but a little litter on the surface around the stems will serve to keep frost from the roots and help them to become established in the ground. Lime is essential in all soils for Roses; one pound per square yard should be dug in before planting commences.

Newly planted roses should not be pruned this autumn, but long growths may be well cut back. By planting early in the autumn, new fibrous roots will soon take hold of the soil, and the plant will be well established by winter.

The present is also a suitable time for manuring Rose bushes. For this purpose nothing surpasses good cow or pig dung that has been well rotted, but, if these are not available, the grower must rely on stable

INDOOR PLANTS.

CINERARIAS FOR AUTUMN FLOWERING.

At this season of the year a well-flowered batch of the florists' Cineraria provides a welcome touch of colour in the show house or conservatory. Cinerarias will commence to flower in September, and continue in bloom over a long period. The plants should be grown under cool conditions at all stages from seed sowing to flowering. In conservatories they should be placed well apart in order to retain the foliage in good condition. Any ordinary compost will suit them, it is a mistake to use too large a proportion of leaf mould, or decayed manure, in the compost as these materials encourage a rank, sappy growth, especially in the case of plants grown for spring flowering. When the plants are established in their flowering pots the roots should be fed with soot water and weak liquid manure. Fred. W. Jeffery, Dalserf, N.B.

The Week's Work.

THE ORCHID HOUSES.

By J. T. BARRELL, Gardener to His Grace the DUKE OF MABLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon.

Cattleya and Laelio-Cattleya.—Although the flowers of this most delightful family of Orchids are available the whole year round, those of the autumn and early winter flowering sections are doubly valuable. The plants retain their flowers in good condition at this season for a considerable time, yet it is not advisable to allow them to remain until they completely fade, for the plants thus weakened often require a considerable time to regain their former vigour, and in the case of those with a weak constitution to allow the flowers to remain may mean their death. Flower spikes cut before the flowers are fully expanded and set quickly fade when placed in a dwelling-room, whereas if cut when fully expanded they last for a week or ten days in good condition. Cattleyas, when well grown, produce flowers more freely than many other kinds of Orchids, and even weak plants will send up flower spikes. These should be removed at once, unless it is desired to see the flower for some particular reason, and then, as soon as it is open, it should be cut off. The removal of these poor flower spikes is of the greatest benefit to all Orchids, and will assist the plant in regaining its lost vigour. In the case of healthy and vigorous plants I do not advocate the removal of the flower spikes until they are fully developed, as when this is done it is often the means of the plant making secondary growth. After removing the flower spikes at this season, Cattleyas need special care, and particularly *C. aurea* and its hybrids, as they are very liable to be injured through the thick, fleshy flower stem decaying, which often destroys the leaves and pseudo-bulbs they spring from. To prevent this, it is well to cut or break the scape clean out from the base as soon as the blooms are over, and prevent moisture being held in it until the cut surface is healed over. A little powdered charcoal placed on the top of the cut surface will help to dry up any moisture that may be present, and be the means of preventing rotting.

Resting Cattleyas and Laelio-Cattleyas.—The resting season of the members of this section which produce their flowers from the pseudo-bulbs made this year commences soon after the plants cease to flower, and the majority will remain dormant until the spring, when any necessary repotting should be done. The reduction of water to the roots should be gradual, for so long as the roots of any plant are sufficiently active to take up moisture it should be applied. The watering of Cattleyas, Laelias, and Laelio-Cattleyas during the winter is a matter calling for the greatest care. It is much easier at this season to water a plant than to get it dry again, therefore water should be withheld until the grower is satisfied that it is dry; but do not let it shrivel for the want of water. Plants of the spring and early-summer flowering kinds should be given every encouragement to complete their season's growth, after which they should be rested until the flowers commence to develop next year. Unflowered seedlings that are approaching a flowering size should be treated in a similar manner. Younger plants are always more or less active, and need more warmth and moisture, both at the root and in the atmosphere. For this reason they are best grown in small structures by themselves.

THE KITCHEN GARDEN

By JAMES E. HATBRAW, Gardener to JOHN BRENNAND, Esq., Baldersby Park, Thirsk, Yorkshire.

Horse Radish.—Roots of this crop should be lifted in sufficient quantities to maintain a supply if very frosty weather sets in. Roots for planting should be saved and cut in lengths of about 9 inches. The soil of the new bed

should be trenched deeply and enriched with well-rotted manure; if the ground is of a heavy texture plenty of grit or road sweepings, and wood ash should be added. The sets should be planted in rows made 1 foot apart, allowing 10 inches between each set in the row. Store the large roots in ashes in a cool place.

Celeriac.—These roots should now be lifted and stored in sand or ashes in a cool shed. The leaves should be carefully trimmed off with a sharp knife before the roots are stored.

Parsnips.—Lift sufficient of these roots to maintain a supply for use, and store them in sand in a cool shed. The others will improve by being left in the ground until they are required for use. The decaying tops of the plants and weeds should be cleared away, and the roots protected by litter or ashes in very severe weather.

Chinese Artichokes.—A supply of these roots should be lifted and stored in sand, leaving the remainder of the crop in the ground. Care should be taken to gather all small roots, otherwise they will grow next season, and be a nuisance to the succeeding crop.

Hotbeds.—Plenty of fallen tree leaves will now be available, and these should be gathered, mixed with stable litter, and thrown into a heap to ferment for the making of hotbeds. If the leaves are dry throw water over the heap to aid fermentation. Fallen tree leaves are valuable for a variety of purposes in the garden. When allowed to decay they form valuable material as leaf mould, which forms a substitute for animal manure, by contributing humus to the soil, although they are not so rich in fertilising properties as dung.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER CLAY, M.P., Ford Manor, Linsfield, Surrey.

Cucumbers.—Plants in full bearing require liberal feeding and rich top-dressings applied little and often. If the bottom-heat is furnished by fermenting leaves and water-pipes combined, the drainage being ample, the roots will respond to more stimulating liquid fertiliser than many growers imagine; but it should be weak and varied, and from 5° to 10° warmer than the bed. Liquid manure, guano water, and soot water provide good changes, both for root watering and damping purposes, but they should be weak and used only in a clear state, otherwise the surface of the compost will soon become clogged and the entrance of air in the soil hindered. The materials used for top dressing can hardly be in too rough a condition. Moderately light turf with the finest particles beaten out, rough pieces of lime rubble, and charcoal should be carefully placed around the stems. Direct syringing having been discontinued, and with a brisk bottom-heat from the water-pipes, frequent damping of the floors and beds will be necessary according to the outside conditions. Careful attention to pinching is necessary; old leaves that look rusty invite removal, but it is better to retain these for a time than run the risk of the plants bleeding, until after the turn of the year. When the trellis is furnished, or nearly so, room may be found for the best laterals by removing the points of weak growths as soon as they can be seen. As no seed is required at this season of the year, all male blossoms should be removed. The latest plants put in after Melons were cleared from the house will be rather more backward than they should be, but they will come in extremely useful at a time when the plants now in bearing are on the wane. If these plants are kept growing steadily through the winter they will furnish Cucumbers in February and March. A temperature ranging from 65° to 70° at night, and 75° to 80° on fine days is sufficient, and a few degrees lower will keep the plants in good health in cold weather provided the bottom-heat is steady at about 75°. These plants should not be pinched much until the turn of the year; the foliage should be kept well away from the roof-glass and not syringed, but if possible the lights should be well covered through the night to maintain the requisite amount of warmth without resorting to the use of much dry fire heat.

HARDY FRUIT GARDEN.

By H. MARKHAM, Gardener to the EARL OF STRAFFORD, Wrotham Park, Barnet.

Currants.—Those who intend to plant Currant bushes this autumn may do so as soon as the leaves have fallen. I prefer to grow Currants in quarters by themselves, so that the bushes may be netted easily against birds. Set the bushes 5 feet to 6 feet apart, and see that the roots are made firm, especially in light, porous soils. If the land is of a strong, heavy nature, it should be well prepared, employing a good quantity of burnt garden refuse, potting soil, or any other light material to improve the texture. Defer the pruning until the spring, when the young shoots should be cut back to a bud pointing outwards, and at equal distances apart, to form an even shaped head. Very little, if any, manure should be employed, except in light land, when a good quantity of well-decayed manure will prove exceedingly helpful in promoting growth and fruitfulness. Reliable varieties include Fay's Prolific, New Red Dutch, Raby Castle, Victoria and La Versailles. To prolong the season of Currants plants may be grown and trained as cordons on north walls.

Pruning Bushes.—As soon as most of the leaves have fallen pruning may be commenced with a view to completing as much as possible of this work before frosty weather sets in. Full-sized bushes need to be rather closely pruned all along the branches, and if the heads are crowded some of the branches may be removed entirely. Young bushes not having attained the height required should be pruned back more or less each year. If the leaders are shortened to an outside bud and left about 12 inches long the plants will quickly make good, fruitful heads.

Sweet Cherries.—If a few sweet Cherries are desired the following varieties are all good, especially when grown on a west wall: May Duke, Knight's Black, Early Rivers, Governor Wood, Waterloo, Napoleon, Bigarreau, Black Eagle, Elton, and Black Tartarian. In planting these fruit trees see that ample drainage is provided, and the soil sweet and fibrous with plenty of old mortar, wood ash, and a little decayed manure well mixed with it. Healthy young trees should be purchased, of a fan shape for preference, and care should at all times be taken not to injure the bark, as this frequently leads to gumming and the loss of the whole branch.

Late Apples.—All late Apples should now be gathered and stored. Bramley's Seedling, Newton Wonder, and other late keepers last in good condition much longer if they are allowed to remain late on the trees. Keep the Apple room well ventilated in suitable weather.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir C. NALL-CAIN, Bart., The Node, Codicote, Welwyn, Hertfordshire.

Gladioli.—The early-flowering varieties of Gladioli should be potted; placing six corms in a six-inch pot, this being the most useful receptacle to grow them in for decorations in pots, but where the spikes are required in quantity for use as cut bloom it will be found much better to plant them thickly in fairly deep boxes. Plant the bulbs about three inches apart each way, covering the pots and boxes with finely sifted leaf-mould to the depth of two or three inches.

Lilium Harrisii.—Newly imported bulbs of this Lily should be potted immediately they arrive from the bulb merchant, for they quickly deteriorate if left exposed to the air for any considerable length of time. After potting stand them in a frame from which frost can be excluded, until root action takes place. These bulbs may be had in flower over a long season, but much will depend on the treatment given them. They may be grown cool in the same frame, or a portion of them may be introduced into heat at intervals and brought into flower as required. Other Liliums, such as *L. auratum*, *L. speciosum album*, and *L. s. rubrum*, that have been grown in pots for one season

should, if they are considered worth it, be turned out of their old receptacles and repotted. When potting Lilies leave sufficient room in the pot for applying top dressings during their growing season.

Stocks.—These are useful subjects for winter and spring flowering, but to be successful with them, and to secure fine spikes of bloom they should never be allowed to get starved. Plants raised from seed sown at intervals, as advised in a previous calendar, should, as they become ready, be transferred to the receptacles in which they are required to flower, and grown in frames from which frost can be excluded, and where they can obtain the maximum amount of light.

Begonia Gloire de Sceaux.—This plant delights in plenty of heat and moisture during the time it is making its growth, and now that the receptacles are well filled with roots, the latter will require some assistance in the form of liquid manure, to keep the plants growing actively. Any check to growth now, caused by starvation of the plants, will be very evident when the plants are expected to flower at a later date. Once growth is completed and the flowering stage reached, a little less warmth and moisture will suffice. Attend to the necessary staking as growth develops.

THE FLOWER GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

Evergreens.—The judicious use of evergreens in shrubberies is very necessary to obtain interest in winter when the majority of subjects are defoliated. Unfortunately, too great a use is made of the commoner evergreen shrubs, such as *Euonymus japonicus*, *Aucuba japonica*, and the common Laurel, though these, undoubtedly, should be included in reasonable numbers. There is a great variety of other most interesting evergreen shrubs of which skilful employment should be made, and the great sameness of character by the too frequent repetition of those first mentioned obviated. These evergreens also serve as shelter for more tender subjects. The members of the *Arbutus* family include shrubs and small trees with charming foliage, in addition to the beauty of their flowers and fruits. The dainty arching growths of *Arundinarias* and *Phyllostachys* also are of great charm, and a place for these Bamboos should be found in all gardens, for they serve to break the monotonous effect of straight lines. *Berberis*, *Cotoneaster* and *Viburnum* have the three same points in their favour as the *Arbutus*, and when one considers such evergreen species as *Berberis Bealei*, *B. japonica*, *Cotoneaster Simonsii*, *C. Franchetii*, *C. salicifolia*, and varieties; *Viburnum rhytidophyllum*, *V. Tinus* and its varieties, and *V. utile*, one wonders they are not planted more frequently. Others of value include *Choisya ternata*, which is charming when in flower; *Daphniphyllum*; *Elaeagnus* in variety; *Ericas*; low-growing *Cotoneasters*, such as *C. humifusa* and *C. microphylla*; *Escallonia* in variety; *Garrya elliptica*, of which male and female specimens should be planted closely together, for the male plant catkins, of silvery grey colour, are most charming, whilst the fruit borne by the female plant is reminiscent of bunches of grapes of very small size; *Olearia Haastii* (of fair hardiness); *Phillyreas* in variety; *Pyracanthus*, evergreen Oaks, *Rhododendrons* in variety; *Rosmarinus*; *Lavendulas* in variety; *Skimmias* and *Veronicas*, the last with greatly varying foliage and heights, and nearly all free flowering.

Evergreen Trees.—There are also numbers of evergreen trees that are similarly desirable, and most noteworthy of these are *Arbutus Menziesii*, *Castanopsis chrysophylla*, *Eucalyptus*, *Hollies*, of which there are fine gold and silver variegated forms; *Magnolia grandiflora*, with its fine flowers; and the evergreen Oaks, such as *Quercus densiflora*; *Q. Ilex*, with its many varieties; and *Q. suber*. In addition, a few of the very slow growing and choice Conifers may be included.

ABNORMAL LEAVES OF THE HIMALAYA BERRY AND RASPBERRY.

So far as I am able to ascertain there is no record of a mite attacking the buds of the Himalaya Berry.

About the middle of September, my attention was drawn to the abnormal foliage on two plants of the Himalaya Berry. The two plants in question were then considered to be merely sporting plants, or as an alternative, plants attacked by mosaic disease. The fact that these two plants were said to have been propagated along with many more, all originally grown from the same stool, created considerable interest.

On closer examination, however, it was noticeable that the buds on these so-called sports were greatly shrivelled, discoloured, and of a very unhealthy appearance. Being interested from an entomological point of view, I thought of the possibility of the buds containing some sort of pest. After close examination mites were found in shrivelled buds. This

and the cephalothorax is covered above by a protection, and is marked by longitudinal furrows. Length 1-200th of an inch. At present, this particular mite does not appear to be very common. The following varieties of correctly named Raspberries, The Devon, Bountiful, North Ward, Red Cross, and Penwill's Champion, have been examined, and some of the buds found to contain mites. Abnormal foliage was also noticeable in many cases on the above varieties.

It seems to me to be very interesting that mite should be found in conjunction with abnormal foliage, and I wonder if any reader has had the same experience. A. M. Massee, East Malling Research Station.

THE ALPINE GARDEN.

SAXIFRAGA TRIFURCATA.

SAXIFRAGA TRIFURCATA (syn. *S. ceratophylla*) is a particularly good species of the mossy section, and is well worthy of a good position in any rockery where there is space to use it



FIG. 113.—RASPBERRY FOLIAGE. LEFT, NORMAL LEAVES; RIGHT, ABNORMAL LEAVES ON YOUNG FRUITING WOOD.

result led to a systematic examination extending over four bushes, two bushes being chosen with apparently normal foliage and healthy in appearance, and two bushes with abnormal foliage. All buds examined from the apparently normal bushes were absolutely free from mites, whilst 62 per cent. of the buds from abnormal bushes contained many mites.

The mite, so far as I have discovered, has not been recorded, and at present it is not identified. The mite is elongated and cylindrical in shape. There are two pairs of legs, one pair situated on each side of the head. The body is semi-transparent, and of a dirty whitish appearance.

The conclusions arrived at from the above investigation, led me to examine other plants botanically related to the Himalaya Berry; amongst them was the Raspberry. To search for abnormal leaves was the chief point I had in mind, and before long it was noticeable that the foliage on young fruiting canes of a few plants was irregular and malformed. A typical example of the abnormal foliage is seen in Fig. 113. All abnormal material collected was taken to the laboratory for examination. All buds were examined, and in many cases mites were present. This mite, so far as I have discovered, has not been recorded or identified. It is reddish brown, oblong and cylindrical in shape, has two pairs of legs, one pair situated on either side of the head, long and processes,

boldly in large clumps. It is easy of culture and a great spreader, flowering in early summer in somewhat loosely branched panicles in great profusion. It is 6 to 8 inches in height. We have a fine specimen of this really good *Saxifraga* in the rockery here, and when in bloom in July its mass of pure white flowers quite dominated its surroundings. This plant was placed in its present position two years ago, and now measures 4 feet 6 inches across. T. Craddock, Middleton Park Gardens, Leicester.

DIANTHUS MICROLEPIS.

One would be justified in including *Dianthus microlepis* among the best half-dozen *Dianthi* for the rock garden. It has not the large and brilliant flowers of some of its congeners, but it has, on the other hand, a modest beauty all its own, at least, if we include with it *D. Freynii*, which is of the same character and differs but little from some of the forms of *D. microlepis*. In the few varieties comprised in the offspring of *D. microlepis* and *D. Freynii* we have lovely little plants. They form close tufts of small foliage, composed of broadish leaves closely set with star-like flowers of pink in the case of the typical *microlepis*, and prettily spotted with rose. There is also a charming white variety, *albus*, and a rather bigger one named *D. rumicatus* or *D. microlepis rumicatus*, with rose-coloured flowers. S. Arnott,

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A SELECTION OF HARDY GERANIUMS.

IT is not an easy matter to decide which of the hardy Geraniums is entitled to first place in a selection of the most noteworthy kinds, since all have good points, though they may not all make the same appeal to everyone.

Confining oneself mainly to the larger kinds, *G. anemonaeifolium* must, I think, be given precedence, for it is not only unique in form and blossom, but it has one peculiar attribute, i.e., it is evergreen, and the big, glossy, palmate leaves are produced in succession throughout the autumn and winter months. These handsome leaves are carried on long stalks from a short, thick stem of about 2 inches in height, from which also appear in the later spring and summer the freely branching 2 foot flower stems which bear at their several extremities the twin blossoms. These latter are rather more than 1 inch across, and of a rich rosy pink, deepening to an intense crimson eye of the same brilliant tint, yet the whole flower has a peculiarly soft and satiny appearance, which seems to be enhanced by the beautiful iridescent hairs which clothe their stems. *G. anemonaeifolium*, though a Madeiran species, is hardy enough to withstand an average winter, with frost up to 20°, in any free soil in sun or half-shade, and sufficient young plants crop up from self sown seed to maintain a stock and replace the parents, which (though certainly not biennial) are not long-lived.

G. arvense must also rank high among the best of its race, notwithstanding the magenta hue of its petals. But this blemish—if it be a blemish—is not enough to mar the unquestionable splendour of a plant of *G. arvense*, 3 feet or more in height, and 4 feet to 5 feet in diameter, when laden with its gorgeous blossoms. In some lights the latter appear a vivid crimson-purple. They are velvety of texture, and the extraordinary depth of colour is so intensified by the shining jet of the eye and veining that even the most brilliant *G. sanguineum* must give way to it. This fine Geranium is perfectly hardy anywhere and easy of culture. Though it never produces seed with us, propagation is simply effected by division, and the plants which are herbaceous, are the better for being lifted and replanted every third year.

G. sanguineum, a native of our limestone cliffs, is well enough known, though among its many garden forms some are inferior to the type. The variety known as *G. lancastriense* is a charming little plant with a spreading mat of

glossy, green foliage, which it adorns with short-stemmed, rose-coloured blossoms netted with veins of a darker hue; it is a gem for the rock-garden. And then there is the large and robust *G. sanguineum* var. *alba*, which, to the non-scientific eye, bears but little resemblance to the typical plant. This white form will make a mound 18 inches high and 2 feet across, its deeply cut foliage forming a fine setting for a long succession of flowers which are white of unusual purity.

G. Wallichianum is in a class by itself, and demands special notice. A notable characteristic of this species is its preference for cool soil and shelter from the mid-day sun. It will thrive in full exposure, but there its flowers, though numerous, are small, and the fine clear blue of the best form (var. *E. C. Buxton*) is not seen to perfection save where there is partial shade. From the bluish purple of the typical species one gets in seedling plants of *G. Wallichianum* every gradation of colour through purple and rosy-purple to an almost pure low-toned pink. The blossoms are rather more than 1 inch across, saucer-shaped, and in all forms the large white eye is conspicuous. In habit this species is herbaceous and a trailer, a single plant covering three or four square feet. The usual time of blossoming is from July to autumn. It is a true perennial, hardy, and long-lived, and may be easily propagated from seeds.

Another species no less distinct than the foregoing is *G. Traversii*, from New Zealand. This is a most delightful plant, of 8 inches or so in height, with broadly-lobed silvery leaves, and, in the best form, has widely-open blossoms of a soft rosy pink shade. Whilst this species appears to be able to endure many degrees of frost, it dislikes wet, and is happiest in well-drained soil with full exposure. *G. Traversii* spreads by underground runners, a providential habit, since these may be lifted and given winter protection where there is fear of losing the parent plant.

G. grandiflorum, which soon makes a broad mat of roots from which rise the 10-inch stems, each bearing the big and blue twin flowers, is well known; but, despite its familiarity, this is a fine old species, a rare plant for semi-shade, and one that needs no attention beyond an occasional lifting and replanting.

The rich violet-purple *G. ibericum*, with its bold and woolly foliage, which colours so well in early autumn, is a worthy and well-tried favourite which must also be included here, though its season is short. Of somewhat lower stature, and with smaller blossoms of a vivid rose shade, is *G. Endressii*, a hardy plant almost anywhere; and there is *G. pratense*, some forms of which are as worthless as others are good and beautiful. Among the latter may be mentioned the best of the single whites, and an old double variety, now uncommon, in a cool and delicate blue. J

GARDEN NOTES FROM S.W. SCOTLAND.

BEFORE me as I write, on October 31, is one of the most satisfying bouquets that I have enjoyed of late—a jar filled with half-opened blooms of the hybrid Tea Rose Lady Pirrie, and rounded spikes of *Aconitum Wilsonii*. The said Wolfsbane is an invaluable autumn flower, of easiest culture and lasting long in bloom. The blossoms, borne in lavish profusion, are soft blue, tending to violet, and strike a soothing note in the borders at this season. A large clump of this plant standing beside an eight-foot *Cercidiphyllum japonicum* draped in carmine and backed by a mass of the lace-work flowers of *Polygonum cuspidatum*, present an accidental feast of colour that could not have been bettered by elaborate forethought.

For combined brilliancy and delicacy of tints the said *Cercidiphyllum* stands without rival at this season. Having raised a large number of plants from seed some years ago, and being unable to get information about the stature attained by this tree in its native woods, we planted it about the grounds as a shrub. Later, I ascertained that it is, in fact, about the largest

deciduous tree in the forests of Japan. The Gean, the Rowan, some American species of *Vaccinium*, and *Parrotia persica* are its equal in fiery autumnal colour, but none of these displays the same soft, rich tones of carmine. Moreover, the foliage of *Cercidiphyllum* remains at its brightest for a longer time than most trees, the *Parrotia* being especially tiresome in this respect, dropping its gorgeous leaves almost as soon as it is brought into the house.

There must be varying strains of *Cercidiphyllum*, as is to be expected in a species that ranges indigenously from Japan to Western China, else Mr. Bean would not have dismissed it with the bare comment that "Its leaves die off yellow." I have never known the young foliage, which has a charming roseate tint, to be cut by spring frost; so I think the seeds from which our plants were raised must have come from a colder region than those used at Kew. As yet, we have none here above fourteen feet high, which is not far on the way to the dimensions of the giant recorded by Wilson, whereof the trunk measured 55 feet in girth! *Aconitum Wilsonii*, by the by, harmonises beautifully with its clear blue spikes of flower rising in front of a carmine pillar of *Cercidiphyllum*, which, in turn, is backed by a tall yellow *Helianthus*.

What is the origin of *Geum Borisii*? Is it a true species or of garden origin? I bless the day on which, a few years ago, I first beheld its generous glow of rosy-orange blossom at a R.H.S. show, and promptly secured a plant. The colour is brilliant, but does not shriek at one like that of *Habranthus pratensis*. It is not fastidious in the matter of soil (we have not tested its feelings about lime) and is easily increased by division; while its neat carriage, disdaining a stake, its handsome radical leaves and prolonged flowering season entitle it to a place in the first rank of herbaceous plants. Beginning to flower here in the latter half of May, it is still blooming freely at the very end of October, and will so continue till the first really sharp frost.

Senecio Huntii, from the Chatham Islands, is well worth growing in mild districts. Cheeseman described it as a small tree six to twenty feet high. Here it has already risen to five feet in three years from cuttings. Beginning to flower in June, with long panicles of yellow blossom very freely produced, it yields a second crop of bloom in autumn. The foliage is dense, consisting of linear-obovate or lanceolate leaves, glabrous and green on the upper surface and clothed with tomentum beneath. *S. Hectori*, being from the south island of New Zealand, ought to be as hardy, and is said to be a finer thing than *S. Huntii*, but the ray florets are white instead of yellow. It has not yet flowered here, though several plants of it came through last winter without protection.

Rudbeckia maxima is a quaint species, capricious, and rather shy in flowering until well established in a sunny place, but well worth some extra trouble to make it happy. From a cluster of large, oval, glaucous, radical leaves on longish stalks rises a shining stem to a height of six feet, clasped at long intervals by leaves of great substance, and crowned by a handsome cone-flower with yellow rays round the dark brown-madder centre *Herbert Maxwell. Monceith.*

NOTES FROM WISLEY.

WHEN autumn is merging into winter, and the more orderly sections of the garden have played their part for the year, one may still turn to the wild garden for pictorial effects, though, even here, some of the best colour pictures are further evidence of coming winter.

At Wisley the golden leaves of the Oaks and Birches are fast falling to the ground: here they remain to decay and serve as a mulch to the plants beneath, which have gone out of flower. This comparatively flowerless period is but short, and it will not be long before the pale blossoms of the Hellebores will mark the commencement of a fresh cycle of continuous bloom.

Many of the *Vacciniums*, such as *V. corymbosum* and *V. pennsylvanicum*, have turned a beautiful bronze red, and in contrast with dark green *Hollies* provide many pleasing autumnal pictures which are intensified during the rather brief glory of the crimson *Maples*.

In the field garden the scarlet-leaved *Quercus coccinea* (Knaphill variety), and the red brown *Quercus rubra*, arrest attention, while in the grass the leaves of the *Rosebay* (*Epilobium angustifolium*) have also taken on a red colour, which is an unusual attraction in a herbaceous plant. This *Willow Herb*, although a pretty plant, is apt to become a nuisance in the garden.

Many of the shrubs of recent introduction lately planted in the borders of the field garden are of interest. Among others is a *Cotoneaster* (Wilson 5567) with leaves and fruit similar to that of *C. Simonsii*, but many times more prolific in fruit than the latter. Here is also a *Crataegus* sp. with scarlet fruits as large as *Cherries*, to which the birds are unfortunately very partial. Many of the *Berberis*, massed over a large mound in this part of the garden, have not been in the least affected by the spring

pandanifolium are visible. This noble plant is not pleasant to handle owing to the long and sharp spines on the leaves.

Among the *Roses*, which continue to bloom, *Cynthia Ford*, *Gustav Nabonnand*, and the excellent old *General MacArthur* are specially noticeable. The wet weather has caused prodigious growth, 7 feet or 8 feet long, in some varieties, notably in the thornless *Zephyrine Drouhin*. J. E. G. White.

PALMS OF THE RIVIERA.*

SABAL is a genus of hardy Palms exclusively American, but very sparsely represented in Riviera gardens on account of their exceedingly slow growth. I have tried to obtain of these, as of other hardy Palms, as many species as possible, and up to now all have proved absolutely hardy, that is to say, even the frost of December, 1920, the worst known on the Riviera since 1820, did not in the least affect any *Sabal*, not even a leaf showing any sign of having suffered. The remarkable re-

possible to refer them to the same species; still, since Prof. Beccari, to whom I had sent materials, was disposed to maintain all under the species *Sabal Adansonii*, I shall not insist. In any case, some of these forms have leaves three or four times as large as others; some bear leaves with the rachis prolonged to the end of the leaf blade, while others have leaves which appear to be intermediate in shape between flabelliform and pinnate, and yet others have leaves hardly to be distinguished from ordinary flabelliform leaves, so that, horticulturally speaking, it is possible to make a selection of small Palms of the greatest hardiness.

There seem to be other, as yet imperfectly known, species of dwarf *Sabal*, but to the genus belong some of the most strikingly beautiful tall Palms. I have always tried to obtain such, but up to now I fear I have sometimes received the same species under different names. Readers who live where *Sabal* and other Palms grow wild may be kind enough to send me fresh seed of wild Palms, for which I would gladly send in exchange seed of other Palms, as desired.



FIG. 114.—FRUITING BRANCH OF *BERBERIS* LADY BEATRICE STANLEY: R.H.S. AWARD OF MERIT, OCT. 31 (SEE P. 274)

transplanting, and their coral fruits are conspicuous at a considerable distance.

Near by are some white-stemmed *Rubus* sp. The effect of this character is somehow lessened by the tints of green, purple and orange acquired by the foliage at this season.

A few shrubs are still in bloom, including *Farrer's Potentilla fruticosa*, *Abelia grandiflora* and the fragrant-flowered *Clerodendron trichotomum*. A handsome *Arbutus* will shortly be in flower, viz., *A. Andrachne hybrida*. The stem is of the rich brown colour of *A. Menziesii*, and the leaves dark and evergreen.

Fuchsia discolor is still blooming on the rock garden, where the fine blue *Gentiana sino-orata* and the dwarf *Solidago brachystachys* are also "carying on." Some of the *Erodiums* seem unwilling to retire, and are continually sending up new flower stalks, although they commenced flowering before June. One of the largest is *E. Manescavi*, a native of the Pyrenees, with flowers of that rosy-purple hue which does not appeal to everyone. The markings on the petals, however, are most attractive. Another smaller species is *E. hymenodes*, having white petals with red delineations. The fault of most of the members of this family is the casual habit of the inflorescence and the brief persistence of the petals.

At the base of the rock garden, near the ponds, the tall flowering stems of *Eryngium*

assistance to cold of the *Sabal* has led me already to make the reflection in "Les Palmiers de la Côte d'Azur, leur résistance du Froid" (*Bulletin de la Société Nationale d'Acclimatation de France*, 1906-1907), that the phylogenetic origin of the *Sabal* may have taken place probably in the northern hemisphere during ages when the climate was colder than now, and that these Palms have spread southwards, now being found even in equatorial regions, but that they have retained their original character of resistance to cold. The difficulty of recognising fossil Palms from then imperfect remains makes it often open to doubt to which genus such remains have to be referred, but with time more knowledge will, of course be acquired.

The species of *Sabal* least rare in the Riviera Gardens is *Sabal Adansonii* from the south-eastern parts of the United States; a Palm, which never produces a trunk, however old. Prof. Beccari distinguishes six forms, but adds that all manner of transitional characters can be found, so that it is very difficult to recognise these forms. I have here plants so utterly different from others, that it would seem im-

Of *Sabals* which form a trunk, almost the only species met with is *Sabal Palmetto*, from Florida, and this, like the other *Sabals*, is very slow-growing, ultimately attaining a height of twenty metres. My own plants of the genus *Sabal*, received under many different names, few of which correspond to any scientific description, are as yet too small to appear of any great horticultural interest, but on account of the very great hardiness of the *Sabals*, it seems well worth while to plant them in gardens, where immediate effect is not the principal object. We should always remember that a garden should be created not only for our own enjoyment, but for generations to come, and when we know that some *Sabal* species have leaves, the blades of which are nearly two metres in diameter, and that these blades are borne on long, gracefully arching leaf stalks, it should seem well worth while to give them a place in Riviera gardens and elsewhere.

Once I received some fruits of a *Sabal*, having a quite pleasant sweet taste, so good as that of many other fruits, somewhat resembling the taste of dried Dates. I find no such character mentioned in Prof. Beccari's descriptions of the different *Sabals*, which, as he himself admits, are imperfectly known, as are so many other genera of Palms. Dr. J. Robinson, *Procédures, Jardin d'Acclimatation, Les Propeques, Nice, France*.

* The previous articles by Dr. Prochowsky were published in our issues for May 1, June 12, July 10, September 4, November 29, December 18, 1920; March 12, April 30, June 11, October 8, November 19, 1921; January 21, February 11, April 1, June 17, July 29 and October 14, 1922.

TREES AND SHRUBS.

ACER GRISEUM.

This interesting new Chinese Maple, illustrated in *Gard. Chron.*, October 28, p. 251 (Fig. 102), belongs to a small group of species with compound leaves, the best known of which is the Box Elder, *Acer Negundo* and the variety variegata. Other notable examples are *A. cissifolium*, *A. Henryi* and *A. nikoense*.

A griseum is a deciduous tree up to 30 or 40 feet in height, and very distinct by reason of the bark flaking off and hanging in loose strips, a character common and attractive on the trunks of many Birches. The contrast between the colour of the old and the new orange-coloured bark beneath is very fine. The leaves consist of three leaflets, the centre and larger one averaging 2 in. to 2½ in. long by 1½ in. wide, coarsely toothed; leaf-stalks and veins conspicuously downy. The fruits have very pubescent nutlets and wings.

The fact that although the tree at Warnham Court, from which the sprays were cut which gained the Award of Merit by the R.H.S. on October 17, and also a tree growing at Kew, fruit freely, no fertile seeds have been found, may possibly be attributed to self sterility, or it may be only a question of age, as seedlings have been raised from a tree in Cornwall. We know to our cost, when trying to raise certain species of *Acer* from seeds, that they cross pollinate very readily. In writing of self-sterility, only individual specimens are of course suggested, as groups of native trees must produce good seeds to make it possible for Mr. E. H. Wilson to introduce this beautiful Maple to our gardens, when collecting in Central China on behalf of Messrs. J. Veitch and Sons in 1901.

Attractive throughout the year by reason of its trunk, when leafless, and the beautiful trifoliate leaves in summer, *Acer griseum* is also a most attractive tree in October, when the leaves turn a rich orange or bronzy orange-scarlet. *A. O.*

AMERICAN THORNS AT ALDENHAM.

ALTHOUGH Aldenham plants have been somewhat prominent in the *Chronicle* of late, I should like a few lines to appear concerning our American *Crataegus*. As is generally known, I owe their presence here to the generosity of the distinguished Director of the Arnold Arboretum. This year they have fruited even more profusely than usual, and I really think a visit to see them would repay any of your readers who are interested in the genus; any who wish to come will be very welcome.

The wild, autumn gales have stripped off the varied and beautiful autumn foliage, but on a sunny day the fruits stand out all the more vividly in the absence of leaves. As has been recorded in your pages (p. 274), I was lucky enough to secure Awards of Merit for two of the five of which I exhibited fruiting branches on October 31, viz., *Crataegus Ellwangeriana* and *C. Fulleriana*. Both are certainly fine plants, with nothing really to choose between them, and neither of them is better, I venture to think, than a dozen others which are growing here. If I were to regard fruits alone and neglect autumn colour, habit, form of leaf, etc., and if I had such Thorns as *C. coccinea splendens*, *C. matrona*, *C. tennis*, that old favourite *C. Carrieri*, etc., I could quite well do without these two comparative novelties in England. They both have bright red, nearly spherical fruits, and that is the case of ninety-nine out of a hundred American *Crataegus*.

With *C. mollicula*, which I also showed, but which gained no award, the case is very different: the colouring, a rich dark yellow, is, so far as my experience goes, unique in the genus. I certainly grow a bright lemon-yellow berried form of our native Thorn, and a very good subject that is, too, but in tone and effect the two are miles apart. I think that credit should be given by judges for rarity in colour. Most of us would welcome a good yellow Aster, blue Phlox, or scarlet Delphinium, and *Pyrus munda subarachnoides* holds its high position because, alone among the Mountain Ash group, its fruit is pearly-white. Outside red, the range of colours known to me among the various *Crataegus* fruits is not large.

This year our two eighty-year-old trees of *C. orientalis* have been the joy of all, bowed down with their rose and amber berries. The variety *C. o. sanguinea* has not fruited so well this year as usual, but when it does the colour is a Plum-purple.

The only two coal-black fruiting sorts I know are the North American *C. Douglasii* and the Caucasian *C. melanocarpa*. Of these, the latter is far preferable, for whereas the birds take the former even before the fruit has had time to colour properly, they neglect the latter, so long, at any rate, as there is other food to be found; consequently it can still be seen at its best to-day (Nov. 2), though branches of it were much admired at Holland Park Skating Rink four weeks ago. *C. brachycantha* is said to have bright blue fruit, but the Aldenham plant has not yet borne any. I have also a white-fruited form of the native *C. Oxyacantha*, but that too has not yet fruited here. One other colour can be given; *C. cuneata*, the dwarf Japanese Thorn, usually a shy bearer, has this year carried large, light green Apple-like fruits the size of a Cherry.

In conclusion, I know of no genus which is at once more decorative, more hardy, more showy, more indifferent to the nature of the soil, and which gives less trouble to cultivate than *Crataegus*. The only charge that can be fairly brought against the family is, that it is too big, but that does not prevent a judicious selection being made to suit the size of the purse, or grounds, of the individual. *Vicary Gibbs, Aldenham, Herts.*

THE DIERVILLAS OR WEIGELAS

THOUGH some of our most beautiful late spring and summer-flowering hardy shrubs, *Diervillas* are by no means so freely planted in our gardens as their value deserves. As this is the season for planting, a few notes on their culture and the best varieties may be useful. The confusion in the names originated through the American species being called *Diervillas*, and those from Asia having the generic name of *Weigela*. Most authorities now regard them all as species or varieties of the one genus *Diervilla*.

These shrubs are so readily propagated by cuttings made of the half-ripened young growths in late summer, there seems no necessity to layer or graft *Diervillas*, a means of increase sometimes recommended. Inserted in sandy soil in a slightly heated propagating case during July, or under handlights in August, cuttings root readily.

In common with quite a number of free-growing shrubs, *Diervillas* luxuriate in a deeply-trenched and well-manured loamy soil of a moist, rather than a dry nature.

As garden shrubs, we are most concerned with the Asiatic section, which are the more ornamental. Pruning of these should be done immediately after flowering and consists in the cutting out of the old flowering wood, leaving the new growths free to develop and produce next year's blossoms. In contrast to these, the American species flower on the current season's growths and should have the stems pruned back in March.

Where to plant the *Diervillas* in the garden and pleasure grounds is an easy matter to decide. In addition to positions in the shrubbery, which should be sunny to ripen the growths, they are excellent shrubs for lawn beds in groups of three, five, or more bushes. Perhaps the happiest plantings of *Diervillas* are by the waterside, where, though usually open, they make excellent growth, which means an abundance of flowers.

The following twelve comprise a representative collection of the best varieties:—*Abel Carrieri*, crimson; *Conquerant*, carmine, wine-pink throat; *Conquete*, deep rose; *Esperance*, rosy white, salmon-pink tint; *Eva Rathke*, blood-red; *Heroine*, rosy white; *Le Printemps*, pale rose; *Mont Blanc*, pure white; *Praecox*, carmine rose; *Richesse*, pink; *Sature*, carmine-red; *Stelzneri*, bright pink.

Anyone making extensive new plantings of shrubs, especially in moist soils and by the waterside, or who already cultivates some of the above, may like to have an additional list of thirteen sorts, making twenty-five in all: *amabilis*, pale pink; *Bouquet Rose*, satiny-pink;

Buisson Fleuri, carmine-pink; *Fleur de Mai*, rosy-red; *Floral*, soft pink; *Glorieux*, dark rose; *Pascal*, blood-red; *Pavillon Blanc*, fleshy-white; *Profusion*, clear carmine; *rosea purpurea*, purple foliage, rosy-purple blossom; *rosea variegata*, an attractively variegated shrub; *styriaca*, red, one of the latest flowering. *A. O.*

SHRUBS FOR WINTER BEDDING.

BEDS in shady or rather cold positions that are not likely to suit spring bedding plants may be planted with small shrubs, both evergreen and deciduous, the latter for the bright colours of the stems. Small plants of *Abies*, especially *A. Veitchii*; *Piceas*, including *P. Albertiana*, the glaucous blue form being especially suitable; *Yews*, *Daphnes*, *Phillyracas*, *Lavendulas*, *Santolina Chamaecyparissus* (the two last named yielding fine grey tones), *Ruscus*, *Veronicas* in variety; *Gorse*, *Euonymus* in variety, *Berberis* and *Rosemary*, are all suitable. When these subjects are carefully interspersed with small shrubs of a deciduous character that supply colour in their bark, such as *Willows*, *Dogwoods* and *Rosa lucida* and *R. nitida*, the effect is charming in the winter. *E. Beckett.*

MOLES IN THE GARDEN.

THERE is no greater pest in the garden than the mole, and it is at this season that the mole begins to show signs of activity. Contrary to popular belief moles are not difficult to catch. They are, indeed, among the least cunning and least suspicious of creatures, and there is not the slightest need to protect the hands when setting the trap, lest the mole should scent an enemy, or to give credit to any of those mysterious notions with which the mole-catcher once invested his trade.

Last winter I caught five full-grown moles in four successive days in the same hole. An ordinary pincer trap was used, and no special precautions were observed in the setting of it beyond seeing that the run was clear of loose soil on both sides of the trap. This particular run was one which led from a woodland into a piece of rock-gardening, in which moles can be particularly harmful, and the explanation of my success lay simply in the fact that I had found a main run, a highway, by which moles usually travel to and from their feeding grounds.

The location of such a run is essential to success. It is seldom of any use putting a trap in those tortuous surface tunnellings one so often sees in loose soil, for the mole rarely travels these a second time, and if he does the chances are that he pushes as he goes enough soil to spring the trap before his nose gets into it. The main runs are much deeper; anything from 6 inches to a foot. The best way to find them is with an iron spike, or narrow spud, which is thrust into the ground at various places suggested as likely by the disposition of the soil heaps thrown up, the feeding tunnellings or other workings. A little experience and observation will soon enable one to discover the run sought for, and once it has been located and moles have been caught, the spot should be marked for future use. I usually put a portion of slate over the trap-hole.

On setting a pincer trap little need be said. The hole made for it should not be any wider than is necessary to take the trap easily with the nippers expanded. Nor should it be deeper than the base of the actual run. The nippers are placed astride the latter, so that the mole must pass between them, and the hole must be quite free from crumbly soil. When the trap is in position a bit of sod is loosely placed on either side of it, so as to roof the run and exclude light, but not so as to interfere with the outward spring of the upper part of the trap. That is all that is necessary. If a mole comes that way he will walk into it, and the garden will be rid of a pest whose skin, I may add, is worth a shilling. Though I have caught hundreds of moles in this way, only once have I known one to endeavour to make his way round outside the trap, and that was because he himself had blocked the way into it with a stone! *Cambria.*

MARKET FRUIT GARDEN.

ON the average of years, October is the wettest month, but in this extraordinary season it was the driest up to date, with the single exception of May. At my place rain fell on seven days only, the total rainfall amounting to 1.25 inch. There were night frosts and severe gales towards the end of the month, but on the whole it was a very favourable time for work on the fruit farm.

CLEANING WEEDY ORCHARDS.

The land dried sufficiently to allow of some much-needed cleaning operations. There were times when hoeing could be done quite usefully, and the motor cultivator got over a lot of ground. This was a great boon, as it will reduce the amount of winter work, which threatened to be exceptionally heavy. Weeds grew so freely during the wet summer, and the land was so seldom dry enough to cultivate, that most fruit plantations became as green as a pasture. Considerable improvement may be seen now, but there is still much to be done. Amongst bush-shaped trees that are almost meeting between the rows, there is nothing for

LATE APPLE HARVEST.

The picking of Apples was not finished until November 3. The fruit matured so late that there was everything to be gained by leaving it on the trees so long as possible, particularly as the market was so bad. It was remarkable how quickly the Apples coloured under the influence of the October sunshine. The difference in a week was quite noticeable, though several varieties still lack their normal colour.

So much of the Apple harvest being retarded intensified the usual difficulty at this season of finding accommodation for all the fruit. I always pick into Potato-sprouting trays, which hold nearly half a bushel, and store in them too. I have hundreds of these trays, and the supply is ample during the greater part of the season; but they generally run short at the end, and there is nothing for it but to turn the fruit out into heaps. I have now several heaps in various buildings, and a large clamp of Bramley's Seedling in the open. Packing from heaps is unpleasant, but can hardly be obviated when there is a heavy crop. I find that many growers are experiencing the same difficulty this year. Some of them store, so far as possible, in various kinds of boxes, others in half-sieves; but

APPLE BLenheim PIPPIN.

I have never before had such a heavy crop of this variety. It is, of course, one of our best market Apples, but is not very extensively planted now, because it is slow to come into bearing. I think, however, that this need not be feared on light land, particularly if the trees are on a good type of Paradise stock. On very light soil Blenheim Pippin is not much slower to come into profit than Bramley's Seedling or Newton Wonder, and it is much more worth having when it does crop. This year I had a very full yield from trees planted thirteen years ago, although they are on the Crab stock. They have borne fair crops before, but never a quarter what they carried this year.

Blenheim is, I consider, distinctly a variety for light land, not only because it crops sooner than on heavy soil, but also because it comes of moderate size and good colour. Big Blenheims are commonly packed in bushel baskets and sold as cookers in Covent Garden, which seems a shame, considering the dessert quality of the variety. I always find a strong local demand for moderate-sized Blenheims for dessert purposes at much better prices. It seems to be a favourite with the public.



FIG. 115.—GOLD MEDAL EXHIBIT OF GRAPES FROM THE HON. VICARY GIBBS' GARDENS AT ALDENHAM; SHOWN AT THE R.H.S. HALL ON OCTOBER 31.

it but to fork over the whole surface, but wherever possible this must be avoided on the score of expense. Where horses can get between the trees I have withheld the motor cultivator and left the work for the fruit farm plough. This implement is so designed that the handle and head can be off-set, allowing the horses and man to walk mid-way between the trees, whilst the plough works close up to the stems. If the furrow-slice is turned up to the stems, a narrow strip of land on which the trees actually stand should be dug first. If the soil is ploughed away from the stems, this strip should be dug afterwards. It is usual to change the direction of the ploughing in alternate years, so as to keep the surface level. Another plan, and, I think, a better one, is to plough up to the trees in autumn, and again away from them in spring. After the winter pruning, spraying, etc., the surface is always trampled down hard, and it is often difficult to work the land without the second ploughing.

I do not altogether like ploughing in orchards, because of the danger of injuring roots, but it can hardly be dispensed with altogether now that digging is so expensive. In a dry season most of the land can be kept clean and open enough by surface cultivation, but after a wet summer something more drastic in the way of cleaning operations is essential. The great thing is to plough as shallowly as possible, and then I doubt whether the plough does any more harm than the fork.

a good many have heaps and clamps this season. I have not heard of any more convenient receptacle than the Potato trays, which are handy to lift about and can be stacked any height without excluding all ventilation from the contents.

APPLES IN CLAMPS.

Very few growers have enough storage accommodation. There is little doubt that an underground store is best, as the temperature keeps so even. I find that Apples always keep well in the cellar under my house. They keep better there than in a specially made fruit room above ground, which has an earth floor and double walls. When I build a new fruit room it will be on the cellar principle.

Clamping can hardly be regarded as anything but a rough-and-ready substitute for storing in a proper building. I have never clamped any Apples before, but have often read that they keep very well indeed when so treated. But that is not everything. They are likely to be bruised to some extent, and they will all need wiping when they are taken out for sale; and the work of getting them out on a cold day will not be popular.

I have clamped them just like Potatoes. They were turned out in a long, ridge-shaped heap on short grass in a dry situation, covered with a good thickness of straw, and finally with soil, several ventilation shafts being formed along the top.

IMPERIAL FRUIT SHOW AT THE CRYSTAL PALACE.

It will be a pity if this event is allowed to lapse, if only because of its great educational influence amongst growers. It is generally admitted that it has brought about a marked improvement in packing methods during the past year. As an exhibitor for the first time I found the experience most stimulating. I am fired with ambition to grow still better fruit and bring the packing to a higher pitch. The show gives a grower an opportunity to see how his fruit compares with that of other growers, and he realises any mistakes he is making in grading or packing when he studies his score card and sees where points were lost, with a view to correcting them in the future.

An outsider might not be greatly impressed with the competitive sections of the show so far as the packing is concerned. Non-technical journalists are fond of writing in their reports: "The English grower has still much to learn about boxing Apples." But it should be realised that hardly any of the boxes on view were in proper order as originally packed. They had been tumbled about by the judges, who are bound to dive below the top layer to test uniformity of size and colour, neatness of wrapping, and other details for which points are given. This is unfortunate from the spectacular point of view, but inevitable to obtain a correct decision. *Market Grower.*

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

The Hibernation of Wasps.—Under this heading Mr. Nicholson (p. 257) gives three factors upon which the wasp population of the year depends. But there is still another—a fourth—which we have to reckon with, and it is this: The entomologists tell us that a large number of queen wasps in spring does not necessarily imply that nests will be numerous, nor *vice versa*, because the sex of many of these insects is so arranged that they can be turned into use as either males or females (drones or queens), as the circumstances of the time or season decide. To put the matter in a still more convincing way, we are informed on the highest scientific authority that parthenogenesis is a regular part of the social code among virgin wasps, which means that the population of the nest need not of necessity be jeopardised by the destruction of queens or drones. *A. T. Johnson, Talycafn, N. Wales.*

Wasps.—I read with interest the correspondence on Wasps on pp. 197 and 272. Wasps have been a plague in these gardens this summer, and did an enormous amount of damage to Cherries and Plums; in fact, they were so numerous that it was a very difficult matter to gather the fruit in the daytime. I noticed very few queen wasps here in the spring. April was rather wet; 3.79 inches of rain fell, but May was rather dry, with 1.21 inch of rain. *J. S. Higgins, Glynllifon Gardens, Llanwnda, Carnarvonshire.*

Dahlia Conference (see p. 256).—I was much interested in your report of the proceedings of the Dahlia Conference under the auspices of the National Dahlia Society on 17th ult. I feel sure that the papers read will assist in extending the cultivation of this plant, the modern and greatly improved varieties of which are so admirably adapted for growing in gardens of every extent, whether in town or country. Mr. Cheal alluded to the many Dahlias grown in Bermondsey, and I should like to add that these plants have this year been a very attractive feature in the gardens of Finsbury Circus, within five minutes' walk of the Bank of England. A charming and comparatively new class of Dahlias, of which there are several delightful novelties to be introduced next season, is the Miniature-Paeony flowered type, all the members of which are exceedingly floriferous, perfectly erect, in habit, and charming in their colouring, whilst the flowers are of a size that renders them equally well adapted for table decoration as for garden effect, moreover their compact growth, 2½ feet to 3 feet high, is a further good quality. Messrs. Cheal's Star varieties possess similar merits and both these classes may be highly recommended. An error appears in the abridged report of my remarks at the discussion when I referred to Brentwood Yellow, not as resembling Coltness Gem, which is totally distinct, but to express my appreciation of the display made with Mr. Hay's planting of the former variety in bold quantity, as had been done with the latter. It may be of interest to those contemplating growing these varieties for bedding to know that in Regent's Park the plants of Coltness Gem set at 16 inches apart, entirely covered the ground as did those of Brentwood Yellow at 20 inches, both producing much admired effects. *Alfred Vasey, Messrs. Carter Page and Co., 52-53, London Wall, E.C.*

A Useful Border Flower.—A good many years ago I was lucky in receiving a few corns of a plant named *Antholyza paniculata*, but I am not sure that the name is quite correct. It is not only for the beauty of its reddish-orange, tubular, and hooded flowers that it attracts attention from people who see it for the first time, but, even when yet unflowered, the handsome, sword-shaped foliage is not passed unnoticed. The clumps require to be broken up every other year or so, because it becomes so matted at the roots as to lose strength to

flower freely, or even to produce its foliage in the attractive condition it ought. Hitherto it has proved hardy here, but its hardiness is not without suspect. Its somewhat dumpy panicles are of value for furnishing large flower vases, the flowers continuing to open successively for a long time. *R. P. B.*

DAHLIAS FOR PARKS AND GARDENS.*

(Concluded from page 270).

AMONG white varieties of this bedding class the old Kaiserin Augusta Victoria is still much in evidence; but among all the dwarf varieties that I have seen I like Windermere best.

Among pink, salmon and rose shades there are dwarf sorts in abundance. I find it difficult when looking at a trade collection to make any selection at all, but I was impressed with a new dwarf pink called Daydream. I have a bed of Our Annie, which is greatly admired. Rhoda, too, has great merit. Olivia is delightful when massed; but every raiser has special varieties in this shade, and one cannot try them all; indeed, there are very many types of these dwarf Dahlias, and it is almost impossible to group them into colour classes, but I am certain for small beds, and also for house decoration, this is the right class of Dahlia to grow, as they are light, airy and graceful, and, above all, free flowering. Several varieties of these dwarf Dahlias have dark-coloured leaves; there is one brilliant scarlet called Lemur, and another Moorkop, but I cannot see that dark leaves are any improvement.

The large-flowered Paeony and Decorative classes appeal very strongly to the park frequenter. I do not agree with those who say that they are too big, for being big does not mean that a thing is vulgar, and I have a great liking for these Dahlias. I remember one Sunday morning some years ago seeing an unusual number of cyclists entering Greenwich Park, and on asking a park keeper the reason, he told me that a note had appeared in the Saturday paper that there was a Dahlia as large as a soup plate in flower in the park, and Londoners were turning up in great force to see and admire this flower.

Grouped as back row plants this class makes a noble show, and every garden should have plants of such varieties as Papa Charmet, Futurity, the lovely Delice, Mina Burgle, Sulphurea, Cambrai, The Prince, and President Wilson, which is superb. There are, of course, many others, but these are all magnificent. I do not like this class in open beds, they are too tall and unless edged with a dwarfier variety present to the eye too great a wall or hedge of foliage from the ground up before the flowers are reached.

If I were asked what is the type of Dahlia most admired by the general public I would have to reply that it is the Cactus, but it is the class of least use to the park superintendent. A week or two ago I went to see a great trade collection of Dahlias, and the area devoted to the Cactus varieties was a most depressing sight; but hidden away among the foliage were to be found some of the most lovely flowers that Nature and art have yet provided. I agree that the Cactus Dahlia is the aristocrat of the tribe. Last year I planted many of the best varieties and discarded most of them at the end of the year, but found myself at every fortnightly meeting of the R.H.S. during the Dahlia season being persuaded by the lovely blooms of Messrs. Stredwick and Son to make notes for future planting.

Being anxious to include a fair proportion of Cactus sorts in the park, I asked my friend, Mr. Vasey, a great Dahlia enthusiast, to give me the names of Cactus varieties that threw their flowers well above the foliage; varieties of his selection are still in flower, and include such as Amos Perry, Sweet Briar and Conquest. But it

appears evident that those Cactus varieties that make a good display in the park are poor in the quality of their blooms compared to those that hide themselves among the foliage. It would appear that the Cactus Dahlia is modestly conscious of its superiority. I have been often asked, particularly by foreign visitors, why we grow so few Cactus sorts, and the question seems to show that they are most popular abroad.

Another class that do great things for the Dahlia border are the Colletterettes; many of these are quite barbaric in their splendour and of great effect, and their admirers are many. I do not regard them as possessing the refinement we find in other classes, but for general effect they are of great value. I have nearly all the varieties sent out from Edinburgh, and the new sorts show a steady improvement. Among the latest Goldendale has been much commented on, Harris, Arran, Hussar, Glencoe and Black-watch are of the best. Some are not free flowering, of which Bonfire is one; it is shy of bloom, while Tuskar is the freest of all. This last is quite a remarkable Colletterette variety; it has very little foliage, the stems are thin and wiry, and it bears more flowers in a season than any other Colletterette sort I know.

Single-flowered Dahlias seem to have gone out of favour, and it is a strange thing that long before the end of the season, the flowers have dwindled greatly in size and make no effect. Whether this is common to all single Dahlias or not I can't say, but it is quite apparent in London. Notable exceptions are the variety called Fireflame and a white one called Wm. Tilley; there has been a bed of this fine, single, white Dahlia for several seasons at Kew.

Of Pompon Dahlias we grow quite a number, and they are not without admirers, and probably appeal to owners of small gardens and that prim exact type of garden lover who likes everything exactly to scale.

My experience of the Star Dahlias is not extensive, but nothing can be more suitable for growing for cut flowers, and they are effective as garden plants.

My collection at Regent's Park is without any representatives of the old Show and Fancy Dahlia, but I think some must be included another year.

There is still another type of Dahlia, one variety of which great things will be heard. This is the dwarf Single or Mignon Dahlia. My English friends tell me that my native country has but two articles of commerce. Scotland, they say, imports cash and exports whisky; this is no longer true, for a little Dahlia has been raised in Scotland called Coltness Gem, and already there are, I am certain, more tubers of this Dahlia in existence than of any other variety. It has largely superseded the scarlet Pelargonium in the parks of the City of Glasgow, and the roof garden on the Waverley Market, Edinburgh, has been bedded out with it this year. I have answered more inquiries about this Dahlia than any other plant in the park, and in a season or two it will be as common as the "Geranium." About 18 inches in height, it blooms in a wet or dry season, from May till frost comes. From spring cuttings it comes into flower very quickly, and there is no long wait as there is with most Dahlias. There are several varieties very similar to Coltness Gem; I have grown some and seen others, and I strongly recommend the genuine article.

It is not my duty to say anything about cultivation. The Dahlia is one of the easiest plants to grow, and any position except one directly under trees will suit it. It is, however, seen at its best with a background of shrubs, but is equally effective when grouped on the lawn! It adds greatly to the brightness of the herbaceous border, and the dwarf varieties look particularly well when planted wide apart with a groundwork of another plant. It is practically a disease-proof plant, it brings no profit to the sundriesman, for the Dahlia requires no washes, fumigants, insecticides, or physic of any sort. It is a perfect joy to watch its healthy, happy growth, and its admirers are to be found in every land whether the climate be temperate or tropical.

* A paper read by Mr. T. Hay, Superintendent of Regent's Park, at the Dahlia Conference, held at the Royal Horticultural Hall, Westminster, on October 17.

SOCIETIES.

NATIONAL SWEET PEA.

THERE was a good attendance at the annual general meeting of this Society, which was held at the Chamber of Horticulture offices on October 31, when, in the absence of the President, the chair was taken by Mr. J. Stevenson.

By some misfortune the copies of the annual report had gone astray between the printers and the offices, and, as the parcel contained the original manuscript, the report could not be presented fully in the customary form. Mr. J. S. Brunton, speaking from memory, gave the meeting a résumé of the report, which commented on such salient points as the exceptionally long and favourable season for Sweet Pea culture; the success of the annual show at Eastbourne, which was opened by H.R.H. Princess Alice, Countess of Athlone; the great trade displays, in competition for the magnificent Eastbourne Challenge Trophy, the winning outright of challenge cups by Mr. THOS. JONES and Mr. H. J. WELLCOMBE; and the contents of the Society's *Annual*.

The financial statement was very satisfactory, as it showed a profit on the year's working amounting to £47 17s. 8d., while the balance in the bank totalled £236 7s. 5d. This latter sum appeared to be subject to some un-presented cheques, but the immediate financial future may be viewed with equanimity. On the income side the chief items were:—Members' subscriptions for 1922, £177 0s. 6d.; affiliated societies, £47 5s.; advertisements in publications, £34 14s. 6d.; prize fund, £61 18s.; and Eastbourne Horticultural Society, £60. The chief expenditure items were:—Prizes and medals, £121 16s.; printing and stationery, £193 3s. 7d.; secretary's salary, £75; postages and telegrams, £28 17s. 1d.

As we briefly reported in our previous issue, Mr. Robert Bolton was elected President for the year, and Mr. A. C. Bartlett, 318, Kew Road, Kew, was elected Secretary. Mr. C. H. Curtis was again elected Chairman of Committee, and Mr. A. J. Cobb was re-elected Trials Superintendent. The vacancies on the General Committee were filled by the election of Messrs. F. J. Cashinella, A. L. Cosham, A. E. Garrod, H. H. Perkins, H. L. Simms, and H. D. Tigwell. The following were elected as the Floral Committee:—Messrs. R. Bolton, A. Ireland, C. W. J. Unwin, J. Stevenson, H. D. Tigwell, E. H. Christy, Geo. Burt, C. H. Rundle, and J. Ness.

Especially pleasing portions of the business were presentations to Mr. S. B. Dicks and to Mr. H. D. Tigwell. To Mr. Dicks was handed the Henry Eckford Memorial Medal, which is annually presented to someone who has done particularly good work in connection with Sweet Peas and the N.S.P.S. This year the choice fell unanimously on Mr. S. B. Dicks, who has long been esteemed for his untiring labours on behalf of the flower and the Society. Mr. Dicks assisted in the bicentenary celebration of the introduction of the Sweet Pea into England, and the N.S.P. was the direct outcome of that meeting. Mr. Dicks initiated one of the first trials of Sweet Peas, and these were held in the trial grounds of Messrs. Cooper, Taber and Co. He has also been chairman of the General Committee and the Floral Committee. But, great as have been these services, he has done even more for the Society in his untiring research work, and will long be known as the historian of the Sweet Pea. On receiving the medal, Mr. Dicks said that he did not anticipate such an honour as that. What he had done was purely a labour of love, which had brought its own reward, for through it he had come into contact with a great many people in such diverse places as British Columbia, South Africa, and Egypt. He was confident that the Sweet Pea exerted a great influence, for he had always found Sweet Pea people to be especially nice people.

The occasion of the presentation to Mr. H. D. Tigwell was his retirement from the post of secretary, which he had held for many years. In making the presentation of the Society's

Gold Medal and a wallet containing £50, Mr. Stevenson spoke of the great regret all the members felt that the force of circumstances compelled Mr. Tigwell to resign. His long association had included most trying years, and during that time Mr. Tigwell had done work of inestimable value to the Society, its present position being largely due to his efforts. In accepting the Gold Medal, Mr. Tigwell voiced his great pleasure in the gifts, but even more in the spirit in which they were made, and said that whatever he had done could not have been without the whole-hearted support he had received from the members of the Society and the exhibitors at the shows.

On behalf of Messrs. Carter and Co., Mr. A. Gardiner offered the Society a silver trophy to be awarded each year to the new Sweet Pea which most nearly approached Gentian-blue in colour until that desired colour is reached.

important class for twenty-four Japanese blooms in not fewer than eighteen varieties.

The best exhibit of six Chrysanthemums, distinct, shown in a vase was staged by Mr. J. PERRETT, gardener to J. Goddard, Esq., Crawley; second, G. P. WALFORD, Esq. Mr. APTEO excelled in the class for three vases of single Chrysanthemums, twelve blooms in each receptacle, distinct. The best single vase of six Japanese Chrysanthemums, distinct, was shown by Mr. APTEO, and the best vase of twelve single Chrysanthemums, disbudded, by Mr. J. PERRETT. Mr. W. H. SCOTT showed the best bush Chrysanthemum of a single variety and the best specimen Chrysanthemum plant in a pot.

There was keen competition in the fruit classes and very good Grapes were staged in a class for two bunches of a black variety, for which the first prize was won by Mr. W. H. PARKER; second, Mr. E. CARPENTER. Mr. PARKER also



FIG. 116.—PART OF MESSRS. G. BUNYARD AND CO.'S EXHIBIT AT THE IMPERIAL FRUIT SHOW (SEE P. 272).

BRIGHTON, HOVE AND SUSSEX HORTICULTURAL.

THE Chrysanthemum show of this Society was held in the Dome and Corn Exchange on October 31 and November 1. The exhibition was a great success and the number of entries, 610, surpassed all previous records, the next best being 419 entries at the show held just after the armistice in the Aquarium. The most notable increase was in the fruit and vegetable section. On the first day of the show, the President, Alderman J. Colman, entertained the officials of the Society, judges, and a number of prominent supporters, to luncheon in the Royal Pavilion. The guests included the Mayor of Brighton, Alderman E. J. Pankhurst, the Mayor of Hove, Councillor F. W. A. Cushman, and the Mayor-elect of Hove, Alderman Jago. It is interesting to record that one of the judges, Mr. J. Bunney, has acted as judge of this show for forty years.

In an open class for a circular group of Chrysanthemums arranged on a space 10 feet in diameter, with Ferns and other foliage plants for effect, the first prize was won by G. PAGET WALFORD, Esq., Hove (gr. Mr. W. Read); second, W. H. VOKINS, Esq., Withdean (gr. Mr. W. J. Scott); third, Mr. W. H. APTEO, Worthing. This last exhibitor excelled in the

showed the best two "shallows" of Black Grapes. Mr. A. H. PARSONS had the best culinary Apples, and Mr. F. RUSH the best dessert Apples. The latter also excelled in the class for two dishes of dessert Pears, in which Mr. PARSONS was second. In the classes for vegetables, Mr. W. HUMPHREYS had the best six distinct kinds in Messrs. SUTTON AND SONS' class, and also the best six distinct kinds in the PREMIER SEED CO., LTD., class. There was also a class for six kinds of vegetables, distinct, produced with the aid of Maskell-Harris "Prize-Crop" Fertiliser, in which Mr. F. DOWN was successful. Mr. E. CARPENTER showed the best four dishes of Potatoes, distinct, and was placed second for two dishes of Potatoes, one round and one kidney sort, in which Mr. W. HUMPHREYS was first. Mr. G. GANDER showed the best Brussels Sprouts, Mr. W. SINFELD the best Long Beet, Mr. T. WEST the best Round Beet, Mr. E. CARPENTER the best Celery, Mr. G. CRONE the best Leeks, and Mr. A. JUPP the best Cabbages.

DERBYSHIRE GARDENERS'.

THE 15th annual Chrysanthemum exhibition of the Derbyshire Gardeners' Association was held in the local Drill Hall on the 27th and 28th ult. The Mayor, Councillor W. R. Raynes, presided,

and the show was opened by J. G. Shields, Esq. The R.H.S. Bronze Banksian Medal was awarded to Mr. W. LOCKIE, Wingfield Park Gardens, for winning most points in classes 1 to 19, and he also won the prize offered for the best bloom in the show, for a bloom of Mrs. A. E. Roope. A fine non-competitive display of Chrysanthemums was staged by Messrs. BARRON AND SON, Borrowash, together with Roses and fruit, for which a Gold Medal was awarded. Messrs. ROBINSON BROTHERS, Derby, set up a table of Salvias, Nephrolepis and Cacti, for which a Silver Medal was awarded. A Silver Medal was also awarded to Messrs. BAKERS, Wolverhampton, for hardy herbaceous plants. Two prominent groups of miscellaneous plants were set up on a space of 12 square feet, Mrs. WALTER EVANS (gr. Mr. Maxfield) was placed first for excellent specimens; but many considered the arrangement on the heavy side. F. N. SMITH, Esq., Wingfield Park, Ambergate (gr. Mr. W. Lockie), was second.

The first prize for six vases of Japanese Chrysanthemums was won by Mr. G. POTTER, an exhibitor who showed at this exhibition so long as 37 years ago. For three vases of Japanese varieties the first prize was won by Mr. J. H. COLEY, Outwoods Gardens, Duffield; second, Mrs. PRESTON JONES (gr. Mr. J. A. Bacon); third, Mr. G. POTTER. The best table of single Chrysanthemums was shown by Mrs. W. EVANS, Darley Abbey (gr. Mr. Maxfield); second J. H. COLEY.

In a class for six varieties of perpetual flowering Carnations the first prize was won by F. N. SMITH, Esq. (gr. Mr. W. Lockie); second, Mrs. WALTER EVANS (gr. Mr. Maxfield).

In the Derbyshire members' classes the Silver Challenge Cup offered for 24 single Chrysanthemums and 12 Japanese blooms was won by F. N. SMITH, Esq., Wingfield Park (gr. Mr. W. Lockie); second, J. A. AITON, Esq., Duffield Park (gr. Mr. G. Neale).

The best 18 Japanese blooms were shown by Major ANLEY (gr. Mr. Thorn); second, J. A. BACON. Mr. W. HORSLEY showed the best 12 incurved blooms; and Mr. J. H. COLEY the best 12 Japanese blooms.

The finest group of Chrysanthemums was shown by Mr. G. POTTER.

In the open fruit classes a Silver Cup was offered for a collection of six varieties. F. N. SMITH, Esq. (gr. Mr. W. Lockie), was successful, showing Apples, Pears, black and white Grapes and a Melon; second, Lord BELPER, Kingston Hall (gr. Mr. McCartney).

For three varieties of Pears, Mr. J. BACON was awarded the first prize and Mr. J. H. COLEY the second. Lord BELPER (gr. Mr. McCartney) showed the best two bunches of Black Grapes and of White Grapes.

READING YOUNG FARMERS' CLUB.

The opening meeting of the Reading branch of the Young Farmers' Club was held on Friday, the 20th ult., in the Club Room of the Abbey Hall (by kind permission of Messrs. Sutton and Sons).

The Secretary reported on the progress made during the summer months in the gardens, and stated that 16 of the 20 members who had been allotted plots had kept them well cultivated, and had realised considerable sums by the sales of produce to their parents and friends.

Several plots would be available for new members in the coming year, on account of some of the lads having commenced work.

A winter programme of fortnightly lectures and discussions was arranged, the first to take place on Friday, November 10, when Mr. E. R. Jones, the manager of Messrs. Sutton's Experimental Grounds, promised to give a lecture on "Soils and Manures."

The Treasurer reported that up to the present he had received about £14 from members for the sale of produce.

Master M. Cousins, aged 12, the winner of the first prize for the best kept garden, had paid in over £2 realised for the sale of produce from his 3 square poles, which is at the rate of £106 per acre. Another member had raised 1½ cwt. of Abundance Potatoes from his six rows, which was at the rate of 15 tons per acre.

SOCIÉTÉ NATIONALE D'HORTICULTURE DE FRANCE.

THE Autumn Exhibition of the French National Horticultural Society, which partook this year of an international character, was held from October 27 to November 5, in the large Palmarium of the Jardin d'Acclimatation in the Bois de Boulogne, Paris.

On account of the unfavourable weather, there was not, perhaps, quite such a wealth of flowers as usual, but fruits were very numerous, and the vegetables in fine condition. The extreme cold which prevailed on the eve of the exhibition was responsible for some losses among the exhibits, but these were, happily, quickly replaced.

The premier award, the "Grand Prix d'Honneur," was won by Messrs. VILMORIN-ANDRIEU ET CIE, Paris, whose exhibit occupied nearly half the Palmarium, and was composed entirely of specimen Chrysanthemum plants, in pyramids, cones, and spheres. Among other varieties there were Général Pau, rosy lilac; Mme. Gaston Fourré, yellow; Symphonie, pink; and Colonel Linal, bronze yellow.

Mme. MARTIN, Champigny, showed a very fine collection of Chrysanthemums in unnamed or new varieties, among which were Chrysanthémiste Violette, violet, with paler reverse; and Tika, bright red. M. G. TRUFFAUT, Versailles, had a big group of cut blooms in groups, of one colour, such as Paul Odot, yellow; Undaunted, violet; Salonica, red, with paler reverse; and R. C. Pulling, yellow. M. FERON, Garches, showed a fine collection of cut flowers, including Mrs. Gilbert Drabble, white, and Edith Cavell, reddish brown. M. FERARD, Paris, had a large exhibit of single varieties, including many unnamed seedlings, all very suitable for decoration; two of the named ones were Brestois, red, and Orléanais, yellow. M. LOCHOT, Pierrefitte, showed a fine collection of cut flowers, for which, with flowers of the variety Daily Mail, he shared honours with M. LAVEAU, Boissy St. Léger.

M. MORIN, La Rochelle, showed also a very fine collection of Chrysanthemums, and M. LELOUP (GRIMOUX, Le Mans, exhibited large-flowered varieties, including Orientale, red, with yellow reverses to the florets; Ma Gloire, salmon pink; and Mrs. Monro, dark red. M. MARTIN, Digoïn, showed single varieties well, and among these were Suzon, pink, and Souvenir de M. A. Colcombet, with its curious, bright pink, rolled-back florets. MM. LEVEQUE ET FILS, Ivry, had a pretty exhibit of dwarf varieties, including M. Maurice Pain, pink, and Dufresnoy, rose-hued.

Among other plants shown, the cut Dahlias of MM. CAYEUX ET LE CLERC, Paris, notably the fine coppery yellow Mme. Ferdinand Cayeux, were prominent; also the pretty and curious single varieties shown by M. MARTIN, Digoïn, with long petals showing the characteristic recurving of the race known as "Digoïn Star." M. LOCHOT, Pierrefitte, showed Carnations, including the fine variety Jeannine Beer; Carnations were also exhibited by MM. VACHEROT ET LECOUFFE, Boissy St. Léger, and by MM. LEVEQUE ET FILS, Ivry.

M. AUBERT-MAILLE, Tours, displayed, as usual, a noteworthy exhibit of Cyclamens; tuberous Begonias were shown by the usual specialists, M. VALLERAND, Taverny, and M. BILLARD, Le Vésinet. M. WEISS, St. Cloud, had a small collection of alpine plants; and in one of the small, side greenhouses, showed a set of the miniature Japanese gardens which are just now very fashionable in Paris.

There were three fine exhibits of Roses; those of MM. NONIN ET FILS, Châtillon sous Bagneux, of MM. LEVEQUE ET FILS, Ivry (who showed very attractive plants in pots), and of M. HONORE DEFRESNE, Vitry. Among the varieties shown by MM. NONIN, the fine dwarf polyantha Joseph Guy bore large clusters of bright red blooms.

Excellent floral compositions were contributed by M. DEBRIE and M. DEBRIE-LACHAUME; there were also several attractive baskets of fruit, and happy combinations of fruit with flowers.

As at previous exhibitions, the Orchid Com-

mittee of the Society had a creditable display, among which were particularly noted Brasso-Cattleya Dietrichiana, bright purplish red; Brasso-Cattleya Dr. J. Gralot, pure white, with a greenish centre; Laelio-Cattleya Jeannine Potin, with purplish red labellum; and Cattleya Souvenir de Mme. A. Leclerc, a fine pink variety. This latter was shown by M. MARÇOZ, and was awarded a Certificate of Merit.

The exhibits of fruit were numerous and of good quality. M. NOMBLOT-BRUNEAU, Bourg-la-Reine, had a very complete collection of autumn fruits, comprising nearly 600 varieties, and MM. CROUX ET FILS, Chatenay, and MOSER ET FILS, Versailles, also showed excellent collections. M. PESTEL, Normandy, exhibited a large series of cider Apples; and among the numerous exhibitors of commercial varieties were the MONTEUIL AND DISTRICT HORTICULTURAL SOCIETY, whose exhibits comprised Pears Charles Ernest, Notaire Lepin, and Merveille Ribet; the AGRICULTURAL COLLEGE at the Luxembourg, who sent fine specimens of Doyenné du Comice and Doyenné d'Hiver, and Apples Delicious; M. BRION, Thorigny, who had the finest display of Pear Passe-Crassane; MAISON DUPONT-BARBIER, a good display of mixed fruits; M. SALOMON, Thomery, who showed Grapes; M. WHIR, Deuil; and the THOMERY GRAPE GROWERS' SYNDICATE.

In one of the smaller houses, the IGNY HORTICULTURAL COLLEGE staged a very attractive exhibit of fruits and vegetables, and the ORLEANS RAILWAY COMPANY exhibited a large collection of the products of the regions served by their lines—Grapes from Montauban, Truffles from Périgord, Apples from Cantal, early produce from Touraine, etc.

The journal *L'Agriculture Nouvelle*, which is the agricultural supplement of the well-known daily *Le Petit Parisien*, had assembled a very interesting collection, the results of a competition in fruit production.

The big collection of vegetables staged by MM. VILMORIN-ANDRIEU ET CIE made a very decorative exhibit, with its pyramids of Kale, circles of Pumpkins, piles of salads, and baskets of Cauliflowers, comprising practically everything that could possibly be called a vegetable. There was also a collection of curious or fantastic vegetables, such as Antilles Cucumbers, Florence Fennel, Trichosanthes colubrina, etc. M. DAYV, Juvisy, also staged an interesting collection of vegetables, and so did M. G. TRUFFAUT, Versailles.

Outside the large greenhouse, a model fruit garden was arranged, showing all the different forms of trees. This was a joint exhibit by the principal fruit growers in the environs of Paris—MM. NOMBLOT, Bourg-la-Reine; CROUX, Chatenay; MOSER, Versailles; CHAUFFOUR, Versailles, etc.

Among ornamental trees and shrubs, the exhibits of MM. CROUX, Chatenay, LECOLIER, La Celle St. Cloud; THUILLEUX, La Celle St. Cloud; and MARTIN-LECOINTE, Louveciennes, were particularly noticeable, especially the specimens of Abies concolor, Cupressus Lawsoniana, and Tsuga canadensis pendula.

Many Certificates of Merit were awarded for Chrysanthemums—no fewer than fourteen to Mme. MARTIN, and ten to MM. VILMORIN.

Among the most interesting of the novelties were Secrétaire Maurice Lhuile, golden yellow, tinted with red (Mme. Martin); Ville de Paris, pink, yellow reverse (M. Lochot); Président Jules Grec, pink, suffused with carmine (M. Roman); Mlle. Mylène Laugier, pale pink (M. Hours); Mon Rêve, a single variety, yellow, with brick red aureole (M. Martin, Digoïn); L'Armagnac, pale pink; La Bué, reddish brown; L'Argonne, old rose (Vilmorin); Jeanne d'Arc, snow white (Mme. Martin).

A Certificate of Merit was also awarded to Dahlia Sénateur Gerbe, a single, deep garnet variety, of the "Digoïn Star" strain, shown by M. MARTIN, Digoïn.

The jury was international, and included, besides the French members, the following well known horticulturists:—Mr. C. HARMAN PAYNE, London; SIGNOR MOLON, Milan; M. PYNABERT, Ghent; M. JANKOWSKI, Warsaw; SENOR CORTADI, Bilbao; M. HERTZSCHUCH, Geneva; and M. KERKWOODE, Wetteren. A. M.

CARDIFF GARDENERS.

EXHIBITS of Chrysanthemums were staged at the last meeting of the above Society for the "Harry Gillett" Challenge Cup and money prizes of £2 6s. 6d.

Mr. F. WEBBER gained the highest award in the class for six vases of decorative varieties arranged with the plants' own foliage.

Mr. H. R. Farmer opened an interesting discussion on points of interest in Chrysanthemum culture. He advocated raising stock from plants which showed all the qualities of the variety, and advised not cutting the plants so hard as is usually done, but high up, so as to obviate the risk of bleeding. He recommended the placing of the plants after their final potting in groups and not in a single row, as this would facilitate spraying overhead, make for ease in watering, and promote more humid surroundings.

Obituary.

Charles Page.—It is with very great regret that we learn of the death of Mr. Charles Page, which occurred at Dropmore on the 31st ult. The funeral took place at Dropmore Church on November 4. Mr. Charles Page occupied a prominent position in the horticultural world for a considerable part of his seventy years of life, as he was a clever gardener and a successful exhibitor of Roses, Chrysanthemums, fruits and vegetables. For a period of nearly thirty years he served the Fortescue family, and in 1900 he became gardener at Dropmore, near Maidenhead, in succession to Mr. Rogers. He fully upheld the horticultural traditions of a garden famous for its fine collection of trees, its large and formal flower garden, and its collections of fruit trees and Roses. Mr. C. Page commenced his gardening career at Flixton Hall gardens, Bungay, and subsequently served at Cobham Hall, Chalfont Park, Audley End, and Cranborne Court, becoming head gardener to J. B. Fortescue, Esq., at Bocconoc House, Lostwithiel, Cornwall, in 1893, and subsequently taking charge of that gentleman's gardens at Dropmore.

TRADE NOTES.

A MEETING of the Technical Committee of the Chamber of Horticulture was held on the 25th ult., Mr. F. C. Moseley in the chair.

A letter from Mr. George Pyne, of Topsham, was read, giving further particulars as to lime and sulphur treatment for Black Currant mite. The success stated to have been obtained was considered exceptional, and the letter is to be filed as a record of such success.

A letter will be sent to all horticultural colleges and universities not already represented, inviting them to appoint a representative to this committee, who would attend when there were matters of special interest to them on the agenda.

Professor Lefroy introduced to the notice of the committee a chlorine preparation with which he had experimented in surface sterilisation of Pears and Plums with a view to preservation. Results had proved that after the lapse of a certain period fruit that had been dipped in the preparation showed only about 6 per cent. losses as against 30 per cent. losses for similar fruit not treated.

The committee considered the matter with much interest, and thought that this method of sterilisation would be of great value in certain classes of fruit.

At Downham, Essex. 26 Oaks planted by relatives of the fallen and a nursing home will constitute the local war memorial. The trees were planted on October 21, and were supplied by Mr. Webster, nurseryman, Stock an adjoining village. The inscriptions on each tree were on a special label presented by Mr. Webster, sen., the inventor and patentee of the tablets. The cost of the combined memorials was defrayed by the originator of the scheme, Mr. W. E. Leslie, of Downham House.

MARKETS.

COVENT GARDEN, Tuesday, November 7, 1922.

We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Tuesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general average for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—Eds.

Fruit: Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Apples,—		Grapes,—	
English, per bus.		—Black Ham-	
Allington Pippins	2 0-3 0	burgh	0 10-1 6
—Blenheim Pippins		—Cannon Hall	3 0-8 0
—bushel	7 0-10 0	—Gros Colmar	1 3-3 6
—Bramley's		—Muscat	2 0-6 0
Seedling	6 0-8 0	Grape Fruit	25 0-26 0
—Cox's Orange		Lemons	
Pippin best		—Malaga, case	25 0--
½ bushel	7 0-12 0	—Messina	20 0--
—ordinary	4 0-6 0	Melons	
—King of the		—Bronze	12 0--
Pippins	3 0-4 0	—English and	1 6-4 0
—Lord Derby	5 0-6 0	Guernsey	1 6-4 0
—Mackintosh Red		Nuts—	
Joathan	12 0-14 0	—Brazilis	45 0-55 0
—Warner's King	6 0-7 6	—Chestnuts bag	30 0-35 0
—Worcester, half		—Cob.	0 4-0 4½
bushel	2 3-4 0	Walnuts	
—bushel cases	6 0-10 0	—Grenoble per bag	12 6
Nova Scotian,		—English per lb	0 4-0 6
Blenheim Pip.	22 0-24 0	Oranges,—	
Cox's Orange		—S. African	30 0-35 0
Pippin ½ barrel	28 0-30 0	Pears, half bus.	
—King of the		—Beurré Hardy	5 0-10 0
Pippins	24 0-28 0	—Conference	5 0-8 0
—Ribston Pippin	22 0-24 0	—Calabasse	6 0-10 0
Tyrolcan 40 lb box	7 0-14 0	—Doyenné du	
Bananas, singles	12 6-20 0	Comice	7 0-15 0
—doubles	17 6-20 0	—Pitmaston	
Grapes		Duchess	4 0-8 0
—Alicante	0 10-2 6	Pineapples	2 0-4 0
—Almeria, barrel	23 0-21 0	Plums,—	
		—Prunes	2 0-3 0

Vegetables: Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Beans		Mushrooms	
—French	1 3-1 9	—per lb. Forced	2 6-4 0
—Mafiera basket	4 0-6 0	Onions,—	
Beets, per cwt.	3 0-4 0	—Dutch	5 0-6 0
Ca bage, per		—Valencia	10 6-14 0
tally	2 0-3 0	Potatoes, ton	23 0-25
Carrots, new,		Savoy, tally	2 6-4 6
cwt.	3 0--	Sprouts, ½-bushel	2 3-2 9
Cauliflower, doz.	2 0-4 0	Spinach bushel	2 0-2 6
Cucumbers		Tomatoes,—	
—Boxes 12s	5 0-7 0	—English Pink	4 0-6 6
—dats, 3 doz	18 0-23 0	—Pink and white	4 0-6 6
—3s	18 0-20 0	—Guernsey	1 0-2 6
Endive	3 0-4 0	—Jersey	1 0-2 6
Garlic, per lb.	0 8-0 9	—Dutch	1 6-3 0
Lettuce, Round	2 0-2 6	Turnips, per cwt	3 0-4 0

REMARKS.—Trade generally has been moderately brisk, with a fair volume of produce available. Considerable quantities of Apples are due from the North American Continent, the bulk going to northern ports. English dessert Apples are a steady trade, and large cookers are selling at improved prices. Pears are in shorter supply, and are selling well. Hothouse Grapes are still plentiful, and prices for ordinary parcels are low. Prunes are finishing, and most consignments are arriving in poor condition. Green vegetables continue to be plentiful and cheap. Beans from Madeira, France and Guernsey are available; those from Guernsey have advanced considerably in price. Mushrooms are slightly more plentiful and a little cheaper. English Tomatoes are finishing, but fruits of the new crop are realising firm prices. Very considerable quantities of outdoor Jersey Tomatoes are offered, but conditions are such that it is impossible to arrange sales at any price. Tomatoes from the Canaries are arriving in increasing quantities. The prices of Potatoes are inclined to be slightly firmer.

Plants in Pots, etc.: Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Adiantum		Erica gracilis	
—cuneatum,		48 per doz.	24 0-36 0
—per doz.	10 0-18 0	—60	12 0-15 0
—elegans	10 0-12 0	—Thumbs	6 0-8 0
Aralia Sieboldii	10 0-12 0	Erica nivalis	
Araucarias	30 0-48 0	48	21 0-30 0
Asparagus plu-		60	10 0-15 0
mosus	12 0-15 0	—Thumbs	6 0-8 0
—Sprengeri	12 0-18 0	—Genistas 48's	
Aspidistra, green	48 0-72 0	per doz.	15 0-18 0
Asplenium, per		Marguerites, per	
doz.	12 0-18 0	doz.	15 0-18 0
—32's	24 0-30 0	Nephrolepis, in	
—nidus	12 0-15 0	variety	12 0-18 0
Cacti, per tray,		—32's	24 0-36 0
12's, 15's	5 0-6 0	Palm, Kentia	24 0-30 0
Chrysanthemum		—60's	15 0-18 0
—white per doz.	10 0-18 0	—Cocos	24 0-36 0
—coloured	9 0-15 0	Pteris, in variety	12 0-21 0
Cinerarias,		—large 60's	5 0-6 0
per doz.	12 0--	—small	4 0-4 6
Crotons, per doz.	30 0-42 0	—72's, per tray	
Cyclamens,		of 15's	3 6-4 0
per doz.	18 0-24 0	Solanums, per doz.	10 0-12 0
Cyrtolium	10 0-15 0		

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Acacia (Mimosa)		Gardenias,	
per bunch	1 3-1 6	box	6 0-9 0
Adiantum deco-		Heather, white,	
rum, doz. bun.	10 0-12 0	per doz. bun.	4 0-10 0
—cuneatum,		Lilium longiflorum	5 6-6 0
—per doz. bun.	6 0-8 0	—speciosum long	
Asparagus plu-		per doz.	3 0-4 6
mosus, per bun.		short	4 0-5 0
long trails, 6's	4 0-5 0	Lapageria per	
med. sprays	2 6-3 6	doz.	4 0-4 6
short	1 0-1 6	Lily of the Valley,	
—Sprengeri, per bun.		per doz. bun	24 0-36 0
long sprays	2 6-3 0	Narcissus, pap'r	
med.	1 3-1 6	white, per doz.	
short	0 9-1 0	band's	8 0-9 0
Camelias, white		Orchids, per doz.	
per box	4 0--	—Cattleyas	12 0-18 0
Carnations, per		—Cypripediums	6 0-9 0
doz. blooms	3 6-5 0	Pelargonium,	
Croton leaves,		per doz. bunch,	
var., per bun.	2 6-4 0	double scarlet	10 0-12 0
Chrysanthemum		Richardias (Arums),	
pink, per doz.		per doz.	9 0-10 0
—bun.	15 0-18 0	Roses, per doz.	
—bronze	15 0-18 0	blooms—	
—white	24 0-26 0	—Frau Karl	
—yellow	15 0-18 0	Drasconi	1 6-2 6
—per doz. blooms		—Madame A.	
—white	3 6-8 0	Chateaux	3 6-5 0
—yellow	3 0-6 0	—Melody	4 0-6 0
—pink	4 0-8 0	—Nipetoy	2 0-3 0
—bronze	4 0-8 0	—Opuseta	4 0-8 0
single varieties		—Liberty	5 0-6 0
disbudded		—Richmond	5 0-6 0
b'oms, per doz.	3 0-5 0	—Sunburst	4 0-5 0
—spray coloured		—White Crawford	3 0-4 0
per doz. bun.	18 0-30 0	Smilax, per doz	
—spray white	24 0-30 0	trails	3 0-5 0
Fern, French per		Stephanotis, per	
doz. bun.	1 0-1 3	72 pips	6 0--
Forget-me-not per		Violets, single	3 6-6 0
doz. bun.	9 0-10 0	—Parma, per bun.	7 0-8 0

REMARKS.—After a general shortage in this department during the past week or so, there appeared to be a general improvement in supplies this morning. Chrysanthemums of all grades were more plentiful, and prices showed a tendency to fall. Similar remarks apply to Carnations, but Roses from home growers will be a limited supply for some time to come. Lilium longiflorum is again falling in price; there was a sudden rise at the beginning of last week, but Richardias (Arums) remained firm, the supply at present being very short. Amongst the English flowers there are no fresh lines to record this week. The French flower season has now started, and prices at present are high, but further supplies are expected this week which, no doubt, will bring them down. Acacia (Mimosa) is arriving in good condition, as also is Paper White Narcissus. At present the largest consignments consist of baskets of pink Heather, Chilies and Solanums. Parma Violets have advanced from 4s. to 8s. per bunch during the past week.

GARDENING APPOINTMENTS.

Mr. H. F. Maidment, for the past two years and ten months at Cannington Court, Bridgwater, and two years Manager and Horticultural Instructor at the Cannington Court Training Centre for disabled ex-Service men, and for ten months Gardener and Instructor at the Somerset Farm Institute, as Gardener to Lord Alington, Crichele Estate near Wimborne Dorset. (Thanks for 2s. to R.G.O.F. Box.—Eds.)

Mr. T. H. Bolton, for the past ten months Gardener at Allerton Park, Knarborough and previously 15 years at Powderham Castle, Exeter, as Gardener to Capt. W. D. Hall, Gwernyst Park, Three Cocks, Breconshire.

CATALOGUES RECEIVED.

R. MURRELL, Rose Acre, Shepperton.—Roses.

D. PRIOR & SON, LTD., The Nurseries, Colchester.—Roses, etc.

T. E. HARRISON & SONS, Darrus Hall Nurseries, Ponteland, near Newcastle.—Violets.

PERRIN'S HARDY PLANT FARM, Enfield, Middlesex.—Hardy Plants and Bulbs.

W.M. PAUL & SON (WALTHAM CROSS), LTD., Royal Nurseries, Waltham Cross, Roses.

THE BARNHAM NURSERIES, LTD., Barnham Junction, Sussex.—Climbers and general Nursery Stock.

LAXTON BROS., Bedford.—Fruit Trees and small Fruits.

Bulbs.

W. POWER & CO., 25-26, King Street, Waterford.

W. DRUMMOND & SONS, LTD., 57 & 58, Dawson Street, Dublin.

DICKSONS, Chester.

BARR & SONS, 11, 12, 13, King Street, Covent Garden.

CLIBRANS Altrincham.

EDMONDSON BROTHERS, Dublin.

Foreign.

ALESSANDRO SQUADRILLI, Napoli 46, Naples, Italy.—Seeds (wholesale).

RIVIERE PERE & Fils, 16, Rue d'Algérie, Lyon, France.—Novelties in flower seeds

MON. L. FERARD, 20-22, Rue de la Pepiniere, Paris.—Bulbs, etc.

ANSWERS TO CORRESPONDENTS.

APPLE SHOOTS DISEASED: *E. E.* The foliage is affected with a physiological trouble known as Apple leaf-scorch, which is sometimes due to a lack of potash in the soil and sometimes to wrong cultivation, whilst others attribute it to the influence of the stock. The complaint was fully dealt with in the last annual report of the Long Ashton Fruit Research Station, Bristol.

CUCUMBERS FAILING: *W. G. C.* The portion of the plant sent us is free from disease, and there is no eelworm present in the roots. In these circumstances the trouble must be looked for in some wrong cultural treatment, or, very possibly, the use of poor soil, for that which was attached to the roots appears to be of very poor quality.

FAILURE WITH POTATOS: *A Constant Reader.* The fact of the seed tubers remaining hard and giving no yield points to the sets having been over-ripe. In your other case apparently the seed of Arran Chief variety was in a more suitable condition, as the yield of this sort was satisfactory.

GARDENERS' NOTICE: *E. B.* It is customary for a head gardener to give and receive a month's notice on terminating an engagement, but the custom varies in different parts of the country, as was described by a solicitor in an article published in our issue of March 22, 1919, p. 143. If you are in any doubt, your best plan is to consult a local solicitor.

GRAPES SPLITTING AROUND THE STALKS: *H. L.* The trouble is not due to fungous disease, but to faulty culture of some kind. It is not shanking, but would appear to be a nearly allied type of trouble. You will probably find that the roots are in an unhealthy condition, and we would advise you to make an examination of the border when the vines are defoliated. Another cause might be the presence of too much moisture in the atmosphere.

LAWN SAND: *H. N.* Lawn sand, by stimulating the growth of the grasses, serves to keep down weeds, as the luxuriant growth of the grass smothers the weeds. The most active property in lawn sand is nitrogenous fertiliser, and, like all quick-acting manures of this nature, lawn sand is best applied in the spring. You will find directions for using it given by the makers on the packets.

MUSCAT GRAPES DECAYING: *F. L. and G. S.* The trouble is not primarily due to a fungous disease, although the fungus *Botrytis* is present and causing the decay. The *Botrytis* obtained an entrance either through a minute crack or wound, or by means of areas which had damped or were over-ripe. By maintaining a dry, buoyant atmosphere in the house the spread of the disease will be checked, although once *Botrytis* affects a vine with great seriousness it is exceedingly difficult to check.

NAMES OF FRUIT: *G. P. J.* 1, Beurré Sterckmans; 2, Durondeau; 3, Le Lectier; 4, Bellissime d'Hiver; 5, Fondante de Cuernne; 6, Beurré Diel; 7, Old Nonpareil; 8, Melon Apple.—*J. H. R.* 1, Small's Admirable; 2, Warner's King; 3 and 5, Worcester Pearmain; 4, Mank's Codlin; 6, Cox's Orange Pippin; 7, French Crab; 8, Blenheim Pippin; 9, Lane's Prince Albert; 10, Baxter's Pearmain; 11, King of the Pippins; 12, Lord Derby; 13, Ribston Pippin.—*W. R. S.* 1, Cellini; 2, Golden Noble; 3, Sam Young; 4, Duchess of Oldenburgh; 5, Lord Derby; 6, English Codlin; 7, Newton Wonder.—*W. L.* 1, Bramley's Seedling; 2, Herefordshire Beefing; 3, Afriston; 4, Wealthy; 5, Claygate Pearmain; 6, Kerry Pippin; 7, Court Pendu Plat.—*J. C. B.* Green Apple, Keswick Codlin; red, Scarlet Pearmain.—*F. J. M.* Apples: 1, James Grieve; 2, Cellini; 3, Warner's King; Pears: 1, Durondeau; 2, Beurré Hardy; 3, Conference.—*C. F. G.* 1 and 10, Cox's Orange Pippin; 2, Herefordshire Pearmain; 3, Keswick Codlin; 4, Wilson's Prolific; 5, Flower of Herts; 6, Annie Elizabeth;

7, Dumelow's Seedling, syn., Wellington; 8, Winter Hawthornden; 9, Warner's King.—*F. G. M.* Fondante d'Automne.—*H. F. Z.* 1, 2 and 5, decayed, overripe; 3, Beurré d'Amanlis; 4, Beurré de Capiaient; 6, Fondante d'Automne; 7, Duchesse d'Angoulême; 8, Louise Bonne de Jersey; 9, Easter Beurré; 10, Beurré Hardy; 11, Hacon's Incomparable.—*C. E. F.* 1, Williams' bon Chrétien; 2, Marie Louise; 3, Doyenné du Comice; 4, Louise Bonne de Jersey; 5, Olivier de Serres; 6, Lodgemore Nonpareil; 7, Keswick Codlin; 8, Cellini; 9, Bramley's Seedling; 10, Warner's King; 11, Napoléon.—*C. H.* 1, 2 and 3, Ribston Pippin; 4, Mabbot's Pearmain; 5, Franklin's Golden Pippin; 6, Duchesse d'Angoulême.—*G. R.* 1, Catillac; 2, Williams' Victoria; 3, British Queen; 4, Warner's King.—*G. A. P.* 1, Striped Beefing; 2, Radford Beauty; 3, Annie Elizabeth; 4, Golden Spire; 5, Cellini; 6, Beurré Hardy; 7, Beurré Sterckmans; 8, Triomphe de Vienne; 9, Beurré d'Amanlis; 10, Vineuse; 11, Vicar of Winkfield.

NAMES OF PLANTS: *Ensign.* 1, *Thuya plicata*; 2, *Cupressus pisifera*, var. *plumosa aurea*; 3, *C. Lawsoniana*; 4, *Taxus baccata*, var. *fastigiata*; 5, *Cupressus pisifera*, var. *squarrosa*; 6, *Juniperus chinensis*; 7, *Cupressus macrocarpa*; 8, *C. sempervirens*; 9, *Pittosporum undulatum*. *F. C.* Asters: 1, Purple Prince; 2, Blue Gem; 3, Edwin Beckett; 4, Juno; 5, Brightest and Best; 6, *diffusus horizontalis*; 7, Sensation.—*G. B.* *Aralia chinensis*, Chinese Angelica Tree.—*H. S.* 1, *Cotyledon valida*; 2, *C. gibbiflora* var. *metallica*; 3, *C. Milleriana*; The *Alternantheras* had no foliage, therefore it was impossible to identify them: they are all varieties of *A. ficoidea*.—*T. S.* 1, *Abelia floribunda*; 2, *Diplopappus chrysophyllus*; 3, *Santolina Chamaecyparissus*; 4, *Rhus Cotinus*; 5, *Artemisia lactiflora*; 6, *Asperula montana*; 7, *Erigeron mucronatus*.—*J. E. I.* *Galega officinalis*.

PLANTS DYING: *Anxious.* The plants you sent were not affected with a fungous disease. They are in a very bad condition and may have been treated with the material you suspect, but it is impossible for us to determine here what you cannot ascertain on the spot. If you had saved some of the water, an analysis of it would have proved the presence or not of weed killer.

PLANTS: *R. G.* You can obtain plants of the *Scabiosa* you mention from Messrs. Godfrey and Son, Exmouth, and the bulbs you require from Messrs. Barr and Sons, King Street, Covent Garden, W.C.

PRUNING YOUNG FRUIT TREES: *Amateur.* Maiden (one year) trees are always pruned on planting if they are tall enough to give the required length of stem. The difference of opinion arises when two or three-year-old trees are planted; and it is probably this to which you refer. Some prune at once, or some time before the first season of growth, arguing that the roots have been damaged and disturbed by transplanting, and that the head should be reduced to restore the balance. Others prefer to leave the head unpruned for one season, claiming that this helps the roots to establish themselves, and that a better response to the knife is obtained in consequence when the tree is cut back the next winter. This is a very old controversy which will probably never be settled. In practice, you will find that it is quite safe to prune the first year if the trees are planted before Christmas on well-prepared land; but if they are not planted till February or March, it may be better to defer pruning till the next winter.

RED SPIDER IN AN EARLY VINERY: *G. W. S.* If proper attention be given to ventilation, and the vines are never allowed to suffer from want of water at the roots, red spider need not be feared. The spread of red spider is favoured by a dry, warm atmosphere, caused by the use of too much fire heat, and dryness at the roots. Wash the vines with Gishurst compound, and coat the walls with hot lime,

adding a handful of sulphur to each gallon of wash. The first signs of spider are a brownish appearance of the leaves, generally in dry corners and nearest to the hot water pipes. On its first appearance, sponge the leaves with warm, soapy water; this is a tedious and slow process, but if carefully done never fails. In addition to sponging the foliage, syringe the vines with clean, soft water. As a last resort paint the pipes when they are hot with a mixture of sulphur, soft soap and milk.

RHODODENDRON AND HYACINTHUS CANDICANS: *F. H.* After an examination of *Rhododendron* Lady Eleanor Cathcart we have come to the conclusion that root trouble is the cause of failure. The plant made a good start to grow, but the leaves failed to thicken, and the shoot is soft instead of becoming woody. The brown deposit you mention does not give any clue to its composition. If a natural deposit, it may be badly drained with stagnant water at no great depth below. If the soil has been made up it may contain too much clay or lime. All or any of these defects should be made good, if present. Peat in considerable quantity would improve the staple whether clay or lime is present, and sand may be added to advantage in the case of clay. The variety is a hybrid of *R. arboreum*, and in that respect may be a little exacting in its requirements; but it is an old and beautiful variety that has given satisfaction for thirty-five to forty years, so it is worth a little trouble to get it to thrive. The plants will take no harm if they are lifted while the ground is being prepared, provided they are taken up with the original ball of soil. It is always safer in the Eastern and Midland counties, as well as further north, to lift, dry, and store *Hyacinthus candicans* and *Gladioli*. The former may be replanted in February or March.

ROSES ATTACKED WITH BLACK SPOT DISEASE: *F. O.* The Rose leaf blotch, or spot, may be controlled by the use of any of the copper sprays, such as sulphate of copper or Bordeaux mixture. The latter, of course, will not affect your copper sprayer. Gather all the fallen leaves and burn them, and take the precaution to spray the plants early in the season, previous to the blossoming period.

SEEDLING PEAR: *H. C.* The fruit reached us almost in a condition of pulp. We agree that it has a superficial resemblance to Citron des Carmes, but as it was raised from a pip it is, of course, not that variety, but a distinct one which may or may not be worthy of a name.

SOIL FOR CARNATIONS AND CHRYSANTHEMUMS: *H. K.* The disease may have been introduced with the soil, and you will be advised to sterilise the compost used for these plants or to obtain the loam from a fresh source. In order to make doubly sure, we would advise you to cleanse the house thoroughly. Wash the woodwork well with soapy water, using carbolic soap for the purpose, and coat the walls with hot lime wash.

SOIL FOR EXAMINATION: *H. K.* We do not undertake to analyse soil for correspondents. Write to the Director of the Royal Horticultural Society's Gardens, Wisley, Ripley, Surrey. The presence of small, white worms in the soil points to an excess of organic matter and the need for liming.

SWEET WILLIAMS AND CLOVE CARNATIONS DISEASED: *D. M.* The Sweet William plants are affected with disease caused by a species of *Meterosporium*; the Clove Carnations are attacked by *Septoria Dianthi*. Affected leaves of both plants should be picked off and burnt, and the plants afterwards sprayed with a solution of liver of sulphur at a strength of one oz. to two or three gallons of water.

WALNUT SHELLS PERFORATED: *L. T. H.* The damage to the Walnut shells has been caused by birds, probably Starlings. Your Walnut is the thin-shelled variety, which is easily perforated by birds.

Communications Received.—*F. W. D.*—Bzoo—*T. T.*—*J. R. A.*—*G. W. C.*—*J. S. B.*—*T. E. W.*—*A. G.*—*C. H. W.*—*C. E.*—*J. T. W. C.*—*H. J. C.*

THE

Gardeners' Chronicle

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 43.0.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, November 15, 10 a.m. Bar. 30.2; temp. 47°. Weather—Foggy.

On Growth.

The microscope has revealed to botanists the minute structure of the cells of plants and the manner in which cells grow and divide; but the physiological processes which evoke the growth and differentiation of the cells and tissues of plants remain almost entirely unknown. When conditions are favourable, a plant pursues the tenor of its way so steadily, and by such continuous, though scarcely perceptible, stages that its growth becomes one of the accepted things of nature—calling forth no comment and provoking little curiosity. When, on the other hand, conditions are unfavourable and growth ceases or becomes disordered, we say "the plant has had a check," and are perforce satisfied with this mere statement of fact. Why an arrest of growth—say in the spring of the year—should leave its mark on a plant throughout the whole of the growing season, is a question which we make no attempt to answer. Yet such marks are to be observed in most gardens in years like the present one. For example, some Zinnias—healthy seedlings which were planted out just in time to catch the end of last spring's drought—remained, in spite of a summer favourable to growth, puny things six inches in height and with flowers no larger than halfpence. Evidently, knowledge of the physiology of the growth of plants is very imperfect. Recent discoveries in the animal world have shown that the regulation of the rate of growth and development of cells and tissues is mainly, if not entirely, brought about by specific chemical substances, some of which act as accelerators, hastening growth, and others, of which doubtless some act as inhibitors, checking its rate. That there exists a similar chemical control of the growth of plants can scarcely

be doubted, although at present experimental evidence is almost altogether lacking. At a given moment of the year active growth begins, and at a given moment growth ends. Between these times, many phases of growth intervene. The cambium becomes active and produces new wood and bast. Presently, groups of cells of the cortex which hitherto had show no sign of division, begin to divide and differentiate a cork cambium, from which cork is produced. Stimulation of growth in spring, arrest in autumn, and the initiation of successive phases of growth are, of a certainty, not mere direct reactions of the living substance to external conditions, but responses to specific chemical stimulators or inhibitors which the plant itself makes and uses for the purpose of growth-regulation.

Recent experiments have made a beginning in the direction of discovering the existence in plants of growth-regulatory substances or hormones. For example, it has been shown that the change in rate and distribution of growth, which takes place and exhibits itself by curvature when a plant is illuminated only from one side or when it is displaced from the vertical line, is brought about by a specific chemical substance excreted in the sensory region and distributed to the bending region. It has been shown, for instance, that the sensory tip of the first leaf of an Oat seedling may be cut away, and then "glued" on again by means of gelatine without destroying its power of sending signals to the lower part of the leaf, which is the seat of curvature. By such treatment any structure of the nature of nerves would be put out of action, and we are, therefore, forced to the conclusion, which is also supported by other evidence, that the curvature in response to a stimulus of light or gravity is brought about by the secretion in the sensory or perceptive region of a growth-distributing substance which passes to and affects the motor region. A similar transmission of a chemical stimulator has also been shown to occur in sensitive plants, *Mimosa pudica* and others. A branch of *Mimosa pudica* in an active state may be cut off, its cut end put in a tube containing water and left till it has recovered from the shock. If there be fixed in the lower end of the water-filled tube, another branch of the plant, and if that branch is repeatedly stimulated, a substance diffuses from it through the water into the cut end of the upper branch and presently the leaflets of that branch begin to show the familiar movements. It is true that these movements are brought about not by the growth of the tissues of the pulvini, but by change in size of their constituent cells. That, however, does not affect the argument. Again, recent experiments in Germany have shown that cork formation after wounding a tissue is due to a chemical stimulus emanating from the wounded cells. If a wound be made in a bulbous or tuberous plant (*Kohl rabi* for example), cork formation follows in the course of a short time in cells lying a little way behind the wound. If, however, the wound be washed with clean water, the formation of wound-cork does not take place; but if, after washing, some wounded tissue from another cut surface of the bulb or tuber be spread on the wound, wound-cork formation occurs as in the normal plant. Though slender, the evidence is stimulating and encourages the speculative plant physiologists to predict that the rate and regulation of growth of cells and the differentiation of the tissues of plants will be found to be governed by specific chemical stimulators and regulators. There are some grounds for expecting that the seat of formation of

these hormones will be found to be localised; that although any groups of living cells may perhaps secrete them, the work of manufacturing them may be found to be the task of special tissue. The tissue which may prove to be the secretor of hormones—corresponding to the special glands for internal secretion in animals—is the bast. Long regarded as the channel for the distribution of elaborated sap, the most recent view repudiates this opinion and inclines to the belief that the elaborated sap passes from one part of the plant to another along the vessels of the wood. If so, the phloem or bast would for the moment appear to be cut of work, and therefore it is not perhaps improper to lay on it the burden of the secretion of growth stimulators. It is well placed for such a task. Close within it lies the cambium which needs to be quickened periodically into activity. Outside it lies the cortex, and if there emanates from the phloem a cork-forming hormone, then it would no longer be surprising that in each species of plant, primary cork forms at a fixed distance from the phloem, either in the epidermis itself, in the layer below the epidermis, or in a certain layer of the cortex. The old observation of the effect of ringing branches lends support to this view of the functions of the phloem. If a ring down to the wood be removed from the stalk bearing a fruit, the fruit grows larger than it otherwise would. This is ascribed generally to the accumulation of food materials in the fruit. But there is no ground for such a view. Accumulation of food materials will not necessarily make a tissue grow any more than greedy eating will make a thin man fat. It is more probable that the effect of cutting into the bast brings about an increase in the production therein of growth-accelerating hormones which, diffusing into the tissues of the fruit, cause their cells to increase beyond the normal size. Needless to say, this hypothesis will require to be tested by experiment before it can be accepted; but a new hypothesis, whether true or false, has this merit that it suggests lines of experimental investigation which before its promulgation are not apparent.

Honour to a Gardener's Son.—Amongst the honours conferred by the late Government is a peerage for Sir John Bethell, Bt., Bushey House, Bushey, Hertfordshire. Sir John Bethell is one of the sons of the late Mr. G. Bethell, who was for many years gardener to the late Sir Greville Smyth, of Ashton Court, Bristol. He was Member of Parliament for the Romford Division of Essex, the largest single-member constituency in the country, from January, 1906, to December, 1918, whilst from December, 1918, until the dissolution he was member for the East Ham North Division. Sir John is a director of Barclay's Bank, Ltd., and of the Royal Exchange Assurance Corporation.

French Chrysanthemum Society.—It was decided at the Paris Congress of the above Society that the annual gathering for 1923 shall be held at Limoges. To those who have not visited that part of France there will be much to interest them in the journey. Further details will be announced in due course.

The Botanical Magazine.—Gardeners, no less than botanists, will welcome the reappearance of the *Botanical Magazine*, the continuation of which has been undertaken by the Royal Horticultural Society, who have been enabled to carry on this work owing to the liberality of some of the Fellows who are contributing part of the cost. Besides new proprietors, the work has a new publisher and new editor, Messrs. H. F. and G. Witherby, 326, High Holborn, and Dr. O. Stapf, late Keeper of the Herbarium and Library, Kew, respectively. The issue under notice comprises part 1 of Vol. CXLVIII.; the

price is 17s. 6d. net, per part, and the annual subscription 63s. net. The new issue contains illustrations and descriptions of twelve plants. The plates are well produced, although we notice in one or two instances that the colour register is hardly perfect; although we are aware of the difficulty of perfect colour reproduction, we do not think such great success has been achieved in this respect as in some of the earlier colour reproductions of plants, and especially in the *Botanical Register*; yet the plates are, on the whole, better than in the immediate past. Much useful detail has been embodied in the plates, making for easy identification of the species. The text has been greatly enlarged, and this will be very much appreciated by subscribers. The following are the plants illustrated:—*Jasminum Rex*, tab. 8,934, a white-flowered species described as one of the finest of the genus; *Rhododendron Williamsianum*, tab. 8,935, an especially successful plate of this beautiful, rose-coloured species from Western China; *Podanthum floribundum*, tab. 8,936, a perennial herb with spikes of dark violet-coloured flowers; *Mesembryanthemum fragrans*, tab. 8,937, an old species from South Africa, long lost in gardens and rediscovered by Dr. I. B. Pole-Evans in the Karoo east of the town of Ladysmith; *Aeschynanthus sikkimensis*, tab. 8,938, a Gesneraceous shrub with clusters of scarlet flowers and fleshy, pale green leaves; *Primula sino-Listeri*, tab. 8,939, a member of the obconica group; *Stapelia tsomoensis*, tab. 8,940, which was first sent to this country in 1878 by Sir Henry Barkley; *Philadelphus sericanthus*, tab. 8,941, a beautiful, floriferous shrub, producing loose racemes of five to ten white flowers; a most valuable plant for gardens and perfectly hardy; *Rhododendron Baileyi*, tab. 8,942, a very distinct species forming a small shrub up to one metre high and producing terminal, racemose inflorescences of reddish-purple flowers with violet-purple interiors; *Bulbophyllum triste*, tab. 8,943, described under *B. alopecurum* by Reichenbach in *Gard. Chron.*, July 17, 1880, p. 70; *Symphytum grandiflorum*, tab. 8,944, a pale, yellow-flowered species with characteristic cymose inflorescences of the genus, the younger buds being tinged with brick red; and *Phellodendron Livallei*, tab. 8,945, a deciduous tree with inconspicuous, greenish flowers, followed by large clusters of berries, somewhat like a loose bunch of Grapes, and coloured bluish black.

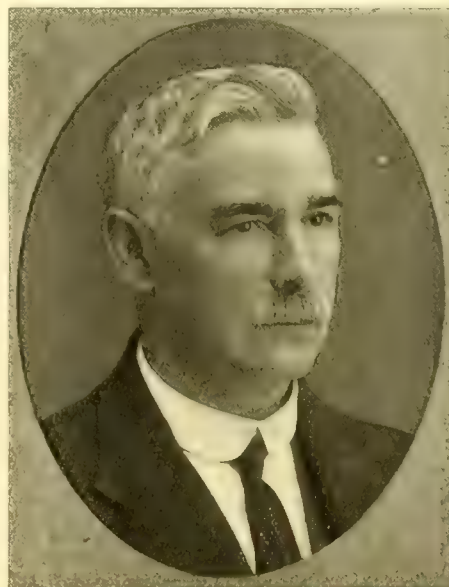
Appointment.—The Earl of Ancaster, Parliamentary Secretary to the Ministry of Agriculture and Fisheries, has appointed Mr. D. B. Toye, O.B.E., to be his private secretary.

Exploring the Sahara.—A Danish scientific mission, under the leadership of Prof. Olufson, is to undertake a scientific mission to Northern Sahara. The party will include a botanist, Dr. Gram, and it may be expected that some interesting new species of plants will be met with in that desolate and unfrequented region.

Proposed Testimonial to Sir Frederick W. Moore.—With the retirement of Sir Frederick W. Moore from the Botanic Gardens, Glasnevin, it is felt that an opportunity is afforded to express the high appreciation and esteem in which he is so deservedly held throughout the whole gardening world. Sir Frederick's widely spread activities and ever ready, courteous helpfulness are well known, as well as his vast practical experience and knowledge. His helpfulness has always been at the disposal of those who have ever had occasion to require it, as well as the educational facilities of those now far-famed Botanic Gardens at Glasnevin under his management. It is, therefore, with unqualified pleasure we now invite those who feel with us in the matter to join in the privilege of expressing our appreciation of him and his great work. In consideration of what is felt, under present circumstances, would be Sir Frederick's own feelings on this matter, it has been decided to limit subscriptions to the testimonial to sums not exceeding one guinea, which should be sent to the Marquis of Headfort, President of the Royal Horticultural Society of Ireland; or to Mr. E. Knowlton, Secretary of the Society, 5 Molesworth Street, Dublin.

Price of Oranges One Hundred Years Ago.—A paragraph reprinted from the *Times* of November 15, 1822, states: "Oranges are selling at the principal fruiterers of the metropolis at 1s. and 2s. each. We understand they arrived from South America with some that were lately presented to His Majesty; that they are of different species from any hitherto known in England, the inside being nearly as pale as a Lemon, but when full ripe, they are deliciously sweet and in flavour resemble a Pine."

Mr. George H. Hollingworth.—The serious horticultural education of Mr. George Hollingworth commenced at Woodseat, Uttoxeter, when his father, the late Mr. J. Hollingworth, was head gardener and bailiff to J. F. Campbell, Esq. But Mr. Hollingworth, senior, understood the value of experience away from home and he soon sent his son to Alton Towers, where the late Mr. T. H. Rabone was then gardener, and the establishment was one of the finest horticulturally in the country. While at Alton Towers Mr. George Hollingworth felt constrained to express in writing his views on horticultural practice and affairs, and as he



MR. GEORGE HOLLINGWORTH.

was general foreman at Alton when only twenty years of age, it was evident he had ability above the ordinary. His notes in the gardening Press attracted the attention of Mr. John Wright, V.M.H., then editor of the *Journal of Horticulture*, and eventually he was offered a post on the staff of that paper. Here he gained further experience in horticultural affairs while visiting gardens and exhibitions in various parts of the country. Later, Mr. G. Hollingworth became assistant lecturer in horticulture under the Kent County Council, and after serving in that capacity for nearly eight years, he secured the important post of Horticultural Instructor under the Gloucestershire County Council, a post he still holds, with the additional office of Agricultural Organiser, to which he was appointed in 1914. Mr. G. Hollingworth has great faith in the possibilities of fruit culture in Gloucestershire, notably on standard trees on grass and his faith is justified seeing that some of the finest Apples at the Imperial Fruit Show were grown on such trees in the western county. Mr. Hollingworth has done much to encourage the cider making industry in Gloucestershire and he has a wide knowledge of cider Apples and perry Pears. His work brings him into contact with farmers and market gardeners as well as allotment holders throughout Gloucestershire and he is everywhere received with pleasure and recognised as an authority on matters concerning the land and its cultivation. His sound practical knowledge and ability are also recognised

outside Gloucestershire and thus we find Mr. Hollingworth has been called upon to act as examiner in horticulture at University College, Reading, on several occasions, and examiner in agriculture and horticulture at the Agricultural Institute, Usk, Monmouthshire. Notwithstanding his many duties Mr. Hollingworth still writes for the Press and has contributed, on occasion, to these pages.

Tait Chair of Natural Philosophy at Edinburgh.—The Edinburgh University Court have appointed Mr. Charles Darwin, F.R.S., as the first incumbent of the recently instituted Tait Chair of Natural Philosophy. Prof. C. Darwin is the son of the late Prof. Sir Geo. Darwin, F.R.S., and grandson of Chas. Darwin. He was born in 1837 and educated at Marlborough and Trinity College, Cambridge.

The Antiquity of Wisley.—During excavations for the development of sewage works at Wisley, a complete, ancient village of the stone age has been discovered. It is assumed that the village was devoted to the manufacture of pottery, and a deep bowl was amongst the pottery discovered. The outline of the village was quite regular and the excellent state of preservation was due, it is suggested, to the fact that the soil is sand.

Horticulture and the General Election.—The horticultural legislative programme, in the form of a questionnaire, as referred to in our issue of November 4, was sent direct to over 1,000 candidates for Parliament, and up to the first post Monday (13th inst.) morning, 152 replies were received by the Chamber of Horticulture. Of those replying, 79 accepted the programme without reservation and pledged their support if returned to Parliament; 61 promised to support the programme, with slight exceptions, in most cases the Regulation of Imports (Question No. 3) being the stumbling block; and a few were unable to give any definite pledges, but expressed strong sympathy with the programme. Replies to the Railway questions show that further consideration is required, and in many instances some lack of knowledge was apparent. In addition to the valuable assistance given by the Press, the questionnaire was widely circulated among horticulturists with a request that the programme should be brought to the notice of all candidates. Notification has also been sent to over 500 local newspapers, and candidates' replies have been published when time permitted. The politics of candidates from whom replies have been received are:—Unionists 55, Liberals 25, National Liberals 10, Labour 56, others 6.

The Fall of the Leaf.—"The Fall of the Leaf" was the subject of a most interesting lecture delivered recently in Aberdeen University buildings before the local branch of the Educational Institute of Scotland by Dr. Macgregor Skene, Lecturer on Plant Physiology. Dr. Macgregor Skene said that the fall of the leaf in autumn was not really so much a passive fall as an active casting-off of an old garment. There was an act of preparation for it, and it was not simply a case of withering and dropping off. It appeared to be conditioned by the change of environment, and it was certainly adapted to the change from summer weather to that of winter. What was the exact adaptation of leaf fall to the change of climate? In the first place, it might be a method by which the plant got rid of outworn tissue, but scientists had little exact knowledge in that connection; however, a leaf could only have a definite period of life, and became unable further to carry out its functions, and it was necessary for the plant to get rid of it. By getting rid of its sensitive leaves in winter a tree safeguarded itself against various dangers, principally freezing and the excessive loss of water. Some evergreen trees cast their leaves, as they suffer severely, not from frost, but from the sun succeeding the frost. It was not quite so certain that the leaf fall was caused by the climatic conditions, as in deciduous trees the preparation for the change took place before the climatic conditions became severe. Even in the mildest autumns the change began to take place before the weather changed, and it was

also found in greenhouses and hothouses; where the conditions were even more favourable than during the summer months. Therefore, it cannot be said that leaf fall was actually conditioned by the external change. The probability was that the change was caused by some rhythm or periodicity which swung in unison with the change in the conditions, but was really a property of the plant itself, and ultimately independent of these conditions. Proceeding, Dr. Skene described various methods of forcing and keeping back the growth of different plants. For commercial purposes, plants were placed in cold storage chambers for late development, and immersed in a hot-water bath or in ether vapour for forcing purposes. The effect was purely local, as they could force one-half of a Lilac or other plant, and in the half so forced the buds would burst and the flowers develop, while the other half remained completely at rest. They therefore concluded that the periodical leaf fall in plants and trees was inherent, and the outside condition had only a regulating effect. That that was so was shown by the fact that when they transplanted their trees to the tropics they still showed a periodical fall, but out of gear to that shown in this country, so that our climate had a regulating effect, although not primarily causative, and, therefore, periodicity was inherent and inherited. Dr. Skene was very warmly thanked for his instructive and interesting address.

Gift of Books and Portraits to the Linnean Society.—Dr. W. Rushton Parker has presented to the Linnean Society the last edition (11th) of *The Encyclopædia Britannica*, 32 4to vols. on thin paper, and case; the *New Oxford Dictionary*, complete to date, with shelves to accommodate the set; Sonnini's edition of Buffon's *Histoire Naturelle*, 127 vols., with six vols. of *Suite à Buffon*, and 106 additional portraits of naturalists and patrons of botany.

Appointments for the Ensuing Week.—Thursday, November 23: Royal Botanic Society's meeting. Friday, November 24: Dundee Chrysanthemum Society's show (2 days).

"The Gardeners' Chronicle" Seventy-five Years Ago.—*Pelargonium*.—If anyone compares the *Pelargonium* flowers that were known in 1827 with those common in 1847, he will find it difficult to believe that they can all have had the same origin, and that twenty years have sufficed to produce so great a change as has really been effected. But if the varieties produced between 1842 and 1847 are examined the ground of surprise will be changed, and the wonder will then be that the improvement which was so rapid in the first fifteen years should have become so slow in the last five. Yet the reason is obvious; hybridising in the direction followed by the raisers of *Pelargoniums* has reached its limit; we have obtained all the result that is obtainable. Therefore, we have said: "Gentlemen, you should now sail on another tack. Put your ship about; it is of no use to cruise any longer in these seas; you have done all that man can do in this quarter, and if you are wise you will steer in another direction." Some took the advice and discovered new land, or, to drop metaphor, altered the breeds they were crossing, and immediately hit off the new and popular class of *Pelargoniums* commonly called "Fancies." Others were of opinion that no reasonable hope can be entertained of excelling or equalling the varieties procured by the school of which Mr. Beck may now be regarded as the head, and, like the Clare gentlemen, they have contented themselves with "doing nothing—but trying to exist." We are greatly mistaken, however, if growers with the acuteness and zeal of the chiefs of that school are the men to sit with their hands folded while others sow the land and reap the harvest that should be theirs. On the contrary, we are persuaded that English gardeners will be as triumphant in the new track as in the old. The only difficulty they can experience is to know how to set about a change without the loss of time risked upon needless experiments. *Gard. Chron.*, Nov. 20, 1847.

THE ALPINE GARDEN.

CORONILLA CORONATA.

ALTHOUGH the above species was introduced to this country in 1776, and figured in the *Botanical Magazine*, t. 907, it is far less common in gardens than several others, both shrubby and herbaceous. The most common in my experience is *C. cappadocica*, sometimes named *C. iberica*. Some time ago I saw *C. coronata* in the garden of Miss Willmott, as *C. montana*, Jacquin's name for it. Under this name it was offered in a recent Irish catalogue, but I fail to find it in other lists. It is in the country, however, for I saw it shown recently doing duty for *C. cappadocica*; though it is easy to recognise by its upright habit, and stems twelve to fifteen inches high, bearing umbels of deep yellow flowers in the axils of the upper leaves. The plant is of bushy habit, yet compact and quite suitable for cultivation on the

troublesome but quite a good method, and some of the best plants I have seen were in the garden of a most successful amateur grower, who lifted a plant of each of his *Pratias* and kept them in a frame with other choice or delicate flowers.

The *Pratias* grow best in very sandy or gritty and exceedingly well-drained soil, with plenty of water in spring and summer, and comparative rest in winter. When succeeding these *Pratias* form charming little carpets of neat, small leaves, and are adorned with tiny Lobelia-shaped flowers in summer, followed by small berries containing the seeds.

The best garden species are *P. angulata*, *P. perpusilla* and *P. ilicifolia*, which have white and lilac flowers. The others are negligible, with the possible exception of *P. macrodon*, recorded, but not, I fear, obtainable, at least I have never seen it offered by nurserymen. It has yellow flowers, and would, I am confident, be sought



FIG. 117.—BEES TRAPPED AND KILLED BY FLOWERS OF *PHYSIANTHUS ALBENS*.

rockery. The flowering stems are herbaceous, dying away completely every year, leaving only the evergreen radical leaves. The odour of the flowers and that of the subterranean parts is rather disagreeable in the fresh state, but when dried the plant becomes agreeably aromatic. It is a rather rare plant in France, occurring on the hills, in woods and in mountainous districts of Savoie, Dauphiné, Jura and Bourgogne. It also occurs in Jura and the canton of Grisons, in Switzerland, and in the south-west of Asia. *J. F.*

PRATIA.

It is difficult for the enthusiast in alpine flowers to forget the pleasure he receives on first seeing a good plant of any of the *Pratias*, charming alpine plants from the Himalayas and New Zealand. If any reader comes across one in bloom let him take time to look at it and admire it. It will not be too often that he will have the opportunity, for, truth to tell, the *Pratias* are not frequently grown, as many folks find that they require some care in winter, and that they are liable to be lost at that season. It is useful to cover them with a sheet of glass, a slate, or a thin board, raised about 6 inches above the plants from October until March or April; or, otherwise, to pot up a plant or two and put them under glass. The latter is a more

after by growers of alpine plants if it were offered by the trade. It should be fairly hardy, coming as it does from the alpine regions of the South Island of New Zealand. *S. Arnott*.

PHYSIANTHUS ALBENS.

The Brazilian Bladder flower is a quick growing and tree flowering plant, and a most interesting subject for growing on walls in favoured localities. Bees, moths, and flies are attracted to the pink or white flowers in great numbers, and in many instances held captive, the imprisonment finally proving fatal, owing to a part of the flower closing around its victim and eventually strangling it. The illustration in Fig. 117 shows several blooms gathered in these gardens with dead bees in them.

The fruit, which is freely produced, is somewhat similar in shape and size to that of the Cocoa tree. The plant is propagated either by seeds or cuttings inserted in late spring or early summer. The plant here, which is about six years old, has been once cut down to the ground by frost; it is about 30 feet high. *W. H. Housess, Walhampton Gardens, Lynton, Hants.*

The Week's Work.

THE ORCHID HOUSES.

By J. T. BARBER, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Bulbophyllum and Cirrhopetalum.—These genera include some of the most extraordinary of all flowers, and their blooms always attract attention. In addition to their remarkable structure some claim attention for their wonderful colouring. These plants are usually classed as botanical Orchids, and much pleasure is derived from the cultivation of these fascinating and peculiar plants. In certain cases their growth is somewhat slow, yet they must not be classed among the difficult Orchids, provided they are not coddled and suitable quarters are provided for them. The plants require careful attention to details, and by close observation the cultivator will soon learn their requirements, and anticipate their wants. Their season of growth is practically the year round, but a beneficial rest may be given them by keeping them on the dry side after their growth is completed and until they start into growth again. At the present time *Bulbophyllum virescens*, *B. Ericssonii*, *B. grandiflorum*, *B. Dearei*, and *B. Lobbii* are all growing freely in the warm-house. Although these plants are all shade-loving, especially during the brighter portions of the year, at this season they will be benefited considerably by being placed in a light position. *Cirrhopetalum appendiculatum*, *C. Medusae*, *C. Cumingii*, *C. refractum*, *C. retusiusculum*, and others, with *Bulbophyllum Dayanum* may be grown in a corner of the Cattleya house. The three first named are now active, and although they do not need copious supplies of water at any season, they should not be allowed to remain dry for any considerable length of time.

Potting.—The most suitable time for potting these Orchids is when new roots are developing from the last made pseudo-bulbs. The time of year does not make much difference, provided the compost is kept on the dry side until the new roots have entered it freely. A mixture of fibrous peat, Al fibre, and Sphagnum moss, in equal parts, is suitable for them. Being in most cases surface rooting plants, there is nothing gained by giving much depth of material, and the receptacles should be half filled with drainage materials. Small pans, which may be suspended, are the best receptacles for the smaller growers. Those with a long rhizome, such as *B. virescens*, or *B. Ericssonii*, are best placed at the back part of the receptacle to allow the leading growth ample room to develop, and root into the new material.

THE FLOWER GARDEN.

By EDWIN BUCKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

Winter Protection.—Early frosts have already occurred in most districts, and again it is necessary to emphasise the need for the protection of tender plants. In the herbaceous borders such subjects as *Kniphofias* and *Montbretias* should, where they are left in position throughout the winter, be protected as previously advised. By the water Gunneras will require trimming, and the crowns protected by matting. Very tender subjects should either be lifted and potted, and given the protection of frames or if this is not possible protected well with ashes piled around the roots, and the tender stems bound round with hay bands. Even in the Rose garden some of the more delicate growers should be protected from severe frosts by inserting branches of Yew or similar evergreens around them.

Border Chrysanthemums.—These plants are hardy and may safely be left in the open ground in many places, if desired, through the winter; but our practice is to lift them annually, placing the roots in boxes of a convenient size with sufficient soil to cover them, and winter them in

a cold frame. By this method we are able to obtain a good supply of material for propagating, in the early months of the year, utilising for this purpose the healthy, young growths that are produced in early spring, after which, the old plants are split up, if necessary, and replanted in the open. Air should be freely admitted to the frames on fine days, removing the lights altogether when considered advisable, but they should be placed on again at night, so that the plants do not get frozen, otherwise the supplies of young material for propagating may not be produced. When lifting the plants care should be taken to see that the labels are attached.

Christmas Roses.—*Hellebores* growing in the open should have attention occasionally, and be protected by some means when near their flowering period, to ensure good, clean flowers for decorative purposes. This protection may take the form of covering the plant with a hand-light or a sheet of glass of sufficient size to



FIG. 118.—*LISTROSTACHYS BROWNII* (see p. 295).

prevent rains splashing the flowers with soil. *Hellebores* may easily be forced in a cold frame. Plants that are not too forward should be selected for the purpose, lifted carefully without too much root disturbance, placed in the frame, and bedded in a good layer of leaf-mould. Place the lights in position on the frames, and beyond occasional airings on fine days, and preventing the plants becoming too dry at the roots, little attention will be required.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir C. NALL-CAIN, Bart., The Node, Codicote, Welwyn, Hertfordshire.

Perpetual-Flowering Carnation.—The Perpetual-Flowering Carnation is one of the most desirable plants to cultivate, and with ordinary treatment will furnish a wealth of bloom during the winter. Another good point in its favour is that the flowers last well in water when cut. At this time of the year a little extra care is needed in watering and feeding the plants. Although I recommend careful watering, the roots should never be allowed to become dust dry before water is applied, or the blooms will suffer. Admit air both day and night whenever the outside conditions will allow, and maintain sufficient warmth in the pipes to dry up excess

sive moisture. Weak soot water may be given to the roots frequently, provided the receptacles are well filled with them. An occasional sprinkling with a suitable Carnation manure will greatly assist in the development of the flowers, but for the next two months care should be taken to prevent excessive feeding of the plants. A minimum temperature of 50° is sufficient, but rather than cause too dry an atmosphere by excessive heating of the pipes during times of severe frost, the temperature may be allowed to fall to 46°.

Propagation.—Perhaps the best time to propagate these Carnations is during the next three months, as good cuttings become available. The choice of suitable cuttings is an important detail, and they should be taken from healthy plants only. The young growths should be about 3 inches in length and taken from the central part of the stems, as those taken too near to the flower bud generally fail to make good, stocky specimens. The compost for the cuttings may consist of equal parts of loam, leaf-mould, and silver sand; some growers recommend rooting them in clear sand. Insert the cuttings firmly in small pots five or six around the edge of the receptacle, and water them in with a fine rose can. Afterwards place them in a light position in a propagating frame with a temperature of 55° where they will soon root. Very little air is needed beyond removing the sash each morning and wiping off the condensed moisture by means of a sponge. This is an important detail, for if the sash is not removed for several days the cuttings will probably be found to damp off. Cuttings inserted at this season of the year will root in from four to five weeks. When rooted they should be stood near the roof glass in a house having a minimum temperature of 50°.

THE KITCHEN GARDEN

By JAMES E. HATHAWAY, Gardener to JOHN BRENNAND, Esq., Baldersby Park, Thirsk, Yorkshire.

Jerusalem Artichokes.—The stems of these plants should now be cut to within a foot of the ground, the crop lifted, and the largest and best-shaped tubers picked out and stored in sand in a cool shed, or clamped in pits in the open. The small tubers should be selected for planting next year.

Onions.—Owing to the unfavourable season this crop is late, but Onions which have been dried and ripened on frames should now be fit for storing in a dry place where the frost cannot reach them. It is essential that the bulbs be perfectly dry before storing them, otherwise they will not keep. Where room is scarce they may be tied in ropes and hung from the rafters of a roof.

Salsify and Scorzonera.—These crops should be lifted and stored in sand. The tops should be trimmed to within a few inches of the crown, but the small roots should not be trimmed off until they are wanted. The roots may be left in the ground, but it is best to lift at least a portion of the crop in case frosty weather makes the ground too hard for digging.

Seasonable Work.—The present is a suitable time to undertake extensions in the kitchen garden, renewing paths, and draining soil where it is required. In frosty weather all old garden refuse should be burnt, and the ash carefully preserved for use next season.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

Pot Strawberries.—The most important need of these plants is safe storing for the winter. As the crowns have not ripened well, a number of growers will feel inclined to delay the operation of plunging until autumn weather gives way to decided winter. This work, however, should be done now, and if the pots are plunged in the open the crowns may still have full exposure to the air. Single boards placed on their edges, back and front, will form a plunging pit, and the boards may be kept in position by short stakes driven into the ground. The stakes

should be a foot above the boards to serve a second purpose of carrying the protecting material when severe weather sets in. Good drainage is necessary; if the winter proves thoroughly wet the plants will then take no harm when plunged in ashes. The worst of all methods is piling the pots on their sides, as the balls of earth and roots will, in due course, become dry, and pot Strawberries should never suffer for want of water.

The Orchard House.—If very early forcing of the trees in orchard houses is contemplated, the compartment usually devoted to this work should now be cleansed, as the time for placing the trees in position will soon arrive. In selecting Peaches and Nectarines for starting next month, choose trees of early varieties that are well set with buds and the wood thoroughly ripened. Duke of York, James Walker and Duchess of Cornwall are good early Peaches suitable for forcing, and Cardinal and Early Rivers reliable Nectarines. When each tree has been carefully cleansed, the requisite number may be taken indoors and placed in position ready for starting. The heads of the trees should be kept well up to the light, with plenty of room for the full development of summer growth. Mild bottom-heat is a great advantage, and if the trees are stood on inverted pots, fermenting leaves may be worked amongst the pedestals.

Pruning.—If the trees were disbudded carefully in the spring and all superfluous shoots removed after the crop was gathered, they will require but very little pruning now. They should, however, be examined, as some of the strong shoots may need to be cut back to the triple buds, a matter of 12 inches from their origin, whilst others may require harder pruning to ensure a succession of young growths for another year. The leaders, too, may require shortening; an experienced person will shorten each shoot to a nicety, but those who lack confidence will act wisely in deferring the pruning until there can be no question as to the position of the wood buds, one of which must be left at the point of each shoot.

HARDY FRUIT GARDEN.

By H. MARKHAM, Gardener to the EARL OF STRAFFORD
Wrotham Park, Barnet.

Root pruning.—Advantage should be taken of favourable weather to carry out the work of root-pruning and lifting young, strong growing trees bodily and relaying their roots in suitable soil. Very old trees that have failed to produce satisfactory crops of fruits, with roots in a cold, clayey subsoil should be attended to at once, and if the work of root-pruning is carried out judiciously good results will follow. Take out a deep trench several feet from the stem and then gradually fork out the soil from amongst the roots, severing those that are growing in a downward direction. Put the drainage in proper order, trim the damaged tips of the roots, and relay the latter in fresh, sweet suitable compost. Place a mulching of strawy manure over the roots for the winter. Very large trees may be root-pruned on two occasions, completing one-half of the work at a time.

Young Trees.—Very strong-growing, young trees should be lifted bodily out of the soil and replanted afresh. If the soil is good only a very little fresh compost in which to relay the roots need be added. Young Peach, Nectarine, Plum and Cherry trees that have grown too strongly should be lifted two years after they have been planted, to check the roots. After this has been done the wood produced annually will be more sturdy and fruitful, and quite young trees will bear good average crops of the best quality.

Planting Young Trees.—All kinds of fruit trees may be planted forthwith, and the work should not be delayed. Do not bury the roots and stems too deeply, for deep planting is most detrimental to the welfare of the future heads. In some soils it is necessary to plant on mounds a little higher than the surrounding soil.

SOME UGANDA ORCHIDS.

(Concluded from page 265.)

A SHADE LOVER.

THE interesting *Eulophia ugandae* is the only terrestrial species I shall mention which is a shade lover. It is found on the floor of the wettest and densest forest. It was sent by the writer to Sir Trevor Lawrence, who flowered it. Its flowers are blue and insignificant, but the habit of the plant is peculiar. The new pseudobulbs are produced not at the base of the old one, but at some distance up, and often near the top. The new bulb then sends down one thick root to the ground. A plant several years old has thus increased its height considerably and raised itself out of its wet surroundings. Mr. Rolfe described the habit as resembling that of a Mangrove. An old plant with its several aerial roots would surely be taken for an epiphytic species, were its peculiar habit not known.

I now come to the epiphytic section of Orchids.

ANGRAECUM.

Angraecum infundibulare is the largest flowered species of the genus; in fact, of all

Orchid house exactly as received, and in 1909 a cultural certificate was awarded for the plants at the R.H.S. hall. In nature the plant gets practically no rooting material. In cultivation it grew equally well without it.

A. Rothschildianum is a pretty Orchid that seems rather scarce in its wild state, and I have never been fortunate enough to find it in flower, although I flowered it in my garden. The plant is small in growth. The racemes of flowers are about 6 inches long, and bear about six flowers each. These are white with a dark, almost black, blotch at the base of the lip. They are about 3 inches across, and have a rather pleasant smell. It is a shade lover.

LISTROSTACHYS.

Listrostachys fimbriata, the commonest epiphytic plant in Uganda, is a giant among Orchids. The growths extend to 9 feet in length, and single plants are as much as a man can lift. It is a sun lover, and I have seen it growing luxuriantly on almost dead trees that gave no shade at all. The leaves are long and narrow, and in texture almost like an Agave leaf. The unbranched racemes of flowers hang down to a length of 2 feet, and are produced at every leaf. They bear each a hundred or two of smallish white flowers. It is a



FIG. 119.—POLYSTACHYA SP. WITH BRIGHT YELLOW FLOWERS.

the Uganda Orchids. A good flower has a funnel over 4 inches long, and 3 inches across the lip. This is purest white, the rest of the flower being white, tinted green. The spur is 4 inches long, and grips a growth or a leaf to support the flower.

It is shade-loving. The growths run to many feet in length. Some of the finest clumps I have seen were growing over stone boulders in a forest. It appears to flower much more abundantly in some years than others, and seems to be a plant which should hang in the shadiest part of the Orchid house, and its growths be allowed to extend as they wish. Any attempt at keeping the growths short or in an upright condition would probably hinder flowering.

A. Kotschy is the prettiest by far of the Uganda Orchids, and apparently very free-flowering. It should be in every Orchid collection on account of its ornamental value. It grows only on trees providing a very light shade. The scanty foliage of the Mimosa just breaks the fierceness of the sun, and it is generally found on that tree. It has no pseudobulb and very little stem; its growths being similar to those of *Phalaenopsis*. The flowers are produced in slender racemes about 2 feet long. They are a pretty pale pink in colour, about 2 inches across, and have a long spur.

In 1908 I sent a consignment of plants attached to the branches on which they were growing to Sir Trevor Lawrence. Following my suggestion, he had them hung up in an

handsome plant when in flower. Cultivators should remember it grows to a very large size without any compost. The Succulent House at Kew seems a likely place in which to grow it.

L. Whytei is another sun loving epiphyte. It grows to about half the size of *L. fimbriata*, and its flower racemes are shorter. The flowers are less numerous but much larger, and they are pure white in colour, with long spurs.

L. Brownii (Fig. 118) a pretty species, was found by the writer in 1907. It grows in dense shade. The growths are 8 inches long, leaves small, fleshy and closely packed. The flowers are pure white and very sweetly scented. The illustration shows the plant half natural size.

L. Montroiei is a large-growing species and a shade lover. The growths reach 6 feet in length, but are more slender than those of *L. fimbriata*. The leaves are short, wide, and not succulent. The flower spikes are short and numerous. The flowers are white, changing to yellow and orange later. It is a showy plant when in flower, and was bloomed by Sir Trevor Lawrence in 1914.

POLYSTACHYA.

The genus *Polystachya* has many species in Uganda, and most of them are unnamed; an unidentified species is illustrated in Fig. 119. *Polystachya paniculata* is remarkable for its orange red flowers. The spike is branched, and contains thousands of tiny flowers crowded closely together. It has bloomed in several collections in this country, and was much admired. It is a shade-loving plant. *B. Brown.*

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Letters for Publication.—as well as specimens of plants for naming, should be addressed to the **EDITORS, 5, Tavistock Street, Covent Garden, London.** Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

CHOICE INDOOR FLOWERING PLANTS.

MANY choice flowering plants that were great favourites thirty and forty years ago for the decoration of conservatories and floral exhibitions are almost lost to cultivation. The fashion in flowers, as in many other things, has greatly changed, and many fine flowering plants that were cultivated and admired in former days are almost forgotten. Those named in this note are all worthy of cultivation.

Luculia gratissima is a very beautiful plant with large heads of sweet-scented, pink flowers produced throughout the autumn. It will flower freely when quite small. This plant is easily cultivated, but unfortunately it is seldom met with in ordinary collections of warm conservatory plants. It requires an intermediate house temperature of about 50° to 55° in winter, and is most suitable for planting out for training up a pillar, or for covering the back wall of the house. It thrives and grows more freely planted out than when grown in a pot. The soil most suited to this *Luculia* is a mixture of equal parts light, turfy loam and fibrous peat, or leaf mould, with silver sand added. Pieces of charcoal, broken potsherds, or brick rubble form a valuable addition to the compost for planting. Cuttings made from well-ripened shoots in June, inserted singly in small pots in sandy soil, and placed in a frame or handlight, with a moderately moist atmosphere, will root readily if not allowed to flag. When rooted the young plants should be gradually hardened off, then potted on, and given a good position in an intermediate house. They should be shaded from bright sun, and syringed lightly two or three times during the day and when weather permits. During the winter the plants should be kept moderately dry at the roots with just sufficient water to keep them growing. The plant requires to be potted firmly, for this encourages sturdy, steady growth. When the *Luculia* has finished flowering the growth may be moderately shortened, and, after resting throughout the winter, restarted again in the spring by giving more water to encourage fresh growth. Syringing with clear water will generally suffice to keep down attacks of insects, such as red spider and thrip.

Medinilla magnifica is a remarkable stove evergreen shrub bearing numerous trusses of pink flowers that last a very long time on the plant. The trusses are produced in a dense, drooping panicle 1 foot or more in length, and their beauty is greatly enhanced by the large, delicately coloured bracts, which are at their best before the full perfection of the flowers, when the large imbricated bracts separate and allow the buds to be partially seen. As the blossoms expand the upper bracts fall, but the

lower ones remain and reflex. It is one of the most attractive of stove plants, and is invaluable as an exhibition plant or for conservatory decoration. It flowers freely in a small state, or may be grown as large specimens with 18 to 24 drooping panicles in flower at the same time. The plant is easy to cultivate, merely requiring a moist atmosphere and a temperature of about 55° in winter, and from 60° to 70° in summer. Cuttings made from side shoots produced from stock plants root best, but cuttings from half-ripened young shoots will root freely if they are kept free from damp in sandy soil and placed in a moist bottom heat under a hand light or frame, with the temperature of about 70° to 75°. The compost should consist of two-thirds rich turfy loam, and one-third fibrous peat, or leaf mould lightened with silver sand. Other species that are very interesting are *M. amabilis* (syn. *M. Teymannii*), with rose-coloured flowers, and *M. Curtii*, with ivory-white flowers, purple anthers, and coral-red flower-stalks, a very distinct species, and of a graceful habit.

Amasonia punicea (syn. *A. calycina*) is without exception one of the most beautiful of stove flowering plants. It is of great value on account of the brilliantly-coloured bracts, which are richest vermilion-crimson, like the bracts of a *Poinsettia*. They are arranged in pairs along the entire length of the racemes, and about 4 inches long; they are very persistent, remaining in perfection for two or three months. From the base of each bract are produced pendulous, tubular, creamy-white flowers, offering a pleasing contrast to the rich colouring of the other parts of the inflorescence. The plant commences to flower in September, and after flowering should be kept moderately dry at the roots until the spring. Cuttings of half-ripened wood root freely in gentle bottom heat, or a stock may be raised from seed. The winter temperature should be 55°, and the summer temperature 60° to 70°. The soil should consist of a mixture of rich turfy loam, peat, or leaf mould in equal parts, with silver sand.

Gloneria jasminiflora is a very compact, free-flowering, evergreen, warm-house shrub, bearing a profusion of pure white trusses of flower, on every branch, the blooms being invaluable for the making of wreaths and sprays. This species should be included in every collection of warm-house plants, and is most suitable for growing in an ordinary small glasshouse or conservatory on account of its dwarf, compact, bushy and free-flowering habit. Cuttings of ripened shoots root freely in sandy soil in moist bottom heat under a hand light, or frame. The summer temperature should be 60° to 70°, and the winter temperature 55°. The soil should consist of two-thirds light loam, and one-third fibrous peat, or leaf mould with sand added. It is necessary to shade this plant from bright sunshine in summer.

Reinwardtia tetragyna is a pretty, free-flowering plant, in habit very much resembling *Linum trigynum*, but a great improvement on that species, both in foliage and flower. The flowers are of a richer and deeper colour, and fully 1½ inch in diameter; the individual flowers are of short duration, but there is a continual succession over several weeks during the winter. It is a plant of easy culture, and a most attractive subject for the decoration of the warm conservatory. Cuttings root freely in a warm, close frame, in spring and early summer.

The *Francisias* (*Brunfelsias*) are most beautiful and free-flowering evergreen shrubs suitable for any ordinary warm stove, and remaining in flower for several months in the spring and summer. The light and dark blue varieties, with their bright green foliage and compact habit, are very handsome. The following species are amongst the best for gardens:—*F. confertiflora*, soft blue; *F. calycina major*, large pale blue; *F. calycina floribunda*, a charming plant with mauve flowers, nearly always in flower; *F. Hopeana*, purplish blue, with a yellow throat; *F. acuminata*, purple; and *F. eximia*, purplish blue. Cuttings of these plants root freely in sandy soil, placed in moist heat. Care must be taken not to over-pot them, and the pots should be furnished with plenty of drainage material. *John Hall, F.M.H.*

MR. KINGDON WARD'S SEVENTH EXPEDITION IN ASIA.*

No. II.—FIRE AND CIVIL WAR.

We left T'eng-yueh on March 9, following the main road to Tai-li. I had hoped to go by a different route, but time would not allow of side-shows; it was now necessary to make straight for the scene of main action.

Just ten years have elapsed since I first passed this way, and though it is by this time fairly familiar to me, yet the Yunnan road always holds surprises, as the day does unexpected incidents.

Primula pseudodenticulata (?) was the first flower encountered. It grows on the open, grassy downs above the Shivel, and also well sheltered and shaded spots on shrub-clad banks at the summit of the Salween divide. It grows further west, too, on the Burma frontier, seven to ten thousand feet being about its range. Plants growing on the open, wind-swept downs are naturally smaller and more compact than those found in sheltered situations. It is a pretty little species, but nothing very special. It fulfils its destiny on these scorched and wind-swept uplands, forming drifts of sweet colour in the brown grass. In England it could never delight us in quite the same way.

Rhododendron Delavayi next demanded attention. On every range from T'eng-yueh to Tai-li it was flaming into flower. To see it at its best it needs to be seen in the early morning or late afternoon, with the sunlight slanting through the flowers, and darkness behind. Perhaps it was a bush of *R. Delavayi* that attracted the attention of Moses on a certain occasion, when he turned aside to study the phenomenon more closely; but the plant does not grow in India to this day.

It is a variable species. Some forms have the inside of the corolla pencilled all over with grey black markings, which in others is lacking. Again, the usual type is a compact truss of deep crimson flowers, pressed closely together so that the corolla comes to be more or less tubular in shape; but in some specimens met with the truss is more elongated and looser, the corollas, in consequence of greater freedom, are larger, the limb more expanded, and the colour tending to carmine rather than crimson. The fruit trees were now all swathed in blossom, Apple, Almond and Peach. Every village loomed through a mist of white or pink petals, floating on the breeze. Ahead, the many-toned, green wall of the Salween divide was chequered with the deeper pink of Cherry blossom.

Surely nowhere else in all China is there anything quite like this Salween divide, for over five degrees of latitude it bestrides the frontier, presenting a rampart of impenetrable forest, semi-tropical below, temperate above. *Rhododendron*, Oak, *Magnolia*, *Schima*, *Bucklandia*, and a hundred more genera contribute to its rich confusion. And away up north, where the mountains are highest, it is virgin soil! In the trough of the valley *Bauhinia variegata*, as yet leafless, pervaded the air with its fragrance, and bushes of an *Acanthad* with pale, yawning flowers, lined the path.

After we had crossed the river, the sun swam down in mist behind the lofty peaks, and the valley was filled with violet shadows. Going up towards the Yung-Ch'ang plain by an excruciating road, the hedges were brightened by the tall lemon yellow pyramids of *Caesalpinia nepalensis*. Thereafter we got on to the first patch of limestone, which is such a feature of the country from Tai-li northwards. The Opium Poppies were small here, as though starved in the somewhat sterile soil; but in another month even the Yung-ch'ang plain itself would be an amazing bottle-green sea of foam-capped waves!

Descending from the range, the view of the plain, gripped between long, groin-like spurs, was charming. The clouds cast purple shadows on waving wheat fields, emerald green where they caught a glance from the sun; but the

* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 23, August 20, September 3, October 8, October 29, 1921; January 7, January 21, March 11, March 25, April 8, April 22, May 6, May 20, June 3, June 17, July 1, July 15, July 22, August 5, August 26, September 9, September 23, October 7, October 21, and November 4, 1922.

foreground was striped with the colder green of Poppies and Beans. Beyond rose the indigo mountains, dimly outlined in the haze.

After Yung-ch'ang, the Mekong gorge. There was nothing much here except banks of *Ceratostigma Griffithii*, which boasts, as clean and pure a blue as any Gentian. But, despite its wide distribution in Sino-Himalaya, it appears to be a very stable plant well satisfied with itself as it is, and therefore averse to experiments. Notwithstanding all its immense floral treasure, large areas of Yunnan are monotonous—scorched hills, clothed with long grass, with a thin fur of Pine woods clinging patchily higher up. Probably two-thirds of the total known number of species occur only above 10,000 feet.

For a couple of days after crossing the Mekong we saw nothing very striking, though many shrubs were in flower. Pink-flowered Camellias, their polished leaves glossy in the sunshine; another *Rhododendron*, with creamy white flowers speckled with purple; an untidy-looking *Buddleia* with small, pungent smelling flowers; hedges of white-whiskered *Capparis*; occasionally a ragged *Berberis* with large sessile heads of small

the gap in the Ta-li range, where the torrent pours down from the lake above. Fields of Poppy and Beans everywhere, with miniature thickets of *Primula malacoides*; and then, as we approached Hsia-kuan, rumours of war.

As we went up the ravine, came the first rain for two months; the crops at Ta-li are suffering from shortage of water, though the lake lies there, cool and tranquil, at the gates of the city, so to speak. But that is not the worst of the story. On March 21, the day we reached Hsia-kuan, at the foot of the lake, a disastrous fire broke out in Ta-li, only ten miles distant. Hundreds of houses were reported to be destroyed. And everyone asks with a sinking heart, "What will happen next?" All the soldiers are gone; at any time the brigands may sweep down on the defenceless city. And away in the east, drawing ever nearer the capital, civil war rages. Anxious times!

But despite fire and drought, brigandage and civil war, the flowers bloom in Yunnan as of yore. Near by grows a bush of *Rhododendron* smothered in scented flowers, milk white with a streak of lemon yellow on the upper petal.

Paquin, Capt. Fox, Undaunted, and Ami Paul L'Abbé. A large space in front was covered with soft green moss, and at intervals were arranged large circular groups of pot plants bearing some fine exhibition blooms of a high excellence in culture. We specially noted Mrs. Alg. Davis, Wm. Mease, Paul Oudot, Mrs. G. Monro, Undaunted, Majestic, Mrs. G. Drabble, Edith Cavell, Salonica and Mrs. Chichester. As a whole, it was a magnificent and original display of a high order of merit, to which the jury very properly awarded a Prix d'Honneur.

Madame Veuve Martin is to-day the leading *Chrysanthemum* seedling raiser in France, and her exhibit strongly reminded me of the pre-war days when Ernest Calvat carried all before him. Her novelties were awarded twelve First-Class Certificates. They were of the Japanese type, big, solid-looking blooms named *Secrétaire Maurice Lhuile*, *Chrysanthémiste Violetté*, *Pékin*, *Chrysanthémiste Chantrait*, *Dr. Dauchelle*, *Belle Hélène*, *M. Ph. Rivoire*, *Gaston Colin*, *Madeleine Debré*, *Zika*, *Mme. Clémence*, *Jeanne d'Arc*.



FIG. 120.—M. TRUFFAUT'S EXHIBIT OF CHRYSANTHEMUMS AT THE PARIS SHOW.

flowers, tightly packed, brilliant gambooge in colour and very fragrant; these and many more filled the high valleys. And then we stepped down in the locus classicus of *Primula malacoides*, and learnt a lesson in plant variation as an effect of environment.

After that, by the poor little Shun pi river, came Oak woods of a delicious pale, silky green, fresh as the morning. They were in vivid contrast to the melancholy Pine woods which darkened the hot south slopes. Youth and age they represented. Sometimes the two were woven into a mosaic.

The wind in the Pines! How it recalls home! The daintily clad Oaks tremble and dance in the zephyr breeze, but the fretting Pines shudder and sigh deeply.

March 19 was like the first young day of summer in England—an early summer in May. The air was filled with lazy sounds, the pleasant hum of bees, the cooing of doves, the cry of a pheasant. Every breath of wind was charged with the sweet perfume of Jasmine. Roses were in flower everywhere, bushes of Roses, hedges lined with Roses, Roses sweeping in cataracts of blossom from the tree top. Straight before us, just across the valley, the Ta-li range lifted its bulk to clasp the clouds.

Then the march down the Yang-hi river to

The whorled leaves and the curious beaked capsule, opening by slits in the bulging centre, the valves remaining attached at base and apex, identify it. *F. Kingdon Ward*.

NOTES FROM THE PARIS AUTUMN SHOW.

Last year *The Gardeners' Chronicle* published an illustration of a typical exhibit of the famous French firm of Vilmorin, Andrieux and Co., such as they usually put up in Paris and other great horticultural centres. This year attention is drawn to a remarkably imposing exhibit from M. Georges Truffaut, of Versailles. Although both these exhibits were of *Chrysanthemums*, the difference in their installation was enormous.

As the illustration shows (Fig. 120), M. Truffaut's display consisted of five huge columns of large blooms about 15 feet in height. In the middle column, which was composed entirely of the variety *W. Turner*, there were 200 blooms. The other columns were built up of about 150 blooms. They were all pot plants, carrying a single bloom, and arranged on a stand to carry them. The varieties in the columns each side of *W. Turner* were *Mme*

Beyond these I also noted Louis Cornu, a large yellow; *Reine de Beauté*, a very large flower of a lovely shade of pale lilac pink or amaranth, and *Ceres*, grooved florets, a rich shade of ochre yellow. A Prix d'Honneur was awarded.

A most striking and beautifully arranged exhibit came from M. Paul Féron. I should like to see it repeated by an exhibitor at the N.C.S. On a square plot of ground, edged with turf and filled in with rich autumn foliage, were set out at intervals large vases full of monster blooms. In the middle a tall porcelain pedestal supported an enormous bowl containing about thirty of the biggest blooms of Mrs. R. C. Pulling I ever saw. Then some vases containing six to twelve blooms of one variety each, as *Ami Paul L'Abbé*, *Undaunted*, *Daily Mail* and *Mrs. G. Drabble*. In the mixed vases were *Edith Cavell*, *Mme. J. Paquin* (golden chestnut), *Armistice*, *Capt. Fox*, and more of those previously named. Some dainty little vases, with a single bloom in each, completed this very choice exhibit. A Prix d'Honneur was also awarded to this exhibitor.

It is unfortunate that, the night before the show opened, a sharp frost caught the author

ties napping and inflicted much damage, the Begonias and Chrysanthemums both suffering severely. Coke brasiers were stood about at intervals to prevent further damage.

M. Leloup-Grimoux staged a most comprehensive collection on each side of the path at the entrance leading to the main building. The frost served him very unkindly, but we noted some fine specimens of Edith Cavell, Majestic, Viscount Chinda, Mrs. Algernon Davis, Queen Mary, Peace, Salonica, Louisa Pockett, W. Rigby, W. Turner, Gen. Pétain, Victory, Yellow W. Turner, Undaunted, Mrs. R. C. Pulling, and scores of others, for which he also received a Prix d'Honneur.

Quite standing by itself for variety and decorative effect was the corner group of singles shown by the Maison Féard. A Prix d'Honneur was awarded.

There were many other fine Chrysanthemum exhibits. M. Laveau staged Daily Mail, Mrs. G. Drabble, Reg. Vallis, His Majesty, and others in fine form.

During a tour of the show it was manifest that in most of the groups (for at a French show there are no classes for 6, 12, 24, and 36 cut blooms on boards or in vases as with us) the superiority of modern English seedlings was beyond question. Everywhere I found in fine form such varieties as Mrs. R. C. Pulling, W. Rigby, Capt. Fox, Undaunted, Louisa Pockett, W. Turner, Mrs. G. Drabble, His Majesty, Daily Mail, Reg. Vallis, Queen Mary, Edith Cavell, Victory, and many others of similar quality.

Some excellent French varieties that might usefully be added to English collections are Mme. J. Paquin, Ami Paul L'Abbé, Ami Ph. Rivoire, Ville de Phénice, Ville de St. Germain, Henri Lemaire.

Of the other flowers, Orchids, Carnations, Cyclamen, Begonias, Dahlias, exhibited in quantity, I need add nothing to the report already published (p. 288). The fruit and vegetables shown in abundance by the most famous French cultivators were remarkably fine, and the whole show seemed to promise a speedy return to the beautiful exhibitions of the National Horticultural Society of France, which in pre-war days were held on that very desirable site, the Cours-la-Reine. C. Harman Payne.

DO PLANTS REASON?

THROUGH the patient accumulation of facts during many generations, naturalists have brought together a mass of material bearing on this problem. It was customary in other days to deny reason to plants and animals, reserving it entirely for man. Then men came grudgingly to admit that such highly developed creatures as a dog, horse or elephant might sometimes show traces of reasoning powers. Now we are discussing the possible possession of mental powers by plants.

I was first led to speculate on the subject by a little incident that occurred to me in the Malay Archipelago—a field rendered classical by the researches of Wallace and many others. Climbing a hill one day to see a priest officiating at the temple on its crest, I observed that the "grass" made obeisance to me. This was something new, and I recalled Joseph and his sheaves. But on bending down to observe the reason, I found it was not reverence for me, but fear of my heavy foot, which caused the movement. The sward was composed of Mimosa, and the sensitive plant was telegraphing the message to all its neighbours to seek such protection as they could from the danger of being crushed and injured. Is this the instinct of self-preservation? Is it instinct or reason; if not, by what name shall we call it?

Many years ago, before gardeners and biologists had learned how extensive is the habit among plants of cultivating a friendly spirit of co-operation, an Orchid grower remarked to me that it was necessary, in order to grow Orchids successfully from seed, to sow in soil which had already produced Orchids, and not in virgin mould. "The fact is (he said), Orchids seem

to need sympathy." What was the explanation? Every student of plant life now knows the meaning of symbiosis. There are many plants, alike wild and cultivated, which cannot grow except in partnership with others. It may be that what is required is the mycelium of some lowly fungus, which is able in some wonderful way to assist the larger or nobler form to come to perfection. Is not this again an illustration of my theme, and an indication either of instinct or of the power to reason out a problem?

Everyone who has spent time on the study of the so-called insectivorous plants must have been amazed at the selective power some of them display. There is no more fascinating subject for study and experiment than our own native Sundew, especially the common, round-leaved form. If it is fed with little snippets of raw meat, or if it is visited by an insect, the glands secrete their viscid fluid, and the digestive organs set to work. But the tentacles do not respond to dust, grit, or bits of inorganic material which will not serve as food. Here we have the power to choose, the faculty of selection. It looks less like instinct and more like reason.

It is not necessary to discuss experiments carried out in the laboratory when there are so many field observations from which to draw. Nor need we here discuss those wonderful mechanical devices, possessed by such flowers as the Barberry, Orchids of different kinds, Vallisneria, and a host of others, by means of which cross-fertilisation is secured. Let us rather take one or two illustrations from the trees and plants of tropical lands, where the struggle for life is often fierce and intense, and all kinds of devices are employed for securing existence, even though it be at the expense of others. It has been said that there is no jealousy in Nature. Granted its truth, there is much that looks like the most terrible selfishness and arrogance, and the plants seem at times entirely absorbed with the questions: How can I use my powers to my own advantage; and how can I bring my neighbour to serve me? Here is the direct antithesis to symbiosis.

Look, for example, at a forest in which the growth is so dense that the roots cannot spread and give support to the trunk. As the tree grows, it finds the weight becoming excessive, and unless it can find a prop, it must sooner or later collapse. Now the roots come to the rescue, for they grow upwards and form aerial buttresses, which gather around the bole, leaving stall-like open spaces between themselves and the trunk, and thus recalling the flying buttresses which the builder flings out to sustain a high wall or top-heavy piece of masonry. It used to be said that roots grew downwards because of gravity. What law do they obey or defy when they grow upwards? And what is it that teaches the root to forsake its natural function for one so opposed to its nature? Has the tree reasoned the matter out, and solved the problem.

Every traveller in tropical lands is aware of the struggle for existence which is perpetually going on in sweltering forest, and moist morass. All the conditions conducive to excessive growth are present, and the only thing that is needed is room to grow. To save themselves from extinction, many plants become parasites, and to such an extreme do they carry this habit that they often kill their hosts, and so bring to an untimely end their own life-history. These parasites belong to a great variety of genera and orders, and a favourite method is to send out claspers, which surround the bole of the tree on which they intend to stay themselves, and thus afford them support. They often have the appearance of monstrous vegetable centipedes, whose legs embrace their host, and eventually strangle it. In the normal way, however, the death of the host does not ensue until the parasite has found a place for itself in the sun, and has flowered and set its fruit.

It would be difficult to find a more fascinating subject for contemplation, and one has only to turn to the pages of those Nature-loving travellers of a past generation, when everything of this kind possessed a novelty and freshness which fascinated the observer, to have that interest created anew. H. F.

CASTLE KENNEDY.

THERE are, I presume, few places in Great Britain more attractive from a scenic or botanical point of view than Castle Kennedy, the proud possession of the Earl of Stair. In botanical attractiveness it has probably only two rivals in Scotland, viz., Logan and Monrieth, whose proprietors are earnest and devoted horticulturists.

One of the most memorable vistas of the place is what may be termed the eastern avenue, across the beautiful expanse of the White Loch; which, as I have often beheld it, under inspiring atmospheric conditions, is like a vast mirror, throbbing in the transfiguring radiance of the twilight, and inverting all the manifold charms of the environing scene. There is nothing in Scotland, so far as I have seen, to match the combined beauty and reposefulness of this sequestered region.

Lochinch Castle, the stately seat of the Earl of Stair, is seen in all its architectural and grandly scenic dignity, across the unruffled surface of the lake. Nearer still, encircled by woodlands and gardens, the magnificent ruin of Castle Kennedy, once the abode of one of the most powerful and most dreaded families in Scotland, seems to tower majestically out of the past, amid the most exquisite sylvan beauties that cluster around its base.

Another view of the most artistic character is that which is obtainable from the charming, miniature oval lake, whose environment is ennobled by a splendid affluence of Rhododendrons, Azaleas and Oriental Lilies (conspicuous among which is the great Himalayan *Lilium giganteum*), during the supremely attractive months of May and June. In "the Basin," as this lake-gem has been entitled through many generations, are planted varieties of *Nymphaea Mariaceae*. In no other region, so far as I have learned, have those superb aquatics ever found a fairer home. For there they are, in the language of Herbert Spencer, in perfect correspondence with their environment. No marvel that, to the inspired imagination of the lover of Nature, who experiences there a presence that "disturbs him with the joy of elevated thoughts," the ancient castle, from its serene heights of history, seems to look down lovingly, on such an artistic, incomparable scene! "The art itself is Nature," as Shakespeare would have said, that conceived such a picture, guarded on every side from adverse elements by gracious groves of Elms and Oaks, glorious *Araucarias*, forming stately, dense green avenues towards Lochinch Castle—like the transcendent nave of some august cathedral. Fragrant Hawthorns, and snowy-flowering Magnolias, render the deep charm of this scene irresistible in the summer twilight.

Lochinch Castle has a private flower garden of great fascination, arranged in two divisions; one of them fronting and adorning the mansion, the other creating autumnal radiance by its side. There are two extremely picturesque gardens also at Castle Kennedy, where Grapes, Nectarines, Peaches, Figs, Pears, Apples, and other fruits are grandly grown. One of these, which has the abiding charm of an old-world orchard, and would be notable if only for its splendid representative trees of Lane's Prince Albert Apple, is within the shadow of the venerable and majestic castle of the Kennedys, which towers above it.

It is in this romantic garden that the famous collection of *Lilium giganteum*—perhaps the most impressive in Great Britain—is grown. It is not essential that, in addition to recalling the fame, and emphasising the attractiveness, of the world-renowned Coniferous trees of Castle Kennedy, I should enumerate the fair flowers that adorn its domains, but two contrasted beauties in the grounds and gardens reign supreme: *Glearia Haastii*, much beloved by Sir Herbert Maxwell; and *Lobelia cardinalis*.

Mr. R. Findlay, the gardener, is to be congratulated on the condition of these beautiful gardens, which were allowed to fall into comparative decadence during the momentous period of the great war. David R. Williamson.

VEGETABLES.

THE POTATO CROP.

GROWERS of Potatoes in all parts of Great Britain have had exceptionally large crops, and it is estimated that the total yield this year exceeds that of 1921 by one million tons. As prices are so low, many growers will be compelled to clamp their tubers, for, if they were all placed on the market now, the returns would be even lower. In view of this, the Ministry of Agriculture has issued some useful hints on the clamping of Potatoes.

In arranging for clamping, the careful grower should see that his Potatoes are in a dry state and are as free from soil as possible, that they contain no injured or blighted tubers, nor any that have been frozen or flooded; if he is wise, he will also exclude immature or green tubers, both of which classes are likely to decay early in the clamp. A good plan is to clamp these doubtful and slightly injured tubers separately and use them earlier than the others. Large clamps tend to develop more heat than the smaller ones, and are, therefore, undesirable. In ordinary cases the base of the clamp should not exceed 7 feet in width, and great care should be taken to see that it is in a dry and well-drained spot. In making a clamp, pile up the Potatoes on the site, and straw them over thickly before hard frosts occur, and then earth them up. Only a thin layer of earth should be applied at first, and the apex left, for a time, without soil. It is a wise precaution, too, to examine them periodically in the course of the autumn and winter. If much disease or decay is found on any such occasion, it may be advisable to take the whole clamp down and reclamp. When heating is taking place, there is a choice between two methods of ventilation. The first is to make a series of ventilation holes about 1 foot square along the bottom on both sides of the clamp, and at the same time to open out the whole top ridge of the clamp. The bottom of the ventilation holes should be sloped so that the rain runs away from the clamp. The second method is to remove the soil from the side of the clamp in strips, 1 foot wide, extending from the ridge to the base on both sides of the clamp at distances of every 10 yards, or, on the south side only, at distances of 5 yards. The ridge of the clamp should also be opened out, but, if severe weather sets in, these ventilation spaces should be filled with straw.

FRUIT REGISTER.

APPLE THE MCCOY.

A REMARKABLY fine dish of The McCoy Apple was one of the exhibits at the monthly meeting of the Royal Caledonian Horticultural Society, held at Edinburgh on the 7th inst. This Apple received the honour of a First-Class Certificate on this occasion, and I think it is well worthy of that distinction. I have seen this variety several times this season, and it has always impressed me as a fruit of considerable merit. Its history is interesting. In the plantation of Mr. Hall Jones, a fruit-grower of Letchworth, there appeared, in 1916, on a normal tree of James Grieve, a branch which was bearing bright red fruits. Mr. Jones submitted fruits of this sort to several experts, all of whom advised him to make every effort to perpetuate it. Scions from this branch were worked in order to see if they would come true, and in 1918 the trees fruited and maintained the character of the sport. The McCoy is a replica of the famous James Grieve variety in everything but colour. I have tasted the fruits many times this autumn, and they have the pronounced and distinctive flavour of the parent variety. The fruits of The McCoy are almost wholly coloured with brilliant red, and are more richly endowed in this respect than Worcester Pearmain. The specimens shown at Edinburgh were particularly attractive, and were even more highly coloured than those exhibited by the raiser at Holland Park Hall in early October.

As an Apple James Grieve has one serious fault so far as commercial fruit growers are concerned, and that is its want of colour. The complaint is that the public will not look at it in the market, and prefer such high-coloured sorts as Worcester Pearmain. There are two forms of James Grieve in commerce. One, the true form—or what may be assumed to be the true form—is pale in colour and is thinly striped with red, but its flavour is excellent. The other has a much larger fruit—the two sorts are quite distinct in shape—and is not nearly so rich in flavour, but it attains a much higher colour. From the latter standpoint it is the most attractive fruit, and is in favour for exhibition purposes. I have often seen it shown in a class for James Grieve, and I cannot imagine how the judges cannot differentiate between the two sorts. The shape of the fruits should be sufficient demonstration that two distinct Apples are being grown under one name. It is my hope that the Wisley trials will prove that there are two sorts under the name of James Grieve.



FIG. 121.—CORDON PEAR TREES FRUITING IN AN ORCHARD HOUSE.

The McCoy is an Apple of wonderful colour and first-class flavour, and these attributes will be sufficient to make it a fruit of considerable popularity. It is interesting, too, from the fact that it is a bud variation and not a seedling. I may be wrong, but I believe it is the first authentic sport of this kind. *George M. Taylor, Edinburgh.*

[Mr. E. A. Bunyard refers to the Red Bramley's Seedling and other coloured forms in his article on Variegated Fruits in *Gard. Chron.*, September 16, 1922, p. 168.—Eds.]

DESSERT PEARS IN UNHEATED HOUSES.

SOME eight years ago I acquired a piece of land with about 800 ft. run of glasshouses on it and decided to fill these houses with cordon Pear trees, planted out and run up close under the glass. To utilise the floor space until the cordons had reached the top of the house I potted up some small pillar-shaped trees. I took the advice of a well-known nurseryman as to the selection of varieties, and after several experiments and some mistakes, have achieved a certain amount of success, as the illustration in Fig. 121 demonstrates.

My best houses run north and south; they are double-spans, with plenty of top ventilation. Bottom ventilation does not seem important; in fact, I seem to secure a better distribution of

blossom and fruit in the houses that have none. I expect the temperature is more even. A lean-to house against a south wall I found too hot, and so substituted Peaches for Pears in it.

My soil is clay, and I find the Pear trees do best where planted in borders bricked up a foot above the general level, and with plenty of brickbats put about 18 inches beneath the borders. We made up the borders with old turves from our heavy soil, mixed with a goodly supply of bonemeal, but manure was not added. Planting in such houses should be done in late autumn as I find their first summer under glass is a great trial to spring-planted trees.

To ensure cross-fertilisation I planted one side of one of the houses, alternately with two Doyenné du Comice to one William's Bon Chrétien, and on the other side two Doyenné du Comice to one Durondeau. The flowers set well. In the photograph (Fig. 121) the house shown is filled entirely with trees of Doyenné du Comice, and to ensure cross-fertilisation, I stood on the floor of the house during the blossoming season about twenty little two-year-old plants of Josephine de

Malines, in pots, with the result that the trees of Doyenné du Comice set full crops.

I have tried and am still trying various Pears in cold houses, but the following, in order of ripening, I find do well.—1, Petite Marguerite, about 4 oz. weight each; 2, William's Bon Chrétien, 8 to 16 ozs. (Jules Guyot I do not think good enough for the purpose); 3, Marguerite Marillat, 8 to 16 ozs.; 4, Beurré Hardy, 8 to 10 ozs. Beurré d'Avalon, 8 to 16 ozs.; Princess, 8 to 18 ozs.; Conference, about 16 ozs.; 5, Doyenné du Comice, 8 to 24 ozs.; and 6, Josephine de Malines, 4 to 10 ozs.

In our unheated houses Durondeau has much of its blossom damaged by frost, so I would not recommend it. There may be many more first-rate sorts for a similar method of cultivation, but I have not discovered them yet.

As regards pruning, in summer I keep the points of the new growth nipped out, and cut clean away all strong "water" shoots; and in winter cut away all upward and downward growths and prune the side shoots back as near to the main stem as possible. If fruit sets on upward growths it generally turns over, droops downward and becomes too shaded to develop well. Thus the trees assume the pattern of a simple Fern frond.

Caterpillars of the spring Usher moth and a brown tortrix are our worst pests, but spraying, hand-picking and fumigating keep them in check. The Pear slug-worm gets into our houses sometimes, but the Pear midge has not done

so yet; indeed, I think our blossom is over before it has hatched out. Best of all, scab does not trouble us, though outside trees have scab. On one occasion I found a few leaves on a Doyenné du Comice indoors affected by it. I cut them off at once and the disease did not spread.

The trees are sprayed every winter with lime sulphur. A few trees, when young, gave russet fruit, but they have all outgrown this weakness; now the fruits are all clean skinned, and without much red flush, but golden-yellow, clean Pears look very attractive. When growing the trees are "syringed" daily with a powerful hose jet.

I have in this note given a very brief account of my own experience, chiefly for the purpose of promoting interest in and discussion on a branch of fruit culture which I believe is not largely carried on in this country. Several people who have seen my houses have decided to grow cordon dessert Pears in cold houses and have been pleased to see the result of my efforts. I raise my own trees and always keep a good stock on hand. Anyone wishing to see my houses in the fruiting season, say, September, may do so. *C. H. Bryant, Hassocks Orchards, near Hassocks Station, Sussex.*

HOME CORRESPONDENCE.

Fruit-Packing at the Imperial Fruit Show.—I venture to offer the following remarks on packing, which, void of any hostility or prejudice, I think may be worth noting by those concerned. In regard to packing, I would state that the best exhibit in the British section—six boxes of King Pippins—lost marks owing to the scantiness of the paper used, there being none at the ends of the boxes. Not one British grower was liberal enough with the quantity or the quality of his paper, to the detriment of the exhibit in "freedom from blemish" or in "general presentability." To sum up, the ship was almost invariably spoiled for the sake of a halfpenny-worth of tar. It will pay to "do it better." Old newspapers as first lining, with fair quality white for second, will cost a halfpenny per package and will not prove a loss. *Ernest L. Vinden* (one of the judges).

Testing Fruit for Commercial Purposes.—Although, doubtless, the extensive trial of fruits to be undertaken by the Royal Horticultural Society in conjunction with the Ministry of Agriculture will serve a useful purpose, it seems to me that such trials are already conducted by nurserymen and others who grow fruit trees extensively. Even many gardeners in private establishments purchase a few of the newer sorts to ascertain their qualities, so that the merits of most varieties are not unknown. What seems to be most needed is to educate the public as to the merits of some of the little-known sorts, for it is a notorious fact that varieties unknown to the public have no chance in competition with varieties that are household names. Every grower knows how readily the public will buy Worcester Pearmain Apples and Hesse Pears, whilst varieties far superior fail to obtain a purchaser or sell for less value. It must also be remembered that certain qualities are required in market fruits apart from great fruitfulness; one of the most important of these is suitability to stand rough usage in handling and transit. *R.*

"Fungal" or "Fungous"?—These terms are certainly not synonymous, because their meanings are quite different. "Fungal" means pertaining to fungi—i.e., it is applicable to anything connected with them as fungi. "Fungous," on the other hand, specifically refers to their outstanding peculiarity—i.e., their spongy nature. These I take to be the basic meanings of the two words, but, of course, like many English adjectives, they are often used loosely and with somewhat different meanings. Other adjectives are: Fungic = derived from fungi, as fungic acid; funginous = fungous; fungoid = like, or resembling, a fungus—i.e., in general appearance (shape, etc.). I trust this will satisfy *J. P.* (p. 272). *C. Nicholson*

SOCIETIES.

BIRMINGHAM CHRYSANTHEMUM.

November 7, 8, 9.—Bingley Hall, the headquarters of the Birmingham Agricultural Society, has an unenviable reputation at this time of the year for being cold and draughty, but on the occasion of the above Society's 58th annual exhibition the conditions were altogether different; in fact, the atmosphere in the huge building was quite warm and comfortable. We have seen Chrysanthemums of better quality and in greater numbers in Bingley Hall in previous years, but when we consider the lack of sun heat during the summer, together with the lateness of the season and the almost daily fall of rain, the all-round excellence of the exhibits was quite up to expectations. Fruit was largely and well shown, especially the contributions from the neighbouring counties of Herefordshire and Worcestershire. Vegetables were numerous and good. Some of the principal classes and prize-winners are noted below.

CHRYSANTHEMUM GROUPS.

The first class was for cut flowers displayed on a floor space of 10 feet by 10 feet, to face four ways. The highest point was restricted to 8 feet. Foliage plants for edging were allowed, and any vase or stand could be used at the discretion of the exhibitor. Mr. H. WOOLMAN, Shirley, Birmingham, who was the only entrant, had many good blooms, but they were not equal to those he showed in the same class a year ago. His was, however, a very imposing group and a great attraction to the show. The raised centre-piece was decorated with big blooms of W. Turner, Pink Turner, Miss A. E. Roope, Mrs. Geo. Monro, Mrs. G. Morris, etc. At the four corners he had such varieties as Edith Cavell, Lord Stuart of Wortley, Mrs. Peter Murray and Mrs. J. T. Fleming, while Pamela, Mrs. G. Rundle, Mrs. Algernon Davis, Mrs. J. B. Bryse, Lloyd George and Mrs. George Glenny were used for filling in. Ferns, Berberis and sprays of Beech gave pleasing variety.

There were two local amateurs in the plant class for Japanese, Incurved and Decorative varieties arranged as grown, with Ferns and foliage plants, on a ground space of 10 feet by 10 feet, to face four ways. The first prize was won by J. A. KENRICK, Esq., Berrow Court, Edgbaston (gr. Mr. A. Cryer), whose cone-shaped arrangement included good examples of each section. The bulk of the varieties consisted of white or quite light-coloured sorts. The centre of the cone was crowned by a healthy Kentia, and a pleasing edging to the group included Ferns, Bamboos, and Cinerarias; 2nd, Alderman W. A. CADBURY, West Hills, Kings Norton (gr. Mr. H. A. Bick), whose group contained a good assortment of well-flowered Decorative varieties.

In the class for a group of cut single Chrysanthemums arranged on separate tables, 8 feet by 5 feet, there were two entries. The size and form of vases were left to the discretion of the exhibitors, who were Mr. H. WOOLMAN and Mr. A. H. HICKMAN, Cookley, Kidderminster, and the awards were made in the order named. The first prize collection was one of the best ever seen in Bingley Hall; the large, broad-petalled flowers were substantial and of good colours. The centre-piece consisted of unusually large, richly coloured flowers of Mavis, surrounded by Phyllis Cooper, Miranda, Jessica, Bertha Fairs, Gem, Mrs. Loo Thompson, Catriona and Mensa.

There were only two competitors in the three classes provided for pot plants, and one of these had to be disqualified. NEVILLE CHAMBERLAIN, Esq., Edgbaston (gr. Mr. Percy Catt), was awarded first prizes for (1) Three Decorative Chrysanthemums, and (2) six single flowered varieties.

CUT BLOOMS.

The EARL OF LICHFIELD, Stafford (gr. Mr. G. Smith), was awarded first prize for 12 Japanese blooms, in not fewer than 9 distinct varieties, arranged on a table 6 feet by 5 feet. A few of the best varieties were Mrs. Geo. Monro,

Princess Mary, Dawn of Day, Louisa Pockett and Mrs. Algernon Davis. Plants of Asparagus, Coleus and Grevilleas gave increased variety and good effect; 2nd, Mrs. J. B. BROOKS, Bromsgrove (gr. Mr. E. Avery), who showed the varieties Princess Mary and Sir Edward Letchworth in splendid condition.

The EARL OF LICHFIELD also had the best six vases of a crimson-coloured Japanese variety. He showed exquisite flowers of Mrs. Geo. Monro; 2nd, J. H. WHEATLEY, Esq., Berkswell Hall, Coventry (gr. Mr. W. H. Westbury). There were seven splendid entries in the class for 3 vases of Japanese varieties, distinct, 3 blooms of each. The last-named exhibitor was placed first with heavy, well finished specimens of W. Turner, Mrs. R. C. Pulling and Louisa Pockett; 2nd, Mrs. J. B. BROOKS (gr. Mr. E. Avery), whose best flower was a magnificent example of Princess Mary; 3rd, EARL OF LICHFIELD. J. H. WHEATLEY, Esq., also showed the winning vase of a white Japanese variety. His specimens of W. Turner were large and of good form. The same exhibitor's blooms of Majestic were placed first in a class in which colour was optional. F. HAMER, Esq., Erdington (gr. Mr. F. Croome), was second in the same class with Dawn of Day.

W. C. ROBINSON, Esq., Coventry, took the lead in the class for a pink-coloured Japanese variety with very large refined blooms of Mrs. Algernon Davis; 2nd, J. H. WHEATLEY, Esq.; 3rd, Mrs. J. B. BROOKS, also with Mrs. Algernon Davis. The last-named exhibitor beat six contestants in the class for a vase of a yellow Japanese variety with beautifully shaped specimens of Mrs. R. C. Pulling; 2nd, J. H. WHEATLEY, Esq., with the same variety. H. F. KEEP, Esq., Edgbaston (gr. Mr. T. W. Davis), won first prize in a class for four vases of twelve incurved varieties. Although there were only two entries in the class for six vases of single Chrysanthemums, some excellent flowers were shown by Mrs. GUTHRIE, Northampton, who was awarded first prize. The varieties were Mrs. W. Godfrey, Estelle, Jessica, Sandown Radiance, T. Barnes and Sweet Auburn; 2nd, Mr. A. H. HICKMAN, who showed good vases of Phyllis Cooper, Stuart Smith and Unique.

Mr. A. H. HICKMAN won first prize for six varieties of Decorative Chrysanthemums. His blooms of Vivian Morel, Cambridge Pink and Romance were of outstanding merit.

The most successful competitors in classes reserved for local exhibitors were Messrs H. F. KEEP, E. WINCHESTER, J. W. MOORE, J. MOORMAN, W. ALLTON and J. S. PEARSON.

The seven exhibits in the class for Dinner Tables, 6 feet by 4 feet, decorated with Chrysanthemums, Ferns and other foliage were on much the same lines as in previous years. 1st, Mr. E. WINCHESTER, Rubery, who used yellow and bronze-tinted single varieties in silvered stands. Well coloured sprays of Selaginella and a small-leaved Sedum were introduced with good effect; 2nd, Sir GEORGE H. KENRICK, Whetstone, Edgbaston (gr. Mr. J. V. Macdonald), with a well-conceived design that found many admirers; 3rd, H. W. SMITH, Esq., Stourbridge (gr. Mr. H. Davis). In the next class, which was for the same sized dinner table, Chrysanthemums and other flowers were admissible, arranged in bowls and vases. Here, again, the first prize went to Mr. E. WINCHESTER, who had pink Carnations and white Chrysanthemums; 2nd Mr. C. HOLDER, Erdington, with yellow Chrysanthemums and pink Carnations; 3rd, Mr. W. E. BALL, Erdington.

Mr. H. WOOLMAN, Shirley, offered prizes for: (1) Three vases of nine Japanese blooms, in not fewer than six varieties. 1st, Mr. T. BLOWER, Perry Barr; 2nd, Mr. W. F. HUDSON, Selly Oak; 3rd, Mr. W. ALLTON, Ward End. (2) Four Japanese varieties, three blooms of each. 1st, Mr. W. C. ROBINSON, Coventry; 2nd, Mr. H. F. KEEP, Edgbaston. Mr. W. C. ROBINSON won the special prize of a guinea offered by Messrs. W. Wells and Co., Merstham, for the best Japanese Chrysanthemum in the show (Trade excluded). The variety was Mrs. Algernon Davis.

Mr. H. N. ELLISON's prizes for Ferns were won by Mr. E. J. KEELING and J. A. KENRICK, Esq.

MISCELLANEOUS PLANTS.

The best dozen plants of *Begonia* (Gloire de Lorraine) came from the gardens of L. SPIERS, Esq., Edgbaston (gr. Mr. Farmer), whose large pyramidal plants were covered with flowers; 2nd, J. A. KENRICK, Esq.; 3rd, NEVILLE CHAMBERLAIN, Esq. LIONEL SPIERS, Esq., also took the lead in a similar, but smaller, class than the above; 2nd, NEVILLE CHAMBERLAIN, Esq.; 3rd, J. A. KENRICK, Esq. Mrs. O'HEA, Barford, Warwick (gr. Mr. A. Shambrook), won first prizes for: (1) 12 *Cyclamen*, and (2) 6 *Cyclamen*. H. F. KEEP, Esq., was awarded first prize for six *Primula sinensis*, and Mr. E. J. KEELING had the best lot of *Primula obconica*. The half-dozen plants of *Salvia* which gained first prize for J. W. MOORE, Esq., of Kings Norton, were very dwarf, stocky and profusely flowered. J. A. KENRICK, Esq., won first prizes for: (1) Three Palms, (2) one Palm, and (3) one Tree Fern.

FRUIT (OPEN).

The class for a collection of British-grown fruit has been a feature at Birmingham for many years, and this year's four exhibits were better than on many previous occasions. The first prize was won by LORD SOMERS, Eastnor Castle, Ledbury (gr. Mr. G. Mullins), whose Apples were large and of surprisingly good colour. The varieties Emperor Alexander, Rival, Peasgood's Nonesuch and Houblon were noteworthy. Grapes, both black and white, together with Melons, Peaches, Plums (Coe's Golden Drop and President), Morello Cherries and Pears helped to make a particularly attractive table of choice fruits; 2nd, The EARL OF LICHFIELD, Stafford (gr. Mr. G. Smith), who had a representative collection, but many of the specimens were lacking in size and colour; 3rd, Mr. C. W. POWELL, Warham, Herefordshire, whose collection consisted mainly of beautifully coloured Apples and Pears; 4th, HUGH ANDREWS, Esq., Toddington Manor, Winchester (gr. Mr. J. R. Tooley).

In the classes for single dishes of Apples, LORD SOMERS won first prizes for Allington Pippin, Charles Ross, Emperor Alexander, Houblon and The Queen. HUGH ANDREWS, Esq., was first for Bismarck, Annie Elizabeth, Bramley's Seedling, Cox's Pomona, Gascoyne's Scarlet, King of the Pippins, Lane's Prince Albert and Rev. W. Wilks. Mr. C. W. POWELL showed the winning dishes of Blenheim Pippin, Cox's Orange Pippin, Newton Wonder and Peasgood's Nonesuch. Captain R. T. HINCKES, Hereford (gr. Mr. R. Currie), had the best fruits of Warner's King.

PEARS: The last-named exhibitor led with Beurré Clairgaut and Doyenné du Comice. LORD SOMERS was first with Beurré Superfin and Pitmaston Duchess. Mr. C. W. POWELL won first prizes for Catillac and Conference, and Captain H. B. TATE, Alcester (gr. Mr. A. E. Moss), showed the winning dish of Emile d'Heyst.

Half a dozen fruit classes were reserved for amateurs and gentlemen's gardeners. Of five entries in a class for three bunches of Black Grapes, LORD SOMERS was placed first with well-shouldered bunches and perfectly finished berries; 2nd H. R. PADMORE, Esq., Edgbaston (gr. Mr. T. Batchelor); 3rd, HUGH ANDREWS, Esq. The best three bunches of White Muscats were exhibited by Captain R. T. HINCKES (gr. Mr. R. Currie), whose long, tapering bunches and amber-coloured berries were in splendid condition; 2nd, LORD SOMERS; 3rd, EARL OF LICHFIELD. H. R. PADMORE, Esq., beat J. A. KENRICK, Esq., in a local class for two bunches of Black Grapes.

Seven exhibits of 3 dishes of Culinary Apples were placed before the judges, who awarded the first prize to LORD SOMERS for large examples of Mère de Ménage, Gloria Mundi and Peasgood's Nonesuch; 2nd, Mr. C. W. POWELL; 3rd, HUGH ANDREWS, Esq. In the corresponding class for Dessert Apples, Mr. C. W. POWELL led, followed closely by LORD SOMERS. Mr. E. J. KEELING was successful in the local class for Culinary Apples.

VEGETABLES.

The best collection of six varieties of Potatoes came from Mr. W. J. HORTON, Quatt, whose tubers of Majestic and King Edward were very handsome; 2nd, H. W. SMITH, Esq., Stourbridge (gr. Mr. H. Davis).

HUGH ANDREWS, Esq., excelled in the single classes for: (1) Nine Onions, (2) six Carrots, (3) six sticks of Celery, and (4) six Kidney Potatoes. Mr. W. P. ORRILL, Hinckley, had the best Round Beet and Brussels Sprouts, and Mr. E. WINCHESTER had some fine Long Beet and Leeks.

Messrs. Sutton and Sons offered prizes for nine distinct kinds of Vegetables. 1st, HUGH ANDREWS, Esq., whose collection included excellent Celery, Leeks, Carrots and Parsnips; 2nd, Mr. E. WINCHESTER.

Messrs. Webb and Sons' prizes were offered for six distinct kinds. 1st, Mr. E. WINCHESTER, who showed splendid Celery, Tomatoes and Onions; 2nd, Mr. W. P. ORRILL.

Messrs. Dickson and Robinson's prizes were offered for nine distinct kinds. 1st, Mr. W. P. ORRILL; 2nd, H. W. SMITH, Esq.

staged by Mrs. G. H. MORRELL (gr. Mr. A. Gibson) not for competition, on a space of about 50 feet in circumference. The most noticeable varieties were Majestic, Daily Mail, Mrs. Sargent, Mr. T. Lunt, R. C. Pulling, Mr. G. Monro, Louisa Pockett and Mrs. Algernon Davis. Mr. GIBSON also staged along the whole length of the platform a fine array of *Cattleya Bowringiana*, *Gesneras* and *Cypripediums*, together with more splendid *Chrysanthemums*. The whole arrangement gave a charming and pleasing effect, and was awarded a large Gold Medal. In the centre of the hall Mr. GEE, of Banbury Road, Oxford, exhibited a splendid non-competitive group of *Chrysanthemums*, and was awarded a Gold Medal. Mr. T. MASSIE CHARLTON, Lee, Headington, had an effective group not for competition, and was also awarded a Gold Medal. Miss MATROCK, Market Street, exhibited a splendid collection of fruit, and Mr. JOHN MATROCK put up a beautiful bank of Roses. Messrs. WEST AND SONS exhibited Topiary trees and evergreens.

In the class for a group of plants, Mr. T. H.



FIG. 122.—EXHIBIT OF FRUIT AND POT FRUIT TREES, SHOWN BY KING'S ACRE NURSERIES, AT THE IMPERIAL FRUIT SHOW (SEE P. 272).

HONORARY EXHIBITS.

Gold Medals were awarded to Messrs. WATERER, SONS AND CRISP for Hardy Shrubs; Messrs. HEWITT AND CO. for Hardy Shrubs; Messrs. TOOGOOD AND SONS for Fruit and Vegetables; Messrs. KENT AND BRYDON for Fruit, Vegetables and Begonias; STUDLEY HORTICULTURAL COLLEGE for Fruit and Chrysanthemums; KING'S ACRE NURSERIES for Fruit; and Messrs. GUNN AND SONS for Fruit and Roses.

Silver Gilt Medals to Messrs. W. J. GODFREY AND SON for Chrysanthemums; Messrs. W. HOPWOOD AND SONS for Fruit; Mr. H. N. ELLISON for Ferns; and BOURNVILLE VILLAGE TRUST for Fruit and Chrysanthemums.

Silver Medals to Mr. C. J. PARSONS for Fruit; Miss S. S. THOMPSON for Cacti; and Messrs. LEGG for Chrysanthemums.

ROYAL OXFORDSHIRE CHRYSANTHEMUM.

NOVEMBER, 1922.—This Society is to be congratulated on the splendid show of flowers, fruits and vegetables staged in the Town Hall, Oxford, on November 8 and 9. The attendance beat all records for these shows. Some grand Chrysanthemums were on view. The outstanding feature of the show was the magnificent group of Chrysanthemums

ROSE was placed first for Begonias, Codiaeums, Cypripediums and Exacum affine; second, Mrs. LESSING.

In the class for nine varieties of Chrysanthemums, three blooms in each vase, H. BALFOUR, Esq. (gr. Mr. Hewlett) won the first prize. His best flowers were Mr. G. Monro, Mrs. R. C. Pulling, Princess Mary and Mrs. Algernon Davis. For 24 Japanese distinct Mr. Balfour was again successful. For 12 Japanese blooms, distinct, the first prize was won by Mrs. LESSING. This same exhibitor excelled in the classes for 16 blooms of a white and six of a yellow variety respectively. For six Japanese blooms of any other colour, Mr. BALFOUR was awarded the first prize with specimens of His Majesty. Mrs. GEE was first in the class for decorative varieties, New Sunshine, Sorcerer, and Golden Cranfordia being especially good. For six bunches of single Chrysanthemums, Rev. E. H. ALINGTON was first and Mrs. LESSING second.

Competition was very keen in the classes for Apples and Pears. Mr. E. L. K. ELLIS was first for six dishes of culinary and six dishes of dessert Apples. Mr. A. S. B. TULL showed the best six dishes of Pears. The two bunches of White Trebbiano Grapes which secured first prize for Mr. A. S. B. TULL in the Grape classes were very good, as also were his bunches of Gros Maroc.

ROYAL HORTICULTURAL.

NOVEMBER 14.—The fog which prevailed in the London district on Monday and Tuesday of the present week was no doubt partly responsible for the absence of numerous exhibitors at the fortnightly meeting, and the display of more vacant tables than has been seen for a long time past at the Royal Horticultural Society's shows. There were two outstanding exhibits; one from Mr. H. J. JONES, who set up the finest group of Chrysanthemums we have seen and for which he gained the congratulations of the President and Council, in addition to a Gold Medal. The other notable exhibit was of many plants of *Calanthe Harrisii*, carrying magnificent spikes of white flowers.

Orchid Committee.

Present: Sir Jeremiah Colman, Bt. (in the chair), Messrs. Jas. O'Brien (hon. secretary), Frederick J. Hanbury, Pantia Ralli, E. R. Ashton, T. Armstrong, S. W. Flory, J. E. Shill, Fred. K. Sander, H. T. Pitt, J. Crombleholme, and Gurney Wilson.

AWARD OF MERIT.

Cypripedium Gwen Dixon (parentage unrecorded), from LEONARD DIXON, Esq., Pitlochrie, St. Albans. A very pretty hybrid with a close approach in its perfect form to one of the best *C. Spicerianum*. The dorsal sepal is pure white and of fine form, the petals and lip greenish yellow, tinged with rose.

Brasso-Cattleya William Pitt (B.-C. *Digbyano-Warneri* × *C. Octave Doin*), from H. T. PITT, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood). A grand *Brasso-Cattleya*, with the features of that best of all forms of *C. labiata*, *C. Warneri*, and its perfect shape. The large and finely shaped flowers are rich rosy-mauve, the front of the lip crimson, and the disc with yellow lines.

Brasso-Cattleya Alma, Charlesworth's variety (B.-C. *Mrs. J. Lomann* × *C. Octave Doin*), from Messrs. CHARLESWORTH AND CO., Haywards Heath. One of the most perfect of the light forms, large in size and of fine shape. The sepals and broad petals are cream white, the fine lip light rose beautifully veined with gold.

Cypripedium Linda (*Actaeus Bianca* × *Mooneum*), from Messrs. COWAN AND CO., Southgate. A very fine addition to the dwarf, large flowered *Cypripediums*, and improving the fine form and delicate colours of *C. Actaeus Bianca*. The broad, white dorsal sepal had some violet spots, and finely-formed petals: the lip, which was primrose tinged with mauve, was well displayed.

Cattleya Our Prince (*C. Dowiana aurea* × *C. King George*), from Messrs. FLORY AND BLACK, Slough. One of the best of yellow-petalled *Cattleyas*. Two varieties were shown each with yellow sepals and petals and fine lip with rosy-crimson markings, the variety *aurea* being the darker.

GROUPS.

Baron BRUNO SCHRÖDER, The Dell Park, Englefield Green, was awarded a Silver Gilt Flora Medal, and his Orchid grower, Mr. J. E. SHILL, a Silver-Gilt Lindley Medal, for one of the largest and most perfect groups of white *Calanthes* yet shown—marvels of cultural skill and perfect flowering. The group was of *C. Harrisii* alone, and contained over one hundred and thirty grand specimens with spikes over four feet long, and each averaging forty blooms. These superbly grown plants were admirably arranged with *Adiantum* Ferns and moss and gave a great relief to the eye contrasted with the foggy atmosphere outside.

A Silver Flora Medal was awarded to Messrs. COWAN AND CO., Southgate, for a very effective group of good things, in which were noted several novelties, including *Cypripedium Ophis* (*Fairrieanum* × *Germaine Opoix*) the superb *Laelio-Cattleya Cornelius* (*St. Gothard* × *Purple Emperor*) a grand flower of vivid colour, a good selection of *Odontoglossums* and *Cattleyas*. Sir JEREMIAH COLMAN, Bart., Gatton Park (gr. Mr. J. Collier), was given a vote of thanks for a most beautiful exhibit including six fine speci-

mens of his remarkable *Brasso-Laelio-Cattleya Antoinette* (B.-L. *Helen* × *C. Portia*), a very fortunate cross resulting in varieties of perfect form in which the colours of *C. Portia* are generally displayed. Also six specimens of his *Cattleya Portia coerulea* (*Bowringiana violacea* × *labiata*), with bouquet-like heads of bloom of silver-white tinged with light blue, the lips being the darker.

Messrs. ARMSTRONG AND BROWN, Orchidhurst, Tunbridge Wells, showed *Cattleya Portia* *Orchid-hurst variety* (*Bowringiana* × *labiata*), one of the largest and richest in its deep mauve-crimson colour. Also *Cattleya labiata alba variety Princess of Wales*, the best white form of the winter-flowering true *C. labiata* type.

Messrs. FLORY AND BLACK, Slough, again showed their bright violet-purple *Potiana Royal Purple* (B.-L.-C. *Gerald* × *S.-C. Westfieldensis*: *Cypripedium Upton Gem* of fine shape, the very dark *Odontoglossum Llewellyn*, and other hybrids.

Messrs. SANDER, St. Albans, showed the fine *Laelio-Cattleya Princess* (*C. King George* × *L.-C. Thyone*), yellow with a crimson lip; and *Brasso-Cattleya Croutiana*, a beautiful creamy-white flower with crimson lip and yellow disc.

Floral Committee.

Present: Messrs. E. A. Bowles (in the chair), Gerald Loder, Chas. E. Pearson, W. B. Gingell, M. P. Allwood, Reginald Cory, Sydney Morris, R. C. Notcutt, John Jennings, C. R. Fielder, Amos Perry, John Heal, G. Reuthe, Jas. Hudson, W. R. Dykes, J. F. McLeod, H. R. Darlington, D. B. Crane, H. V. Warrender, and G. W. Leak.

AWARDS OF MERIT.

Carnation Eileen Low.—This deep pink perpetual-flowering variety was shown in fine condition. The blooms are large, with broad, fringed petals, and carried on good stems. The growth appears to be somewhat slender. Shown by Messrs. STUART LOW AND CO., Enfield.

Carnation Master Michael Stoop.—A handsome, large flowered, perpetual-flowering variety of light and bright salmon colour. The plant shown suggests that the variety grows and flowers freely. Shown by Mr. G. CARPENTER, West Hall Gardens, Byfleet.

Chrysanthemum Miss M. Hunter.—A large-flowered single variety of great beauty and grace, the florets reflexing lightly at the lips. The colour is sulphur yellow with a faint suffusion of red at the ends of the florets. Shown by Mr. G. CARPENTER.

Chrysanthemum Oriole.—A most beautiful variety that may best be described as a Japanese single. The big flowers have several rows of narrow, almost tubular florets of a pleasing shade of light canary yellow. Shown by Mr. KEITH LUXFORD, Harlow.

GROUPS.

Both in quantity and quality Chrysanthemums were the most important feature of the meeting. Following his unparalleled successes this season Mr. H. J. JONES secured another Gold Medal, and to this, his seventh of the year, was added the special congratulations of the President and Council. It was a stupendous exhibit, and, although arranged on somewhat conventional lines, was particularly effective. Such large-flowered Japanese varieties as *Princess Mary*, *Majestic*, *Wm. Rigby*, *Mrs. Gilbert Drabble*, *Mrs. Geo. Monro, junr.*, *Mrs. Spencer*, *Louisa Pockett* and *Victory* predominated, though there were many others of decorative type. As this magnificent collection is intended to remain for the annual show of the National Chrysanthemum Society, we defer further comment for that occasion (Gold Medal).

A large and pleasantly arranged exhibit of Chrysanthemums was made by BARON BRUNO SCHRÖDER (gr. Mr. E. Henderson), The Dell, Egham. With the exception of a stand of *Crimson Seedling*, an enormous broad-petalled single, of rich deep crimson colour, the group was composed of *Caprice du Printemps* and varieties of that type. *Greenway's Caprice*, *White Caprice*, *Yellow Caprice* and *Kathleen Thomson* were all

very decorative and shown in quantity (Silver Gilt Banksian Medal).

Besides many large-flowered Japanese varieties Messrs. KEITH LUXFORD AND CO. had a vase of the fascinating little *Pompon Chrysanthemums* and the beautiful rosy-mauve *Anemone*-flowered *Thora*. Amongst the *Pompoms* were *Mary Rickford*, *Baby Doll* and *Golden West* (Silver Flora Medal).

Carnations were particularly good. The blooms were large, of perfect form, and in clear, characteristic colours. Messrs. ALLWOOD BROS. had in *Benora*, *Wivelsfield Fancy*, *Eastern Maid* and the beautiful yellow ground *Marion Willson* especially good representatives of the *Fancy Perpetual Carnation*. *Mary Allwood* and *Triumph* added brightness to the collection (Silver Flora Medal). Their new beautiful pink variety *Eileen Low* was massed in delightful fashion by Messrs. STUART LOW AND CO., who also freely displayed the varieties *Lord Lambourne* and *Red Ensign*, and *Amos Grove*, an uncommon *Fancy Carnation* of mauve-violet and red colouring (Silver Flora Medal). The varieties mostly grown for market predominated in the collection by Mr. C. ENGELMANN, who showed *Carola*, *Thor* and *Tarzan* of great merit. The relatively new *Perpetual-Malmaison* *Jessie Allwood* was also included (Silver Banksian Medal).

An attractive collection of well-flowered greenhouse *Cyclamen* in variety, and an especially good strain of *Primula obconica*, were displayed by Mr. E. H. CAUSER, a new exhibitor who has made a very promising debut. The flowering plants interspersed useful greenhouse Ferns, amongst which there were perfectly grown plants of the feathery *Nephrolepis exaltata Marshalli* compacta (Silver Flora Medal).

Vases of, apparently hardy, Chrysanthemums and his fascinating miniature rock gardens were staged by Mr. F. G. WOOD, who also included a pan of the free-growing *Mentha rotundifolia variegata* (Bronze Banksian Medal). A number of vases of *Violet Princess of Wales*, of especially good quality, were arranged by the HAYDON VIOLET GROUNDS COMPANY, Blandford. The flowers were exceptionally large and very fragrant (Bronze Banksian Medal).

On behalf of Miss MARY E. EATON, of the New York Botanic Gardens, was shown a very large collection of water-colour paintings of native plants of the U.S.A. This exhibit was of great value, as the examples of the numerous trees, shrubs and plants were so faithfully delineated that they gave the impression of living specimens.

Fruit and Vegetable Committee.

Present: Messrs. C. G. A. Nix (Chairman), J. Cheal, E. A. Bunyard, Geo. F. Tinley, G. Reynolds, A. Metcalfe, E. Beckett, W. Bates, W. H. DIVERS, W. Wilks, T. Pateman, P. A. Tuckett, W. F. Giles, E. Neal, H. Markham, and A. N. Rawes (Secretary).

AWARD OF MERIT.

Apple Joy Bells. A large variety of the Emperor Alexander type, but with distinct knobs around the eye. It is a dark red variety with a little bluish bloom at the base. The stalk is short and the fruit is set close on the branches. The tree is a good grower, with vigorous, dark green foliage and dark shoots, which are relatively short jointed. It is a dessert Apple in season in November. The flesh is very juicy and sweet and with a pleasant aromatic flavour; quite an agreeable Apple in November. The fruit is of large size for a dessert variety (see Fig. 140, Dec. 18, 1920), but probably from older trees the fruits would be much smaller and of a more suitable size for dessert. Shown by Mr. WILL TAYLER, Godalming.

Several seedling Apples were submitted for award, but none was considered superior, or even equal to, existing varieties. The most promising sort was *George Carpenter*, raised from *Blenheim Pippin*, and *King of the Pippins*, a very attractive fruit about the size, but not the shape, of *Christmas Pearmain*, although the colour is somewhat similar.

Sir CHARLES NALL-CAIN, The Node, Welwyn (gr., Mr. T. Pateman), was awarded a silver-gilt Hogg medal for a magnificent exhibit of

Apples and Pears, comprising seventy-eight varieties in all, twenty-five of Pears and fifty-three of Apples. The collection was very attractively staged, a few foliage plants being used for relief. Of the Pears we noticed Emile d'Heyst, Le Lectier, Durondeau, Conference and Beurre Bachelier, and of Apples, Cox's Orange Pippin, Adams's Pearmain, The Queen (exceptionally fine), Wealthy, Lord Derby, and Peasgood's Nonesuch.

Messrs. CHEAL AND SONS, Crawley, showed a collection of Apples and Pears totalling altogether forty varieties. The Apples were exceptionally finely coloured and included such well known sorts as Crawley Beauty, Gascoyne's Seedling, Lane's Prince Albert, Cox's Orange Pippin, Adams's Pearmain, Brownlee's Russet, Arthur Turner and Crawley Reinette. There were splendid Pears of such varieties as Beurré de Nagan, Beurré Clairgeau, Catillac, and Glou Moreau.

An exhibit of exceptional interest was displayed by Messrs. H. P. BULMER AND CO., LTD., Hereford, in vintage fruits used for cider and perry making. Of the cider Apples there were such well-known sorts as Yellow Norman, Medaille d'or, Vine Apple, Strawberry Norman, Fox Whelp, Lady's Finger, and Eggleton Styre, whilst Perry Pears included Butt, Blakeney Red, and Aylton Red sorts (Silver Hogg Medal).

ROYAL SCOTTISH ARBORICULTURAL (ABERDEEN BRANCH).

THE quarterly meeting of the Aberdeen branch of the Royal Scottish Arboricultural Society was held in Mansel College, Aberdeen, on the 21st ult., Sir John Gladstone, Bart., of Fasque, Kincardineshire, presided. After the formal business was transacted, Mr. Ian A. Clarke, M.A., B.Sc. (Agr.), District Officer, Forestry Commission, Aberdeen, gave an address on "Methods of German State Forestry." Mr. Clarke dealt with the work in one of the State forests in Germany, as he saw it when studying there before the war, and with reference more especially to the cultivation of Oak and Beech. The district he had studied in was part of the Spessart, although not the Spessart proper. It is some 40 miles to the north-east of Frankfurt-on-the-Main, and was called the forest of Salmunster. The area amounted to nearly 12,000 acres, of which 7,000 were State forests, 3,000 communal, and nearly 2,000 private. In Germany, about 30 per cent. of the private forests and all the communal forests were under State control. The most important timber tree grown in the district he had referred to was Oak. The locality was pre-eminently suitable for Oak and Beech, and the rotation for the crop was 200 years. Oak was now practically never grown pure, but always in mixture with Beech. The Beech was, however, absolutely subordinated to the needs of the Oak, and the functions which it was called upon to perform were two. The first was to keep the soil well covered with leaves, thus maintaining a supply of humus and preventing the growth of weeds. The second was to keep the boles of the Oak clean by preventing the growth of side branches. The form of the Beech when grown thus along with the Oak was of no importance, as it was accepted that it would yield only firewood at the end of the rotation. The only other species which might take the place of Beech for these purposes was Hornbeam, which, being frost-hard, was used in valley bottoms and frost holes. Many different ways of growing the two trees—Beech and Oak—had been tried, but that which was now most generally favoured was an equal-aged mixture. That was established whenever possible by natural regeneration; artificial regeneration being resorted to only when the conditions were not suitable for natural regeneration. Lantern slides were shown illustrating the planting of a forest till the time for cutting operations, some 200 years later. Concluding, Mr. Clarke drew attention to three points which had emerged in the course of his description of the work in

Germany, and which were, he thought, all applicable to forestry as much in this country as in Germany. The first and most obvious was the use of Beech as an even-aged auxiliary with a light-demanding species. That combination might be practised with great advantage to a much greater extent than it was now, particularly in the formation of Larch woods, and also, but possibly to a lesser extent, of Scots Pine woods. It might not be desirable to disregard the timber possibilities of the Beech in such a mixture. The second point was the use of natural regeneration. That might be used, he thought, much more widely than at present, especially with the Scots Pine. There were, of course, difficulties to be overcome—for example, the rabbit question—and it was an operation which required careful, skilled supervision, but there were corresponding advantages, the chief, perhaps, of which was the elimination of bad planting. The third, and he thought the most important of the three points, was the importance of careful thinning.

Mr. Sydney J. Gammell, of Countesswells, and Sir John Gladstone took part in the discussion, the latter agreeing that the Germans, from their longer experience, did grow finer timber than foresters in this country.

During the course of the day, the members visited the sawmills and packing-box and case-making factory of Messrs. John Bissett and Sons, Ltd., North Esplanade, Aberdeen.

HITCHIN CHRYSANTHEMUM.

NOVEMBER 9.—Delightful weather attended the holding of the Hitchin Society's Show, which took place in the Town Hall on the above date. The exhibition was arranged in very pleasing fashion and the quality of the exhibits was very high.

The twenty guinea Challenge Cup and money award, offered as first prize for six vases of Japanese blooms, three blooms of a variety in each vase, was won by Sir C. NALL-CAIN (gr. Mr. T. Pateman), The Node, Welwyn, with fine flowers of Mrs. A. Davis, Majestic, Mrs. R. C. Pulling, Princess Mary, Queen Mary and Mrs. J. Gibson; 2nd, E. MARTIN SMITH, Esq. (gr. Mr. S. J. Milton), Codicote Lodge. A six-guinea Challenge Cup was offered as the premier prize for four vases of Japanese blooms, three blooms of one variety in each vase, and this was won by H. MARKHAM, Esq., London Road, Stevenage, with excellent flowers of Mrs. A. Davis, Edith Cavell, Mrs. J. Gibson, and Princess Mary; 2nd, O. L. JAMES, Esq. (gr. Mr. Kella-way), The Hoo, Hitchin. E. MARTIN SMITH, Esq., showed the best six Japanese blooms, and M. HANSCOMBE, Esq. (gr. Mr. H. W. Eyeers), Penton Hall, led for five white Japanese blooms of one variety; he showed Louisa Pockett and one of his blooms was adjudged to be the best flower in the show. E. MARTIN SMITH, Esq., won first prize for five blooms of a coloured Japanese variety with Thos. Lunt.

Sir C. NALL-CAIN was the most successful exhibitor in the class for six vases of single Chrysanthemums, and led in a close competition with fine blooms of Phyllis Cooper, Gem, Catriona, and Sandown Radiance; 2nd, F. RANSOME, Esq., Newlands, Hitchin.

There were six entries in the class for a table decorated with Chrysanthemums and the chief award was made in favour of Mrs. W. G. P. CLARK, for a pleasing arrangement of single varieties; 2nd, Mrs. ABBISS, Hitchin; 3rd, Mrs. CREASEY. Mr. F. RANSOME showed the best decorative vase of single Chrysanthemums; 2nd, Mr. HARMER; 3rd, Mr. VICKERS. For a vase of decorative varieties Messrs. F. RANSOME, HARRISON and ABBISS won prizes in the order of mention.

Only one group was staged and this, from Messrs. ABBISS BROS., was awarded a first prize; it was a pleasing arrangement of Chrysanthemum, Begonias, and other greenhouse flowering plants. For three winter-flowering Begonias Major HARRISON beat Sir C. NALL-CAIN, showing superb plants of Optima and Flambeau.

Sir C. NALL-CAIN won the Silver Cup he himself offers for the best collection of fruit

arranged on a space 6 ft. by 3 ft. There were five competitors, but Sir C. NALL-CAIN came out ahead with a considerable margin of points. He showed finely coloured Apples, a good selection of Pears, and well coloured Grapes; 2nd, the Rt. Hon. Viscount HAMPDEN, The Hoo, Welwyn (gr. Mr. A. J. Gillings), who had capital Melons and Grapes. Col. PRYOR led in the class for six dishes of culinary Apples, and he was first prizewinner for two bunches of black Grapes; in the former class Sir C. NALL-CAIN came second, and Viscount HAMPDEN was second for Grapes. In the class for white Grapes Sir C. NALL-CAIN and Major HARRISON were placed as named. Col. PRYOR won first prize for three dishes of dessert Pears and a similar award for culinary Pears.

Vegetables were shown in very fine condition and the competition was keen in nearly all classes. Messrs. J. CARTER AND CO.'S Cup, offered for the best nine distinct kinds of vegetables, was won by Major HARRISON (gr. Mr. Hartless), Kings Waldenbury, but he only beat Sir C. NALL-CAIN by one or two points. In Messrs. SUTTON AND SONS' class for six kinds of vegetables, the same two competitors entered, but in this case their positions were reversed. Col. PRYOR (gr. Mr. Crockford), West Park, Stevenage, was a successful exhibitor in the single-dish classes, winning first prizes for Potatoes, Carrots, Leeks, Cauliflowers, Beet and Turnips; Sir C. NALL-CAIN led for Parsnips (a wonderfully fine dish), and Brussels Sprouts; C. VICKERS, Esq., had the best Onions.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

TUESDAY, October 19.—Present. A. Hanmer, Esq. (in the chair), Messrs. R. Ashworth, B. J. Beckett, A. Coningsby, J. C. Cowan, A. T. Cussons, J. Cypher, A. G. Ellwood, J. Evans, W. Giles, J. Howes, J. Jackson, A. Keeling, D. L. Thorpe, D. McLeod, E. W. Thompson, J. Whitham and H. Arthur (Secretary).

FIRST-CLASS CERTIFICATES.

Brasso-Laelia-Cattleya Amber, West Point var. A well shaped flower with sepals and petals of rich yellow colour and a fine aurea-like lip; *Odm. crispum Daphne*. A flower of the Pachy type; *Odm. eximium Iona*, a heavily blotched variety of good shape; *Brasso-Cattleya Lisette*, a very dark coloured flower. From S. GRATRIX, Esq.

Cattleya Lamberhurst alba (*intermedia alba Parthenia* × *Cattleya citrina*). A creamy white flower resembling *intermedia alba*, but the plant mostly resembles *Cattleya citrina*; *L.-C. Daphne rotunda*, with mauve sepals and petals and deep magenta lip; *Odm. Thwaitesae Haddon House variety*. From P. SMITH, Esq.

Cypripedium Greyii magnificum. A large, round flower with white ground, covered with small, reddish dots. From Mrs. GRATRIX.

Cypripedium Duchess of Marlborough (*Lord Ossulton* × *Lecanum Chinkubergianum*). With large, broad, dorsal sepal, and clear, waxy-white flowers, with bright green base, the petals and pouch being light green shaded brown. From B. J. BECKETT, Esq.

Cypripedium Madame Aliot Férrier, *Chardwar* var. A well shaped flower of the Germaine Opoix type. From Dr. CRAVEN MOORE. *Odm. crispum Edgemoor* var., with red blotch on the lip. From A. HANMER, Esq.

Odm. St. George Lashville var. The flower is heavily blotched all over with deep red. From D. L. THORPE, Esq.

AWARDS OF MERIT.

Odm. Radiant and *Odm. crispum rotundum*. From A. HANMER, Esq.

Laelia-Cattleya Athene var. *purpureum*; *Sophro-Cattleya Boltonii* (S. *grandiflora* × C. *Pericalliana*). From P. SMITH, Esq.

Cypripedium Henry Elwes (*Germaine Opoix* × *Goliath*). From Dr. CRAVEN MOORE. *Odm. crispum Naomi*. From S. GRATRIX, Esq.

Cattleya Edithae var. *Stella*. From Capt. W. HORRIDGE.

Obituary.

George P. Berry.—It is with the deepest regret we record the death of Mr. George P. Berry, Senior Instructor in the Horticultural Division of the Ministry of Agriculture. Mr. Berry had been ailing for several weeks and was granted special leave of absence, but he gradually became worse, and died on Saturday, the 11th inst., at his home at Stamford Brook, near Hammersmith. He was buried on Wednesday last in Hammersmith Cemetery. Mr. Berry was a gardener by profession, by training and inclination, and his appointment at the Ministry of Agriculture was especially pleasing to horticulturists, who regarded it as a sign that the Ministry was taking more interest in horticulture. Mr. Berry proved a sterling man for the post and gave his whole energies to his duties. A short biography of this capable gardener, together with his portrait, was given in *Gard. Chron.* so recently as September 30, 1922.

William Grant Innes.—Many members of the wholesale seed trade will have read with much regret the announcement of the death of Mr. W. Grant Innes, which occurred on November 12, at 4, Blenheim Gardens, Willesden Green. Mr. Innes, who was seventy years of age, came over from New Zealand about forty years ago and established himself in London as representative for Messrs. Nimmo and Blair, seedsmen, Dunedin. He was always an extensive buyer of agricultural seeds, by the ton, and in later years, as New Zealand became a seed-producing country, he was also a seller of seeds of Peas, Grasses and Clovers, in large quantities. He had a reputation for being keen, clean and straightforward in all his business dealings, and he was a man one could not help liking. His interest extended to ships and shipping generally; he was also associated with the well-known Covent Garden firm of Messrs. Slaymaker and Co., sundriesmen; and for several years was a member of the Council of the British Florists' Federation.

LAW NOTE

PEA-PICKERS.

A CASE of considerable interest to the horticultural trade was decided in the High Court on November 15. As is well known, under the Unemployment Insurance Act, 1920, it is necessary to insure workpeople in most trades against unemployment, but the Act provides that this is not to apply to persons engaged in agriculture, horticulture or forestry. The Minister of Labour contended that women employed as Pea-pickers, i.e., in sorting out defective Peas and Beans and removing foreign substances, were not engaged in a horticultural process, but, on the contrary, were engaged in a commercial process. Messrs. Daniels Bros., Ltd., seed growers, Norwich, took the contrary view and, with the support of the Horticultural Trades' Association, appealed to the High Court.

Mr. Justice Roche, after hearing the arguments of Counsel on both sides, held that the Minister of Labour was wrong in his contention and that Pea-pickers are in fact engaged in a process of "horticulture," and that accordingly premiums for insurance against unemployment are not payable either by the employers or the employed. Curiously enough, the Government officials have always contended that Pea-pickers are engaged in horticulture within the meaning of the Corn Production Act and are accordingly entitled to the minimum scale of wages thereunder, and the attitude of the Government Department concerned in desiring to have the matter both ways has been scarcely consistent. Mr. Lilley, instructed by the solicitor to the Ministry of Labour, appeared as Counsel for the Minister, and Mr. Du Cann, instructed by Messrs. Morgan, Veitch and Bilney, appeared for the horticultural traders concerned. Persons who have paid insurance premiums by reason of the erroneous decision of the Ministry can now apply for a refund, and in the case of large firms considerable sums will be recoverable.

MARKETS.

COVENT GARDEN, Tuesday, November 14th, 1922.

Fruit: Average Wholesale Prices.

Apples—	s. d. s. d.	Grapes—	s. d. s. d.
Californian	12 0-13 6	Almeria, barrel	2 0-25 0
—Newtown Pipp.	15 0-16 0	—Belgian	0 9-1 6
—York Imperial	27 0-29 0	—Black Ham-	
English, per bus.		burgh	0 10-1 6
Alington Pipp.	2 0-3 0	—Cannon Hall..	3 0-8 0
—Blenheim Pippin		—Gros Colmar ..	1 3-3 6
bushel ..	7 0-10 0	—Muscat ..	2 0 6 0
—Bramley's		Grape Fruit ..	25 0-26 0
Seedling ..	6 0-8 0	Lemons	
Charles Ross ..	3 0 5 0	—Malaga, case ..	25 0- --
—Cox's Orange		—Messina ..	20 0- --
Pippin best		—English and	12 0- --
1/2 bushel ..	7 0-12 0	Guernsey ..	1 6-4 0
—ordinary ..	4 0-6 0	Nuts—Brazilis ..	45 0-55 0
—King of the		—Chestnuts bag	30 0-35 0
Pippins ..	3 0-4 0	—Cob ..	0 13-0 4
—Lord Derby ..	5 0-6 0	Walnuts	
—Warner's King	6 0-7 6	—Grenoble per bag	—12 6
Nova Scotian		—English doubles	0 6-1 3
—Blenheim Pipp.	20 0-24 0	Oranges,	
—Cox's Orange		—Pera ..	24 0-32 0
Pippin 1/2 barrel	20 0-25 0	—Jamaica ..	25 0 27 6
—King of the		—S. African ..	31 0-37 6
Pippins ..	24 0-28 0	Pears, half bus.	
—Macintosh Red		—Doyenné du	
Joathan ..	11 0-12 6	Comice, dozen	4 0-10 0
—Ribston Pippin	20 0-25 0	—half ..	7 0-12 0
Tyrolcan 40 lb box	7 0-14 0	Pineapples ..	2 0-4 0
Bananas, singles	12 6-20 0	Plums,	
—doubles ..	17 6-20 0	—Prunes ..	2 0-3 0
Grapes		Tunis Dates, doz	
—Alicante ..	0 10-2 6	cartons ..	6 0-7 6

REMARKS.—Demand has been on the small side and, generally speaking, there has been little or no activity in business during the past week. Large supplies of imported Apples have been offered, and prices have needed somewhat. Home-grown Apples are only moderately plentiful, and a fair demand rules for coloured dessert varieties. Large cooking Apples are a steady trade, but quoted slightly lower in value. The English Pear season is almost finished, except for Doyenné du Comice, of which fair supplies are available. Californian Winter Nuts are in good sale in the market. Horticulture Grapes are in good demand, and with smaller quantities available, their values should improve. New crop, well coloured English Tomatoes sell well, but trade is very bad for Tomatoes that lack colour. Large quantities of outdoor Jersey Tomatoes have been totally unsaleable at any price. Incoming shipments of Tenerife Tomatoes are coming to hand. Cucumbers have sharply advanced in price, due to more restricted consignments by growers. New season's Denia Murcia Oranges are available. Forced vegetables, such as Guernsey Beans, Peas and Potatoes are selling well. Beans from France and Madeira also move freely, but their prices are only moderate. Forced Mushrooms are quoted at lower prices, owing to increased quantities, but colder weather should shorten supplies. The Potato trade is steady with an improving tendency.

Cut Flowers, etc.: Average Wholesale Prices.

Adiantum decor.	doz. bun.	10 0-12 0	French Flowers	s. d. s. d.
—cuneatum,			—Roses Safrano	
per doz. bun.	6 0-8 0		per pkt 25's ..	3 0-3 6
Asparagus plu-			—Violets, Parma,	
mosus, per bun.			per bun.	4 6-5 0
long trails, 6's	4 0-5 0		Single per doz	3 0-4 6
med. sprays ..	2 6-3 6		Gardenias, per	
short ..	1 0-1 6		box ..	6 0-9 0
—Sprengeri, per bun.			Heather, white,	
long sprays ..	2 6-3 0		per doz. bun.	4 0-10 0
med. ..	1 3-1 6		Lilium longistylum	5 6-6 0
short ..	0 9-1 0		—speciosum long	
Camellias, white			per doz. ..	3 0-4 6
per box ..	4 0- --		short ..	4 0-5 0
Carnations, per			Lanagaria per	
doz. blooms ..	3 6-5 0		doz. ..	4 0-4 6
Croton leaves,			Lily of the Valley,	
var. per bun.	2 6-4 0		per doz. bun.	24 0-36 0
Chrysanthemum			Orchids, per doz.	
pink, per doz.			—Cattleyas ..	12 0-18 0
bun. ..	15 0-18 0		—Cypripediums	6 0-9 0
—bronze ..	15 0-18 0		Pelargonium,	
—white ..	18 0-24 0		per doz. bunch,	
—yellow ..	15 0-18 0		double scarlet	10 0-12 0
—per doz. blooms			Richardias (Arums,	
—white ..	3 6-8 0		per doz. ..	9 0-10 0
—yellow ..	3 6-8 0		Roses, per doz.	
—pink ..	4 0-8 0		blooms—	
—bronze ..	4 0-8 0		—Frau Karl	
—single varieties			Druschki ..	1 6-2 6
disbudded			—Madame A.	
blooms per doz.	3 0-5 0		Chatenay ..	3 6-5 0
—Spray coloured			—Melody ..	4 0-7 0
per doz. bun.	18 0-30 0		—Niphetos ..	2 0-3 0
—Spray white ..	24 0-30 0		—Ophelia ..	4 0-8 0
Fern, French per			—Liberty ..	5 0-6 0
doz. bun. ..	1 0-1 3		—Richmond ..	5 0-6 0
Forget-me-not per			—Sunburst ..	4 0-5 0
doz. bun. ..	9 0-10 0		—White Crawford	3 0-4 0
French Flowers			Smilax, per doz	
—Acacia (Mimosa)			trails ..	3 0-5 0
per bunch ..	1 6-2 0		Stephanotis, per	
—Lilac, white, per			doz. pips ..	6 0- --
doz. sprays ..	6 0-7 0		Violets, single ..	3 6-6 0
—Narcissus, paper				
white, pr. doz. bun	5 0-6 0			

ANSWERS TO CORRESPONDENTS.

CANDLE CACTUS (KLEINIA ARTICULATA); E. B. The plant represented in the photograph received is *Kleinia articulata*, a succulent plant native of South Africa. It is not a Cactus, although commonly called the Candle Cactus. It grows quite well in any ordinary greenhouse, and should be kept on the dry side during the winter months; if kept somewhat dry at the roots and in a fairly dry atmosphere, it should winter quite well in a temperature of 40° to 50°.

POTATO DISEASE: W. A. Although late blight disease of Potatoes has been less frequent than usual, there have, nevertheless, been attacks in various parts of the country, the same as in your case.

NAMES OF PLANTS: W. T. L. *Anemone japonica*.—*A. J. P.* 1, *Holostium umbellatum*; 2, *Impatiens Roylei*.—*H. G. W.* 1, *Pyrus Aria*; 2, *Cornus capitata*; 3, *Berberis Darwini*; 4, *Ribes* sp., send in flower; 5, *Abelia floribunda*; 6, *Arbutus Unedo*; 7, *Azara microphylla*; 8, *Colletia cruciata*; 9, *Lonicera involucrata*; 10, *Spiraea Lindleyana*.—*H. M.* *Bryophyllum calycinum*.

NAMES OF FRUITS: D. I. Ashmead's Kernel. *P. N.* 1, James Grieve; 2, Chas. Ross; 3, Striped Beefing. *W. G., Reading.* Josephine de Malines. *W. H. C.* 1, William's Bon Chrétien; 2, Duchesse d'Angoulême; 3, Doyenné du Comice; 4, Louise Bonne of Jersey; 5, Beurré d'Amanlis; 6, Knight's Monarch; 7, Yorkshire Beauty; 8, Dean's Codlin; 9, High Canons. *F. I. I.* Emile d'Heyst; 2, Glou Moreau; 3, Josephine de Malines; 4, Napoleon; 5, Beurre Bosc; 6, Beurré Clairgeau; 7, Chaumontel; 8, Bergamotte Esperen; 9, Née Plus Mairis; 10, Newton Wonder; 11, Wealthy. *J. B., Mon.* Pears: 1, Marie Benoist; 2 and 13, Zéphirin Grégoire; 3, 7, 9, 11, 14, Doyenné du Comice; 4, Flemish Beauty; 5, Marie Louise; 6, Beurré Diel; 3 and 16, Beurré d'Amanlis; 10, Emile d'Heyst; 12 and 19, Beurré Sterckmans; 15, Brockworth Park; 17, Tris Grégoire; 18, Louise Bonne of Jersey. Apples: 1, Newton Wonder; 2, Sturmer Pippin; 3, Court Pendu Plat.

H. W. Apples: 1, Radford Beauty; 2, Washington; 3, Bismarck; 4, White Nonpareil; 5, Duke of Devonshire; 6, Scarlet Nonpareil; 7, Court of Wick. Pears: 1 and 4, decayed; 2, Baronne de Mello; 3, Bellissime d'Hiver; 5, William's Bon Chrétien; 6, Marie Louise. *Chaw.* 1, Beurré Clairgeau; 2, Beurré Hardy; 3, Beurré Bachelier; 4, Glou Moreau; 5, Winter Nelis; 6, Comte de Lamy; 7, Thompson's; 8, Gascoyne's Scarlet; 9, Melon; 10, Melrose; 11, Dean's Codlin; 12, Hanwell Souring; 13, Catillac. *A. P. L.* Gipsy King. *O. S.* 1, Louise Bonne; 2, Calville St. Sauveur; 3, Cellini; 4, Winter Strawberry. *F. B.* 1, Queen; 2, Lord Burghley; 3, Lady Sudeley; 4, bruised, not recognised; 5, Worcester Pearmain; 6, Vicar of Winkfield; 7, Catillac. *A. B.* 2, Sturmer Pippin; 7, Calville Rouge Précoce; 10, Winter Strawberry; 11, Alfriston; 12, Cockle Pippin; 14, Brownlee's Russet; 20, Sweet Lading; 21, Golden Harvey; 22, Beauty of Kent; 24, Margil; 25, Autumn Bergamot. *A. W. S. C.* 1, Roundway's Magnum Bonum; 2, Le Lectier; 3, Beurré Alexander Lucas; 4, Stirling Castle; 5, Beurré Hardy; 6, Duchesse d'Angoulême; 7, Ribston Pippin; 8, Cellini.

PEACH AND NECTARINE TREES MAKING GROSS GROWTHS: H. J. If there is room in the house for the further extension of the trees, do not remove the strong shoots, but lift or root-prune the trees at once, adding strong loam, lime rubble and a little bone meal to the soil, making the latter very firm about the roots as the work proceeds. It is doubtful if the strong shoots will fruit next year, but no good will be done by removing them; the trees are growing in soil that is too rich or too light in texture.

Communications Received.—*R. I. H.*—*H. E.*—*C. P.*—*E. F.*—*J. T.*—*C. H.*—*T. D.*—*J. S.*—*D. G.*—*H. D.*—*H. M.*—*E. A.*—*B.*—*H.* & *S.*—*J. R. M.*

THE

Gardeners' Chronicle

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 42°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, November 22, 10 a.m. Bar. 30.6; temp. 49°. Weather—Foggy.

Potato Synonyms.

Everyone interested in the cultivation of the Potato will read Dr. Salaman's article on "Seedsmen's Catalogues" (published on p. 311) with interest and profit. The article, which reproduces Dr. Salaman's recent address at Ormskirk, draws attention in vigorous language to the frequency with which one and the same kind of Potato is offered to the public under different names and not infrequently at different prices. In the old days when there were no official means of determining the identity of or difference between two manifestly similar varieties there was excuse for these errors; but, as Dr. Salaman points out, now that a Synonym Committee is in existence, and has pronounced on many of the similar varieties, and has also published its results, there will be no excuse for a continuation of these multiple and erroneous descriptions. It was long ago said that botany is easier to learn than its nomenclature, and similarly it may be averred that it is easier to learn the characters of different kinds of Potatoes than to master the series of superfluous names which have gradually gathered about the chief varieties of this vegetable. Like all missionaries, Dr. Salaman preaches reformation in emphatic terms, and like most of them he is particularly strong in commination. Whilst concurring in his view that root and branch reform is required and that the exuberance of growth of nomenclature should be pruned completely away, we are inclined to think that a good deal of the

confusion introduced into the naming of varieties of Potato has arisen from a cause which he ignores; namely, the great differences which exist between different strains of one and the same kind of Potato. Growers are not concerned with morphological niceties. They want a crop. Having, for example, obtained in different years a good yield from Sir John Llewelyn, and, let us suppose, a poor yield from Eclipse, they would henceforth cleave to the one and eschew the other. Moreover, if this experience should happen to be general over one or two seasons, the tubers sold under one of these names would command a higher price than those sold under the other name. It is, however, of less interest to judge the past than to help to promote the future development of Potato growing in this country. In that, Dr. Salaman's lecture will, we are convinced, prove a potent power. He has drawn attention to mistakes and mis-descriptions and has shown how frequent they are. Still more important, he has indicated that means now exist, and are available to all, whereby new varieties—including varieties which the sanguine and inexperienced may think are new—may be tested and pronounced upon by expert and unimpeachable authority. No one who has experience of the high standard of the services rendered to the horticultural community by the seedsmen will doubt but that they will give heed to Dr. Salaman's observations and play a decisive part in extirpating these superfluous and misleading names—the weeds of the Potato plot—from their catalogues and from general use. We gardeners derive so much pleasure and profit by the study of seedsmen's catalogues and by the cultivation of the plants they recommend that we need not be perturbed by Dr. Salaman's introductory banter about Pumpkins and poetry. We know that if we go to good British seedsmen, the materials they supply are the best that the world can offer. We are grateful to them for the increasing care and enterprise which they exercise in introducing new and improved varieties, and our gratitude will be increased when, in the unique case of the Potato, they follow Dr. Salaman's cogent advice and delete the names of synonymous varieties.

Imperial Fruit Show, 1923.—The Ministry of Agriculture has been informed that the board of directors of the *Daily Mail* cannot see their way to organise an Imperial Fruit Show next year. The Ministry feels that members of the fruit growing industry might like an opportunity of meeting together to discuss means for continuing these shows, and especially that for 1923; it therefore invites all those who are interested to a Public Conference at 2 p.m., on Friday, December 1, 1922, at 10, Whitehall Place, London, S.W.1.

Chrysanthemums in a Public Park.—An excellent display of Chrysanthemums has been staged in the large greenhouse in Chalkwell Park, Westcliff. The glasshouse is a recent addition to the park and the Chrysanthemum show is the first occasion on which it has been opened to the public. The exhibition was well advertised in the local trams and elsewhere, with the result that many thousands of the townsfolk made a special visit to the park to inspect the flowers. So great a success has resulted from the innovation that it is proposed to make a feature of the Chrysanthemum display each season. The greenhouse will be utilised as a show house generally, thus adding a very attractive feature to the amenities of this pretty park, which is already noted for its beautiful Rose garden. The superintendent, Mr. Keeling, and his staff are to be congratulated on the excellent results attending their first efforts in the cultivation and display of Chrysanthemums.

Acacia Seedlings.—In the 55th volume of *The Journal and Proceedings of the Royal Society of N.S. Wales*, p. 105, is an interesting article by R. H. Cambage on the germination and precocious flowering and fruiting of a number of species of Acacia. The article is illustrated by four plates showing young plants of about a dozen kinds, including such diverse species as *A. asparagoides*, *A. Bancroftii*, *A. difformis*, *A. cultriformis*, *A. trineura*, *A. Oswaldii*, *A. pendula*, *A. polybotrya*, *A. longifolia*, *A. floribunda* and *A. discolor*. The figures are of plantlets three to six inches high, together with their flowers, seed pods and seeds; a most interesting series of examples of what plants are capable of doing under certain climatic conditions. The author also has a note on the vitality of some seeds of *Acacia melanoxylon*, which, after having been immersed in sea-water for four years and one month, germinated when planted.

Flowers and Fruits for Charities.—A beautiful exhibition of flowers and fruits was arranged a few days ago in the Cotton Exchange, Liverpool, by Mr. Bert Ker (Messrs. Ker's, Ltd.), and Mr. Mousley, gardener to George Couvelas, Esq., Heswall, on behalf of the Wallasey Central Hospital and the Gardeners' Royal Benevolent Institution. Mr. Ker obtained the fruit and Mr. Mousley the flowers, the latter including some exquisite Orchids from Sir George Holford. The various exhibits were drawn for by members of the Exchange and the proceeds, after paying expenses, amounted to about £150, one-third of which will be handed to the Gardeners' Royal Benevolent Institution. Mr. Ker and Mr. Mousley are to be congratulated upon this, another successful effort in the cause of charity.

National Rose Garden.—Mr. Courtney Page, hon. sec. of the National Rose Society, writes:—"You may be interested to know that my Council had recently under consideration the question of the setting up by amateur rosarians of Rose Test Gardens in different parts of the country. The Council on October 30 last unanimously passed the following resolution: 'That if and when a trial garden for Roses is set up by the National Rose Society, such garden shall be run by and under the direct control of the Society.'"

A New Apple Weevil.—Mr. J. C. F. Fryer, M.A., records in the November issue of the *Journal of the Ministry of Agriculture* a new pest of the Apple, allied to the Apple Blossom Weevil, but even more destructive in its habits. The pest is *Anthonomus cinctus*, and it is suggested it be called the Bud Weevil to distinguish it from the Blossom Weevil. The insect is known in France as the Pear *Anthonomus* and also the Winter Worm, and in Germany as the Pear Bud Killer. Its introduction to Great Britain is possibly due to the importation of nursery stock from the Continent. The larvae feed on the unexpanded leaves and truss buds of the Apple and not on the actual blossom buds themselves. Investigations in Germany show that the eggs are laid in September and October, that the larvae are found in the buds, chiefly of Pear trees, from the middle of February, and that they pupate at the beginning of May, the beetles emerging from eight to ten days afterwards.

Chrysanthemum Society of America.—The proceedings of this Society have usually been published annually, but the issue just to hand contains the details of the Society's work for the years 1920 and 1921 in one neatly printed brochure, which is always welcome. It is interesting to record that the membership list shows a slight increase over that of 1919. To-day 148 members are on the roll as against 119 two years before. The contents vary but little, and comprise the usual reports of the annual meetings, with the text of the presidential addresses. Reports by the Secretary and Treasurer are given. Lists of new introductions and reviews of the work of the Examining Committee for the two seasons show particulars of the awards made to novelties. The leading exhibitors appear to have been Elmer D. Smith and Co. and Chas. H. Totty.

Ornamental Nicotianas and the French Tobacco Regie.—The Director of the Botanic Gardens at Nantes, France, has written to the *Revue Horticole* complaining that the French Excise authorities are making difficulties about the cultivation, purely for ornament, of a few beds of *Nicotiana glauca*, *N. glauca*, and *N. glauca*. Similar difficulties were experienced in 1906, when the local Horticultural Society of Nancy sought permission of the authorities to cultivate a number of species of *Nicotiana*, which are "Tobacco plants" only in name, and which had clearly been shown by M. Philippe de Vilmorin to contain no nicotine whatever. The Excise authorities were adamant, however, and sustained their decision on the wording of the law of 1816, which forbids the cultivation of "any varieties of Tobacco, without distinction of those intended for industrial uses, and those grown as ornamental plants." In face of such implacability, the *Revue Horticole* remarks, it is a lucky thing that the *Petunia*, formerly known as *Nicotiana axillaris*, was subsequently renamed by Jussieu. Otherwise, this charming plant might be for ever banished from French gardens!

Rain and Snow as Fertilisers.—Mr. F. T. Shutt, Chemist of the Dominion of Canada, in a report in *Rapport des Fermes experimentales Du Dominion*, sums up the results of his investigations of the sum of available nitrogen supplied annually to the land by rain-water and snow. The experiments were limited to determining the amount of free ammonia, albuminoid ammonia and nitrous and nitric nitrogen. During the year some 79 samples of rain and 25 of snow were analysed. The total precipitation amounted to 844 mm., of which 594 mm. were rain and 250 mm. snow (10 mm. of snow equals 1 mm. of rain), and the total amount of nitrogen applied by these precipitations was 7,971 kilograms per hectare (a kilogram equals 2 lb. 3 oz., and a hectare 11,960.33 square yards). It was found that the total amount of nitrogen supplied by rain and snow over a period of 10 years averaged 7,375 kilograms per hectare annually.

Raising Orchid Seedlings on a Sugar Medium.—Professor Kundson, of Cornell University, has successfully raised Orchid seedlings by sowing the seeds on a sugar agar in tubes. He conceived the notion that Orchid seedlings are not so dependent on certain fungi as upon the nourishment which the fungus provided. Nearly 100 per cent. of the seeds sown on the agar and kept in closed tubes germinated. The special process calls for expert knowledge such as only those engaged in bacteriological research possess and requires special tubes and sterilising apparatus. As the method ensures almost perfect germination and a quicker growth of the seedlings in the early stages it would repay practical growers to study the method.

Kew Post Office.—Kew occupies such a prominent position in the world of horticulture that anything connected with this famous little Surrey village is of interest to horticulture, and even the local post office has a *quasi* horticultural importance, for apart from it being the office where all the postal business of the Royal Gardens is conducted, the proprietor is a well-known horticulturist, Mr. A. C. Bartlett, who himself is an old employé of the gardens. This particular post office was robbed on Saturday last of money and stamps to the value of over £186, and the announcement that the whole of the sum was recovered through the capture of the thief will be a matter of congratulation to Mr. Bartlett by his numerous friends. Mr. Bartlett's appointment as Hon. Secretary of the National Sweet Pea Society was announced in our issue for the 11th inst., p. 287, and his appointment as Garden Superintendent at Wembley Park on p. 233. Beside holding these offices, Mr. Bartlett is Hon. Secretary of the Kew Guild, and the National Dahlia Society. He has received many congratulations from his friends in the horticultural world on the capture of the thief and the recovery of the property, for which he was responsible to the postal authorities.

Memorial at Wisley to the late Mr. S. T. Wright.—The handsome sundial illustrated in Fig. 123 has been erected by the past and present members of the Royal Horticultural Society's Fruit Committee in memory of the late Mr. S. T. Wright. It is of Portland stone and bears on the table the following inscription:

Erected by members of the Fruit Committee of the Royal Horticultural Society, in memory of Mr. S. T. Wright, V.M.H., Superintendent of the Society's Gardens, 1895 to 1922 and Secretary of the Committee from 1899 to 1922.

The site chosen in the R.H.S. Gardens, Wisley, for the memorial is near the Superintendent's house and the laboratory, and the sundial will be readily seen by all those entering the gardens



FIG. 123.—SUNDIAL ERECTED TO THE MEMORY OF THE LATE MR. S. T. WRIGHT.

in which Mr. Wright laboured so faithfully and well for many years. It is particularly appropriate that the Fruit Committee should be the first to erect a memorial in honour of this worthy gardener, for, apart from his labours on behalf of the Committee, he had a high reputation as a fruit grower before he entered the service of the R.H.S. and wrote an excellent work on fruit growing for amateurs, whilst his splendid essay on hardy plant culture, which gained the R.H.S. prize in 1896, won high encomiums, and its excellence doubtless largely influenced the Council in their selection of a new superintendent for their gardens. It is a coincidence that two such famous pomologists as Mr. Barron and Mr. Wright should have held the office of Superintendent of the R.H.S. gardens, the one in succession to the other.

The Royal Horticultural Society's Challenge Cups.—We understand that the Council of the Royal Horticultural Society has decided to abandon the anomalous conditions whereby a competitor was precluded from winning the

Challenge Cups of the Society in successive years, and that in future these may be won year after year by a competitor until he is beaten. It will be remembered that Mr. Elisha Hicks drew attention on p. 242 to the confusion which the former rule caused, whereby an exhibitor was prevented from winning the Wigan Cup for Cups two years in succession, and that under those conditions the statement in the schedule that a certain cup was to be awarded to the best exhibit was often an anomaly, as it might go to the second best.

The Capuchin Orange.—This is a dwarf form of the common, sweet Orange, and is cultivated in the vicinity of Santiago de Chile, where it may have originated. *Plant Immigrants*, No. 197, gives an excellent illustration of a tree in full bearing, about the height of a man, and states that this small Orange is a promising subject for cultivation in tubs and other receptacles as an ornamental fruiting plant. The ordinary type of Orange is often cultivated in glasshouses in this country, although not so extensively as formerly, and this dwarf form, which is said to bear fruits of excellent quality, about two inches in diameter, with a thin skin, few seeds, and a flavour similar to that of the Washington Navel Orange, might prove an acquisition for cultivation in conservatories and greenhouses.

Importation of Plants into the United States of America.—The following extract from a notice issued by the U.S.A. Department of Agriculture on October 17, 1922, is being circulated for the information of all persons interested in the export of plants to U.S.A.:— "Secretary of Agriculture Wallace has approved an amendment to Regulation 7 of the regulations under Quarantine 37, providing for the freeing of imported plants from sand, soil, or earth by washing or other means. The requirement hitherto has been that such plants shall be thoroughly freed from earth by washing. The condition of freedom from sand, soil or earth is, however, to be strictly maintained. The amended regulation will shortly be distributed to importers and others interested. This action was taken as a result of an informal conference of the Federal Horticultural Board, October 3, with the Advisory Committee of the American Association of Nurserymen. It was represented by the conferees that the washing of the roots, particularly of certain classes of plants, as performed abroad, was a source of injury to importations and of considerable losses. Many instances of such injury were presented. On the other hand, it was brought out that this injury was due not to the fact of washing, but more often to the method of washing, and more particularly to the subsequent methods of packing and shipping. It was shown that such washing had been done in the case of certain countries without any injury whatever to classes of plants which were supposed to be most susceptible to such injury. Nevertheless, the importers were convinced that it would be more practicable to permit the removal of earth by shaking or other means where such removal could be thus effectively accomplished. As a result of a full discussion of this subject, the Board agreed to the modification of the regulations now authorised: This is a return substantially to the original requirement under Plant Quarantine 37 with respect to imported plants. The specific requirement of washing was a later one necessitated by the continuing increase of earth with plant importations, and the difficulty of setting up a definite standard of cleanliness which would be perfectly clear to the foreign shipper and determinable by the inspector of the United States Department of Agriculture. Hereafter all importations must, as hitherto, be freed from sand, soil, or earth by washing or other means. In other words, the condition of freedom from sand, soil, or earth is to be strictly maintained. Any importations not so cleaned will be refused entry."

Memorial Trees.—In an article on memorial trees in the *Bulletin of Popular Information* published by the Arnold Arboretum, reference is made to rows of *Cryptomerias* which shade the road leading to the temples in Nikko, Japan.

These trees were planted between 1631 and 1651, and extend for a distance of 24 miles along the road. A few of the trees have been killed by fire, but by the latest reports 18,308 trees are still standing and in good health. The story of their planting is interesting. When the Temple at Nikko, which is the burial place of Ieyasu, the founder of the Tokugawa Dynasty, was built, his successor in the Shogunate called upon the Daimios of the Empire to send each a stone or a bronze lantern to decorate the ground about the mortuary temple. All complied with the order but one man, Matsudaira Masatsuma, who, too poor to send a lantern, offered instead to plant trees by the roadside that visitors to the temple might be shaded from the heat of the sun. He did his work so well that these trees promise to live for centuries longer, and this memorial to Ieyasu is one of the important sights of Japan.

Mineral Phosphates as Fertilisers.—An article by Professor Gilchrist* summarises the results obtained by using ground mineral phosphates on pasture. Provided that the mineral phosphate be finely ground, say 80 per cent. to pass through a 120 mesh (14,400 holes to the square inch), the results are as good as those obtained by the use of basic slag. At present prices the cost for treating an acre with mineral phosphate would be considerably below that of basic slag.

To Destroy Cockroaches.—*The Quarterly Bulletin* issued by the Agricultural Experiment Station of the Michigan Agricultural College, gives methods for eradicating Cockroaches. The author states that the most satisfactory method of getting rid of these pests is to scatter sodium fluoride about their haunts, and every individual which comes in contact with the fluoride will be killed. This is a very poisonous material and should never be used where children or domestic animals can reach it. A substitute is pure borax, and its effectiveness is increased if it is mixed with one-fourth of its bulk of fresh pyrethrum. A useful poison bait is made of three cups of linseed meal boiled in water until it is a consistency of "thin mush," one cup of molasses, and one yeast cake softened in a cup of water and permitted to stand until fermentation commences. These ingredients are mixed and two tablespoonfuls of arsenate of lead added. The poison may be spread on tins or plates in places where the cockroaches will have access to them. This poison is especially efficacious where cockroaches have access to little or no water.

Appointments for the Ensuing Week.—Monday, November 27: National Chrysanthemum Society's Floral and Executive Committees meet. Tuesday, November 28: Royal Horticultural Society's Committees meet; lecture by Mr. B. Crane on "Self-sterility and the Pollination of Fruit Trees." Wednesday, November 29: British Carnation Society's show; Irish Gardeners' Association's meeting; Elgin Horticultural Society's meeting. Thursday, November 30: London and North Western Railway Horticultural Society's annual meeting; Bristol and District Gardeners' Association's meeting. Friday, December 1: Paisley Florists' Society's meeting.

"The Gardeners' Chronicle" Seventy-five Years Ago.—*Chrysanthemums.*—At the Norfolk and Norwich Horticultural Society's late exhibition, I observed with pleasure a collection of dwarf Chrysanthemums, exhibited by Mr. A. Mackie, of the Norwich Nursery, affording as they did a striking contrast to the over-sticked plants generally exhibited. Most of the other plants were about four or five feet high, with about ten or twelve flowers, and staked out as formally as possible, while those in question were about nine or twelve inches in height, with from fifteen to twenty flowers on a plant; and what was of more importance, they were nearly all without a stake, a feat which seemed to be duly appreciated. Should not this be a pattern to cultivators of this beautiful autumnal flower? *James Wensum, Norwich, Gard. Chron., Nov. 27, 1847.*

* *Journal of the Ministry of Agriculture*, Vol. XXIX., No. 8, Nov., 1922.

THE ALPINE GARDEN.

GENTIANA SINO-ORNATA.

I AM afraid this handsome Gentian is in bad repute with many people who have tried to grow it and failed to establish it. This is undoubtedly due to failure to realise that this species in nature is a meadow plant, insisting on a covered surface and ample moisture during the growing season, and dislikes lime in soluble form. What the plant is capable of when understandingly treated is well shown by the accompanying illustration (Fig. 124) of a colony planted two years ago in the rock garden of Viscountess Northcliffe at her residence at Crowborough.

So late this autumn as November 2 there remained 643 open flowers and large buds upon this fine patch, in spite of two days of snow and high, blustering winds with which an otherwise sunny October departed. This should speak volumes for the powers of resistance

HARDY FLOWER BORDER.

PHLOX DECUSSATA

THERE is a subtle charm in the hardy herbaceous border, with its irregular lines of plants of varying heights and constant change of colour from week to week. One of the most pleasing of all hardy border perennials is *Phlox decussata*, in its numerous varieties, that bloom over a long period. The beauty and usefulness of this border plant entitle it to the most prominent position in either large or small gardens. The extraordinary range of colour, so exceedingly bright, includes all shades from the snowy whiteness of *Tapis Blanc*, *Mia Ruys*, and *Mrs. Jenkins*, to the delightful pink of *Selma*, *Pantheon*, *Hodur*, and *Freya*, and others of shades of salmon, rich scarlet, crimson, purple, lilac and mauve.

The delicate fragrance emitted by the flowers is most refreshing and agreeable, being somewhat of a cinnamon odour.



FIG. 124.—GENTIANA SINO-ORNATA, IN LADY NORTHCLIFFE'S GARDEN AT CROWBOROUGH, SUSSEX.

possessed by this plant and its great value for furnishing colour and attraction in the rock garden from September to, sometimes, late in November.

At Crowborough this Gentian grows in a delightfully natural piece of outcropping rock-work of waterworn limestone, constructed by Mr. Clarence Elliott, and *Ericas* grow well in the natural soil; a considerable amount of moisture drains through the slope upon which this rock garden is situated and upstanding boulders provide a certain amount of welcome shade.

Mr. Fulford, Lady Northcliffe's gardener, takes a keen and intelligent interest in the many fine and rare hardy plants under his charge and the collection of pan-grown Alpine plants for use in a sensibly constructed Alpine house will become notable before long. Mr. Fulford saw to it that no weeds were allowed to trouble this colony of *Gentiana sino-ornata* and that it did not suffer for want of moisture during dry and sunny weather. Lady Northcliffe is to be congratulated upon the unique effect achieved in an English garden, which could scarcely be equalled in the cool Alpine districts of the Chinese Alps where this choice plant is at home. *W. E. Th. I.*

The soil for *Phloxes* should be deeply trenched and richly manured, and if the plants are set in clumps of one colour, of from 3 to 6 plants, from 9 inches to 1 foot apart they will give a most glorious effect the following season.

It is advisable to lift, divide, and replant them the third season, when the ground should again be trenched and manured. *Phloxes* are also much benefited by a mulching of decomposed manure in the spring, and during periods of dry weather by occasional soakings of water.

During recent years many new and beautiful varieties have been sent into commerce by nurserymen, and the following list includes 28 of the most meritorious sorts:—

Pure white: *Mia Ruys*, *Mrs. Jenkins*, *Fran Antonin Buchner* and *Tapis Blanc*. White with a crimson eye: *Flora Hornung* and *Josephine Gerbeaux*. Soft pinks: *Mrs. Van Hoboken*, *Mrs. Scholten*, *Elizabeth Campbell*, *Freya*, *Hanny*, *Pfeiderer*, *Pantheon*, *Selma*, and *Sommerkleid*. Salmon, orange red to scarlet and crimson: *Veld Jensen*, *Coquelicot*, *Etna*, *G. A. Strohllein*, *Genl. Von Heutz*, *Rijnstroom*, *Thor*, and *Septemberglow*. Mauve, lilac, and shades of purple: *Marie Jacob*, *Antonin Mercier*, *Dr. Charcot*, *Iris*, *Le Mahdi*, and *Widar*. *W. Logan.*

The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the
Duke of Marlborough, K.G., Blenheim Palace,
Woodstock, Oxon.

Cypripedium.—Warmth-loving *Cypripediums*, such as *C. Stonei*, *C. philippinense* (laevigatum), *C. Lowii*, *C. Parishii*, *C. Rothschildianum*, and hybrids, such as *C. Morganiae*, *C. l'Ansonii*, *C. Shillanum*, and others of this class, are growing freely, and need an ample supply of moisture, both at the roots and in the atmosphere. Syringing and spraying is not to be recommended during the winter, as water is apt to settle in the growths and cause decay. Although this class of plant requires plenty of moisture at the roots whilst in active growth, an excess of moisture must be carefully guarded against, as the loss of roots results from plants becoming saturated and in a waterlogged condition. Where *Cypripedium* flowers are appreciated, the summer flowering kinds are valuable, and make a strong contrast to the different varieties of Orchids which flower at that season. Winter-flowering *Cypripediums* are now in full bloom, and will make a good display far into the New Year. Varieties of this popular family of Orchids are very numerous; some are appreciated more than others, yet all are beautiful, and as winter flowering plants stand unrivalled for their lasting qualities, either as cut flowers, or upon the plants. Being of easy growth, their culture may be undertaken by anyone, and in foggy districts near large cities they repay perhaps better than any other plants the trouble taken with them.

The Selenipedium Section.—Members of this section, although not so popular as once they were, are still worthy of a place in collections. Plants that are root-bound and require repotting may be attended to, using similar compost to that recommended for the green-leaved section. The usual caution in watering newly-potted plants must be followed. Each plant should be kept moist at the roots, for if the leaves are allowed to lose their fresh and plump appearance through lack of water they rarely, if ever, recover.

Resting Cirrhopetalums.—Plants that have their new pseudo-bulbs developed may, with advantage, be kept on the dry side, but in the cultivation of these plants the resting period should be whenever they are ready for it, irrespective of season. The best time to afford them a period of rest is as soon as the new pseudo-bulbs are fully developed, when they will soon push new roots into the partially dry compost.

THE KITCHEN GARDEN

By JAMES E. HATHAWAY, Gardener to JOHN BRENNAND,
Esq., Baldersby Park, Thirsk, Yorkshire.

Cucumbers.—These plants will now require close attention, and the roots should be kept well fed with liquid manure and a concentrated fertiliser. On no account should the soil be over-watered. In mild weather a night temperature of 65° to 70° will be suitable. The pipes should not be overheated in very cold weather. Keep a sharp watch for red spider, but this pest will not appear if a moist atmosphere is maintained. The water used for syringing should be warmed to a temperature of 80°.

Climbing French Beans.—These plants will now be cropping heavily, and their roots should be stimulated with weak manure water and artificial manure. Maintain a moist atmosphere and admit air on every favourable occasion to assist the setting of the pods.

Gas Lime.—The present is a favourable time for using gas lime on the land. It should be spread at the rate of 2 tons to the acre, and allowed to remain on the surface for three

weeks, and then forked or dug in. This is a good remedy for club root, and where the land is infested with that disease all old stumps of vegetables should be cleared away and burnt before applying the lime.

Shallots.—These bulbs need frequent examination, as diseased specimens quickly infect the sound ones. Keep them spread out thinly in a cool shed.

Rhubarb.—Crowns of Rhubarb should be placed in warmth to ensure leaf-stems for Christmas. A Mushroom house is a suitable place in which to force Rhubarb, and the roots should be packed about with leaves, kept well moistened, and syringed every day.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER CLAY,
M.P., Ford Manor, Lingfield, Surrey.

Mixed Orchard House.—If not occupied with *Chrysanthemums*, the mixed orchard house may be put into working order at leisure, as the trees need not be housed before Christmas. Washing the houses and lime-washing the walls are annual operations that may be performed in wet or wintry weather, whilst once in three years the inside woodwork should be painted. When this work is finished the trees may be introduced at any time. The house cannot be kept too cool and airy when the weather is not unusually severe, but the roots of the trees must not suffer for want of water, as drought is the most frequent cause of buds dropping. Birds are troublesome in some places, therefore the trees must be carefully watched. If potting has been neglected, it is not too late to complete arrears of this work, although if done at an earlier date the roots have more time to become re-established in the fresh compost. Maiden trees may also be lifted, potted, and again plunged in open borders. In the selection of Peaches, Pears, Plums, and Cherries for potting, no second-class variety should be chosen, as it is better to have a dozen duplicates of one good sort than one each of a dozen inferior varieties. Pears, Plums and choice Apples are specially adapted for cold house culture, especially in the northern counties, and will give good returns with careful treatment.

Early Pot Strawberries.—Assuming that these plants were stored for the winter, as recommended in a previous calendar, and the crowns have ripened well, they will not derive further benefit from exposure to heavy rains. The main batch may remain plunged and exposed to the elements, but plants intended for starting within the next few weeks will be the better for the shelter of a cold pit. Where a regular supply of forced berries is needed, a Strawberry house should be provided, and if this house is ready the shelves may at once be filled with suitable varieties in the small pots. The temperature during the early stages of forcing need not exceed 40° to 45° by night and 50° by day. A good body of fermenting leaves cast in beneath the shelves, whilst giving out a continuous moisture and gentle warmth, will very often maintain these temperatures for a long time; but, free ventilation being desirable, the pipes, as a matter of course, must be warmed when absolutely necessary. Early morning in the first stages is the best time to apply fire heat, and also to water the plants and, if necessary, to syringe the foliage. Tepid water should be carefully and judiciously used for watering through the early stages. In gardens where there is no special Strawberry house the first batches of plants may be introduced to warmth when the early Peach houses and vineries are closed for forcing. Strawberries are undesirable occupants of fruit houses, and the plants and pots should be cleansed with great care. All loose surface soil, weeds and dead leaves should be removed, and the apertures of the pots opened to ensure the free passage of water. Top-dress the plants with a rich compost, and dip the plants and pots in sulphur water as a preventive measure against red spider and mildew. The foliage should be regularly moistened with the syringe, and the roots watered carefully through the early stages of growth.

THE FLOWER GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY
GIBBS, Aldenham House, Hertfordshire.

Roses.—The Rose is an accommodating plant that puts up with a deal of hardship, yet, when the soil for its accommodation is properly prepared, it certainly yields superior results that amply repay for the extra trouble. Light, sandy loams are better for a good dressing of cow or pig manure, which should be applied prior to trenching, so that when the trenching is done, the dung may be well worked into the soil, helping to bind the lighter particles together, and forming a more suitable medium of firmer texture for the plants to thrive in. Heavy soil should be lightened, as closely textured ground holds water to an extent that is not likely to prove suitable to the well-being of the Roses. Chalk and gravel soils require other treatment. A certain proportion of chalky matter in the soil is beneficial rather than otherwise to Roses, but an excess is a disadvantage, therefore in each of these instances it is as well, if beds of Roses are to be formed, to excavate the existing soil to a good depth, and replace this with a suitable soil mixture, especially in the case of gravel soil, as this is, as a rule, very deficient in plant food. After the preparation of the site comes the question of obtaining the plants, and here I would strongly emphasise the necessity of getting the best plants possible, that is from a reliable source, and of good constitution. Cheap Roses are not necessarily those of low price, but those which give proper results, for the poor, low-priced plant is likely to fade away where the higher-priced ones would thrive, and thus the latter eventually prove the cheaper. Order the plants early, for the rule "first come first served" also means that the early comer often gets the best choice. Finally, do not select varieties merely from notes made at shows, for show blooms are picked specimens that do not exhibit the sturdiness or otherwise of the variety. The grower should choose good, sturdy, free-flowering varieties that will make the garden a thing of beauty. When the plants arrive from the nurseryman, trim the damaged roots carefully, making the cut from the underside, and plant in a hole of sufficient width to permit the roots to be spread to their fullest extent, and do not plant too deeply. Work some of the finer soil around the rootlets, and make the roots firm in the ground, treading the latter well to ensure this. Stake standards carefully, protecting the soft bark of the plant by a small binding of soft cloth from rubbing by the stake or cutting from the string. When planting is completed mulch the surface of the bed with long stable litter. Never plant in frosty weather, and do not form the beds in a position where drip from overhead will reach the plants during wet weather. If the roots are dry when the plants arrive from the nursery, puddle them in a mixture of soil and water for a few days until the Roses can be planted out into their positions, or, as an alternative, bury the plants in fairly moist soil for a day or two, the latter being the best when the whole plant appears dry, as it prevents the growths shrivelling up.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir C. NALL-CAIN, Bart.,
The Node, Codicote, Welwyn, Hertfordshire.

Chrysanthemums.—As these plants pass out of flower the stems should be cut down to within six or eight inches of the pots and the plants arranged in a cool house, to furnish cuttings for propagation. I find it is advisable to spray the plants with Quassia extract or some other insecticide to keep the young shoots free from aphids, which is very partial to the young growths. Should mildew be present on the plants dust the young leaves with sulphur. To be successful in the rooting of *Chrysanthemum* cuttings the plants should be free from both these pests before any attempt is made to propagate them. Plants not yet in flower should be placed in a light position in a cool house and fed occasionally with weak liquid manure.

Propagating Chrysanthemums.—Certain varieties of *Chrysanthemums* that are grown to produce large flowers demand a long season of

growth, including Mrs. G. Drabble, W. Rigby, Queen Mary, and its sports, Majestic, and Mrs. J. Gibson. In their cases early propagation is necessary. The cuttings may be inserted singly in a small thumb pot or three may be inserted around the edge of a small 60-sized pot. After watering the cuttings with a fine rose can they should be stood in a propagating frame in a cool house. Many good varieties are very shy in producing cuttings, and it is a good plan, with these shy varieties, to shake the greater part of the soil from their roots and repot them in a light, open compost. The newly-potted plants should be grown in a house or frame having a temperature of 55°, when they will, in most cases, produce good strong shoots suitable for use as cuttings.

Begonias.—Begonias of the Gloire de Lorraine type that were allowed to bloom early are making a fine display. Another batch of the later plants may now be allowed to develop their blooms. Later batches of the varieties Optima, Ideale and Emita type should be allowed to develop their flowers, which should make a fine display towards the end of the present month. The plants should be grown in a temperature of 55° to 60°, admitting air in the forenoon whenever the weather is favourable. Continue to feed the plants lightly with a little concentrated fertiliser, which will greatly assist them to open their flowers at this dull season of the year.

HARDY FRUIT GARDEN.

By H. MARKHAM, Gardener to the EARL OF STRAFFORD
Wrotham Park, Barnet.

Bush Fruits.—Where there is not sufficient head room for standards, young, healthy bushes should be planted. These will, with due care and attention, quickly grow to a good, fruiting size and produce heavy crops of fruits. In many gardens both bushes and pyramids are planted along the sides of paths, taking up very little room and yielding good crops annually. They may be planted 6 feet to 8 feet in from the path and 12 feet asunder in the lines. If the soil is naturally drained very little need be done in the matter of preparing the site, but if the soil is waterlogged in winter it will need to be drained. Do not plant when the soil is in a wet condition. Apples, Pears, Plums and Cherries may all be grown in bush form in this way with excellent results.

Pruning.—In pruning young trees select the best placed shoots to form the foundation of the tree. Prune to an eye pointing from the centre of the tree and repeat this operation annually till the desired height is reached. The main branches should be at fairly wide and equal distances apart so that both light and air may reach the centre of the tree freely. Prune to within a couple of buds inner shoots that are not required for extension; those selected to form the main branches may be left about 12 inches in length, a little more or less according to the length and strength of the growth. Bush trees that were planted a few years ago, if making gross growth, should be lifted or root-pruned; this attention is especially necessary when the soil is rich and deep.

Plums.—Probably the most profitable system of training the Plum, and that which is commonly adopted, is in fan shape. In this way young shoots may be retained both for fruiting and filling gaps should any of the main branches die; young growths trained in at intervals usually produce excellent crops of large, clean fruits in two years. Spur back laterals that are not required for extension to within a couple of buds of the main branches and see that the ties and other fastenings do not injure the bark. Plums require an ample quantity of lime in the soil, a sweet root run and plenty of moisture at the roots during the summer when the trees are bearing heavily. Those intending to plant dessert varieties should not overlook the merits of Early Transparent, Jefferson's, Oullin's Golden Gage, Washington, Coe's Golden Drop and Comte d'Althaus's Gage.

ORCHID NOTES AND GLEANINGS.

CATTLEYA SNOWCAP.

A FINE flower of this beautiful cross between *C. Claesiana* alba (intermedia alba × *Loddigesii* alba) and *C. Saturn* var. alba (*O'Brieniana* alba × *Gaskelliana* alba) is sent by Messrs. Armstrong and Brown, Orchidhurst, Tunbridge Wells, who raised and flowered both the parents in 1916 and crossed them again with the object of securing improvement in white Cattleyas, an endeavour which, judging by the flower sent, has been successfully accomplished. This first flower is six inches across, the petals broadly ovate; the distinctly three-lobed lip has the highly developed side lobes turned back at the margins, the almost circular front lobe being slightly serrated. The whole flower is of the firm substance of *C. O'Brieniana* alba, the faintest suggestion of sulphur-yellow only appearing on the lip.

FOREIGN CORRESPONDENCE.

FORESTRY IN FRANCE.

WHAT France has lost by disafforestation was the subject of a spirited address delivered by M. Paul Descombes at the inaugural meeting of the recent annual gathering of the French Association for the Advancement of Science at Montpellier.

Before the Revolution, 27 per cent. of the soil of France was forest land. The abolition of vast estates and the passing of the land into the hands of the peasant class which followed the great upheaval of 1789-93, was, on the whole, a benefit to France. But it was fatal to the forests, which were ruthlessly cut down till they represented only 17 per cent. of France's area. In 1860 the matter was seriously studied by the Minister of Finance, and plans prepared for replanting on a large scale. But only about one-seventh of the pro-



FIG. 125.—*CYPripidium* GWEN DIXON, R.H.S. AWARD OF MERIT, NOV. 14 (SEE P. 302).

LAELIA DAYANA COERULEA.

MR. E. W. THOMPSON, gardener to Philip Smith, Esq., Haddon House, Ashton-on-Mersey, Manchester, sends a flower of the pretty blue-tinted *Laelia Dayana* coerulea, and also a very interesting flower of a variety of it raised from seeds obtained by fertilising the var. *coerulea* with its own pollen. The flower of the home-raised seedling closely resembles that of the parent plant, although not sufficiently developed to show the beauty which it will attain when fully matured.

The sepals and petals of the variety are pure white tinged with sky blue. The lip has the dark lines in the centre characteristic of the species, but Tyrian purple in colour, the same tint being shown on each side of the front lobe of the lip, the middle of which is white with blue margin.

It is an interesting case, proving that well-marked varieties may be perpetuated in this way, and other variations of the type produced by selfing.

gramme was executed. The wonderful work done in reclaiming the marshes of the Landes, now one vast forest of Pine trees and a centre of the resin and mine-prop timber trade, is familiar to all who know that part of the country. Less known, but also important, are the plantations in Sologne, the Dombes, and on the mountains, where the denuded slopes were (and too often still are) a source of continual catastrophes and devastation along the courses of their torrents. But the war of 1914-18 broke out ere much had been done, and once more the French woodland was impoverished for fuel, wooden huts, trench props, and even road-making. Had France kept her 27 per cent. of woodland, said M. Descombes, she could have utilised her water-power, and thus avoided the payment of immense sums abroad for the purchase of coal during the war. He estimates the loss caused by disafforestation at 50 milliards of francs, which represent £1,000,000,000 sterling at present exchange. F. Ashford White, 8 bis, Rue Joubert, Paris.

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MISS MALING ON FLOWERS.

IT was surely a sign of the times that in one year two books on cut flowers should have been published, especially when these were the first to discuss the subject. I have already made a few notes on Mr. March's book (in the issue for September 23, 1922), which, though published in the same year, 1862, must give place as to priority to Miss E. A. Maling's *Flowers for Ornament and Decoration and How to Arrange Them*, which appeared earlier in that year. Moreover, it had already seen the light in the pages of the first and second volumes of *The Journal of Horticulture*, in which the authoress wrote under the letters E. and E. A. M. She was the authoress of other books, one on song birds and two on plant growing, and besides her aviaries she had four plant cases and Wardian cases to attend to, as well as the experiments in bouquet making which she records, so that these domestic pursuits could have left her leisure for little else. Her flower-book extends to 142 pages in small 8vo, and was republished in 1867 along with two other of her writings as a *Handbook for Ladies*. It is perhaps worth noting that the chapters in *The Journal of Horticulture* are differently arranged from those in the book, and, more strange still, that the composition is considerably altered and never for the better, grammatically.

The flowers she employed were mostly different from those popular to-day. Camellias were the super-flowers. Of Roses there were de Meaux, Geant des Batailles, Maiden's Blush, Banksia, and a few others. Carnations, Pinks, Tulips, Hyacinths, Heaths, Azaleas and Pelargoniums, and others. There were also such things as Lobelia, Scilla, Thorn, Verbena in great variety, Lilac, Gloxinia, Calceolaria, Achimenes and Fuchsia, and here we get the correct spelling of the dainty Madame Cornelian Fuchsia. She fondly imagined that she treated flowers in a natural manner, and, indeed, provides very excellent maxims. But when she descends to the practical, or, as she terms it, the mechanical part, her talk is seen to be all sentiment; nothing, indeed, could be more inartistic and unnatural than the method she advises for the arrangement of flowers.

I think she must have been the very first to advise using flowers nearly stemless, a hint of which she obtained from a French bouquetière. Flowers were cut with half an inch of stem, and were prepared with a little wet cotton wool, fastened with a bit of wire, and attached to a "wooden stick" for a stem. Preparatory to the flowers being arranged, a light framework of wire was constructed, and covered with fine netting, through the meshes of which the sticks were thrust, and, if a bouquet, tied together underneath. There were various styles of making up. For one, in concentric rings, take

this as an example. The centre, a bunch of a pink flower, next a ring of white Lilies, then another ring of Rose de Meaux, a favourite flower at that period. The next ring, flowers in mixture, and the outer ring of blue Scillas, with an edge of Fern fronds and Lily leaves. Another example is one composed entirely of Verbenas in many colours. These to be shaped on cardboard in "points," and any flowers over high or that overlap to be trimmed level and to shape with a pair of scissors. Others were composed all of one colour, with a wreath of many colours superimposed, while the most desirable of all was that into which a monogram was worked, a very difficult style to succeed with in a bouquet; but, if in a vase you could fill it with sand and mark the letters thereupon, and quite easily carry out the scheme by sticking in the proper flowers in the proper places!

For a dinner table, since the Russian style came in, nothing was so excellent for a centre piece as a boy, or two boys, or even a girl in Parian supporting a flower receptacle, and a few small vases en suite. She had recently invented a coloured glass vase standing in a dish for holding fruit that she thought would please. A figure of this centrepiece is given as a coloured frontispiece.

For the decoration of drawing-rooms flat dishes were "charming ornaments," and even a soup plate was not to be despised, and these again were furnished in a manner that we, in our day, would esteem fantastic. And what will readers think of this: "For standing in the centres or corners of conservatories, for staircase windows, or for little ante-rooms, nothing can be more beautiful than an enormous sort of stand made of majolica, and lighted up in the most remarkable manner by a ring of Auriculas or Daisies set closely round the edge. One tall flower in the centre place, with low growing flowers all round, with a bed of Moss would be truly beautiful." In recesses and for window niches it is recommended to place such flowers as Lilies, Irises, Hyacinths and Narcissi, and also Gladioli in bottles of water tricked out with Moss to hide the receptacles. But of all the things she recommends, "Floral Pavements" are the most curious. The idea originated in Italian church decorations. For England they would be suitable for village feasts, "gay weddings in little country places," and "little conservatories—not intended to be walked in." The patterns are numerous: A mere tile pattern, a tessellated pavement, coats of arms, etc. "The Lily is a most lovely pattern," the Union Jack would seldom come amiss, and the Red-cross banner of St. George would be always welcomed." And she concludes: "It really seems surprising that such a decoration should have remained so long untried." Very complete directions are given how these pavements were to be composed.

Miss Maling, with all these vagaries, had, however, very good ideas. She thought Water Lilies floating in water to be the proper way to use these, and the remarks on colours and on preserving flowers are correct. And, indeed, a manual published 35 years ago, subsequently perused to-day along with Miss Maling's, reads far more extravagant in its methods, and the accessories recommended. Long lists of varieties of then popular flowers are given, and she mentions an "exquisite pale rose-coloured Carnation" which bloomed "almost continuously from July to February," and The Bride as being as strongly Clove-scented as the old red Clove. To conclude, Miss Maling wrote for the middle-class lady, in this differing from Mr. March, who was an official in one of the royal palaces, and viewed floral decorations from a somewhat different standpoint.

It cannot be disputed that immense strides have been made in the arrangement of floral decorations since the times of Miss Maling and Mr. March, yet, whilst their work would appear to be stiff and ungainly compared with the light and artistic methods employed nowadays, they were pioneers in the art, and we owe a great debt to them, for we have been enabled to use their work as a foundation on which to evolve something more graceful and pleasing in the arrangement of flowers. R. P. Brotherton.

TREES AND SHRUBS.

THE BEST FRUITING THORNS.

UNLIKE many trees and shrubs which are gay with autumn fruits in favourable seasons, the Thorns or Crataegus produce abundant crops of fruits most years. When it is remembered that considerably more than one thousand species have been described, chiefly natives of Eastern and Central North America, it is not an easy matter to select the best dozen distinct Crataegus to plant as specimen lawn and pleasure ground trees. Thorns thrive in most soils and positions and are readily raised from seeds. Trained with a single stem, they form attractive, round-headed specimen trees 15 to 20 feet or more in height.

First on the list I should place the Oriental Thorn, *C. orientalis* (Fig. 126), with rich, light red, globose fruits $\frac{3}{4}$ inch in diameter. It was first introduced in 1810, and there are quite a number of good specimens in several London parks and gardens. *C. mollis*, the Red Haw, with fruits up to one inch in diameter, is a wonderful sight in autumn, the branches thick with brilliant red fruits. *C. Carrierei* is a hybrid Thorn of doubtful origin. It is particularly valuable because the large, globose, orange-red fruits hang on the tree far into the new year. Being a hybrid, this Thorn must be increased by grafting. The Washington Thorn, *C. cordata*, with its quantities of small scarlet fruits, is suggestive of *Pyracantha coccinea*. It is one of the latest Thorns to flower, and one of the last to provide food for the birds, long past Christmas. *C. succulenta* is very conspicuous, with quantities of globose, bright red fruits $\frac{1}{2}$ to $\frac{3}{4}$ inch wide.

C. Oxyacantha var. *Gireoudii* (Fig. 127), a form of the Hawthorn or May, is notable because the younger leaves are streaked with white and pink in summer. No Thorn, however, surpasses it in the regularity and quantity of dark-red fruits produced on the small, wide-spreading trees. *C. macrantha* is a wonderful sight in November, with its giant thorns protruding among the hosts of dark red fruits. *C. Crus-galli*, the Cockspur Thorn, and *C. prunifolia* have points in common as ornamental trees. In some seasons one is better than the other, but if space can be found, both ought to be grown, though it is not easy to put both in a list of the best twelve.

C. elongata is one of the best and most distinct of the newer American Thorns, with scarlet roundish oval fruits fully an inch long. In habit the tree is open and wide-spreading, the fruits hanging later than on many other species. *C. coccinea*, the Scarlet Haw, is said to be the first North American Thorn introduced to Britain, 1683 being the reputed date. It produces an abundance of brilliant red, globose fruits, $\frac{1}{2}$ inch or rather more in diameter. *C. arkansana* promises to be one of the most distinct of the newer American Thorns, the large red fruits being among the first to colour in autumn. A. O.

CORNUS KOUSA VAR. CHINENSIS.

AMONG the many new trees and shrubs introduced to our gardens from China by Mr. E. H. Wilson, this bush or small tree, in flower or fruit, attracts everyone by its distinctive beauty. I should place it among the best six of Mr. Wilson's introductions.

C. Kousa is a widely distributed shrub or small tree in North-East Asia and shows considerable variation. Of those in cultivation from Central China, Corea and Japan, by far the best form is No. 223, Wilson, introduced from W. Hupeh in 1907 and named var. *chinensis*. This is a bush or small tree up to 20 feet high with a wide, spreading top. The flowers are inconspicuous, being closely crowded in a small cushion-like mass three-quarters to one inch across. The beauty lies in the four creamy-white bracts surrounding the head of flowers, which are $\frac{3}{4}$ inches across. Lasting for fully two months (May and June), the bracts change with age from white to a pink flush. In autumn the bushes attract very considerable attention when carrying a good crop of the long-stalked red, Strawberry-like fruits $1\frac{1}{2}$ inch across.

We have long envied the comparatively few counties where the Strawberry Cornel, *Cornus capitata* (syn. *Benthimia fragifera*) thrives. In the subject of this note we have a most promising and attractive substitute.

Propagation so far has been by layering and cuttings, but now that fruits have ripened with apparently good seeds embedded in the fleshy portion, increase should be more rapid. A. O.

SEEDSMEN'S CATALOGUES.*

In the short time at my disposal I do not intend to go into the origin and growth of the seedsmen's catalogues, though that, doubtless, has interest, but rather will deal with the latest development of the same, especially in respect to the Potato trade.

My first approach to the subject had a curiously upsetting effect. I had studied several of the illustrated catalogues of some of our most famous houses, when it suddenly

For this is just the crop which is to be inferred from many of our contemporary catalogues, and it is no wonder that not only the king's daughter, but her parents too, are led to visit the resplendent nurseries where such wonders are.

But my object in studying catalogues was not primarily literary. I had often spent a happy hour looking over the numerous catalogues which nurserymen so kindly sent me for my enjoyment and edification. Often have I replanned my garden in my imagination, planting it with all the latest glories of the seedsman's art, that it was almost with a feeling akin to sacrilege that it occurred to me to make a study of these same delightful catalogues with the cold, prosaic object of discovering whether the promise given in the descriptions approximated at all closely with the final product one grew. With that end in view, I have confined my attention wholly to the question of Potatoes, a subject to which I have devoted 17 years of close study and research.

manifold synonyms, duplicate prices, and self-laudation with which they have disfigured those sections of their catalogues devoted to the Potato—and after the funeral we will turn to and praise.

I dare say some of my audience will be astonished at the somewhat sweeping accusations implied in this statement. But I will soon show you that I am not overstating the facts. Let us first deal with the question of synonyms. Of all the catalogues examined, only one entirely avoids classing the same variety under two or more different names. Indeed, this catalogue carefully points out the synonymy of such varieties as Duke of York and Midlothian Early, Eclipse and Sir John Llewelyn. With this exception, every single catalogue falls into this pit. Indeed, it is a problem of psychological interest, for 19 out of 20 of the firms know perfectly well that Duke of York and Midlothian Early are one variety, as Eclipse and Sir John Llewelyn are another, and yet, year in, year out, firms of



FIG. 126.—FRUITING BRANCHLET OF CRATAEGUS ORIENTALIS.

dawned upon me that I was on the verge of making a great discovery. From the days of youth till now I have been interested in the origin of nursery rhymes and tales, and lo! here, staring me in the face, were the origins of some half-dozen of the most famous. Surely the key to the problem was that they were not nursery rhymes, but rhymes of the nursery-man! For no author would ever have conceived the mighty Beanstalk of the hero Jack, had he not received the notion from a study of seedsmen's catalogues, where one Bean out-vies the other in its efforts to reach high heaven.

Who could have conceived of a coach being evolved from a Pumpkin if he had not really intended to introduce the fact that just such a prodigious Pumpkin was pictured in his catalogue.

If my subsequent studies somewhat damped my first enthusiasm for literary discovery, they did at least lead me to see the deep meaning attached to that earliest of nursery ditties:

"I had a little Nut tree,
Nothing it would bear
But a silver Nutmeg
And a golden Pear."

*A paper read at the Potato Conference, Ormskirk, Nov. 2, 1922, by Redcliffe N. Salaman, M.A., M.D.

Entirely uninterested as I am financially in the Potato trade, I should not even now venture to place before you the results of this review of the annual catalogues, were it not for the fact that I have a very great regard for many of those who are leaders in the trade, and feel sure that it is only necessary to point out the disquieting state of affairs that I shall describe for an improvement to follow. Although I have studied series of catalogues reaching back to 1864, I intend to limit myself to those English, Scotch, and Irish catalogues issued in the years 1921 and 1922, of which I have carefully examined 30 examples. I would say at once that the general appearance and get-up, the illustrations and the paper have all improved beyond recognition when compared with the catalogues of even 20 years ago. It was also with no small satisfaction that one observed how greatly the English catalogues surpassed in these respects their French, German, Dutch, or Japanese competitors.

But I came here to "bury Cæsar, not to praise him"—to point out certain glaring faults which disfigure our seedsmen's catalogues, to induce my friends in the trade to root out the evil and bury in one grave the whole pompous collection of false descriptions,

the highest standing, whose catalogues are otherwise unexceptionable, are guilty of this solecism. I presume it is in answer to some subtle demand on the part of the public, which objects to its cherished convictions being flouted. Yet, even so, it is hardly necessary to go to the length of describing the Duke of York as a "forcing variety" and Midlothian Early as just an "early," or reversing the process, as one dealer does, and describe Midlothian Early as a "1st early" and Duke of York as "2nd early or main crop." If we allow the inclusion of the synonyms of these two varieties to pass as a sop to public sentiment, it must not be thought that extenuating circumstances can be pleaded for a further synonym of these varieties. There is really no room for Eclipse, Sir John Llewelyn, and First Crop in any catalogue, no matter how distinguished the firm that issues it. However, I find there are only three of the remaining 29 catalogues which include no further examples. Indeed, the remainder may be classed into a small group, which, in addition to the Duke of York—Midlothian Early and Eclipse—Sir John Llewelyn synonyms, only bow the knee to what would seem to be the very god Rimmon of the Potato trade. I speak, of course, of Up-to-Date. Our most representative firms

insist on listing Factor as if it were a distinct variety, and attach to each separate and startlingly attractive descriptions. The larger group contains those who are not content with the venial errors of synonymy, but rather seem to pride themselves in listing the same variety under the greatest possible number of names. Let me give a few examples. In one catalogue, out of 20 main crop varieties under different names, no fewer than 6 are Up-to-Date. But let no one think that Up-to-Date is the only victim. Potato dealers have catholic principles, and there is no variety worth growing which some dealer, more enterprising than accurate, will not dub with an attractive name and send out as a new variety with a fascinating description and an enhanced price.

To take only a few cases: Sharpe's Express masquerades under the name of Early Bird and Perfection. British Queen, as befits a Queen of Britain, has endless titles, such as Royalty, Beauty of Essex, Colleen and Mainstay. Abundance has, as one might expect, and as its virtues indeed command, an abundance of counterfeits, such as Bloomfield, Kerr's White, Cudlers Castle, Bountiful, Crofter, Colossal Beauty; whilst one dealer introduces Abundance under the name of White Rose, dilating on the novelty of his discovery. But when we turn to Up-to-Date, the names under which this splendid variety is presented to the public by the trade are legion. The Scotch Board of Agriculture, I believe, has discovered no fewer than 150 such synonyms, and there are at least another 50 whose appearance on the market has only been hindered by the good offices of the Synonym Committee at Ormskirk. The extent to which this deplorable practice is prevalent may be gauged by the fact that in one catalogue there are 3 synonym varieties amongst the earlies, and no fewer than 6 in the main crops, all of which latter are Up-to-Date; whilst in another, out of 13 first earlies 4 are synonyms; of the 11 second earlies 3 are synonyms; out of the 20 main crops 7 are synonyms, of which 5 are Up-to-Date. These are, perhaps, extreme cases, but I have already stated that, if one excludes the Duke of York and Eclipse synonyms, there are still 26 out of 30 catalogues which contain a greater or less number of palpable pretenders to their assumed titles.

There is another and still less pleasant aspect of this subject to which I must allude. It might be thought that, as "a Rose by any other name would smell as sweet," it does not matter whether the public buy their Up-to-Date under the name of Factor or Duchess of Cornwall, or their Abundance, let us say, as Bloomfield. They will get the variety they want and the crop they deserve. True! But what about the season to which the synonym is ascribed and the price which is demanded for it? A few examples will suffice to show the position which has been allowed to grow up.

In one catalogue, Duke of York is described as 2nd early, and its synonym, Midlothian Early, as an early. In another, Duke of York is described as a forcing variety, and its synonym, Midlothian Early, as an early. In another we find Eclipse described as an early, and its synonym, Sir John Llewelyn, as a 2nd early. And in a further case we find Duke of York described as an early, and its synonym, Success, as a main crop. And, finally, Up-to-Date is described as a main crop, and its synonym, Lord of the Isles, as a 2nd early.

We find the same misleading statements made in respect to such innate characters of a variety as its immunity to disease. Thus one catalogue describes Factor as being "like Up-to-Date, but more robust and much less prone to disease." Another states that Dalmen Hero, which is Up-to-Date, is "an excellent Potato from every point of view," and that Duchess of Cornwall, which is likewise Up-to-Date, "is a grand cropper and free from disease," and a third describes Duke of York as a "first early and still a first favourite," whilst its *alter ego*, Midlothian Early, is a "great disease resister."

It is, however, when one turns to the question of prices asked for these false varieties that one grasps the full inwardness of the whole thing. Let me give some

examples. In one and the same catalogue we find Duke of York at 3s. 6d. per 7 lb., and its synonym Midlothian Early at 3s. per 7 lb.; in another, Eclipse at 6s. per bushel, and its synonym Sir John Llewelyn at 8s. per bushel. Good examples are Queen Mary at 2s. 8d. per 7 lb., and its synonym Royal Kidney at 2s. 3d. per 7 lb.; British Queen at 2s. 3d. per 7 lb.; and its synonym Beauty of Essex at 2s. 6d. per 7 lb. Again, Up-to-Date at 2s. 6d. per 7 lb., and its synonym Factor at 2s. per 7 lb.; in another, Up-to-Date at 9s. per bushel, and its synonym Factor at 11s. per bushel. But perhaps the best example is Up-to-Date at 2s. 8d. per 14 lb., and its synonym Sensation at 3s. 6d. per 14 lb., a difference of £6 13s. per ton, indeed a sensational sum even for so masterful a brain effort!

It would be as easy as it would be unpleasant to extend this list, but I feel I have done enough to show how serious is the condition of affairs.

I will only briefly refer to one other matter—the rather blatant "puffs" which several seedsmen give to their new varieties—puffs which are as strident when describing an old variety they have "lifted" and rechristened, as of a really new but all untried one. But a study of catalogues of past years would be found, I think, to have a sobering effect in this respect. As one turns over the pages of these records of the new varieties of the last generation, one realises how few of them have stood the test of time, for in these records one meets examples both of the genuine new variety, which, like a timid debutante, blushing takes its place in the thronged mass of its competing sisters, conscious of its quality and birth, and of that other type which, with storm and bluster, elbows its way into notoriety, conscious, indeed, of its quality—for has it not been stolen?—but which smotherers its illegitimate origin by some high-sounding title. Yet both alike have their short day and pass into oblivion. Have we already forgotten the days of the Potato boom, when the public were robbed of their hundreds of thousands of pounds by the boosting of a bad stock of Evergood and calling it Eldorado? However great the use may be of advertisement, Shakespeare knew best when he said, "Sweet are the uses of adversity!"

Of course, it may be argued, the question is very largely a matter of taste, and there I would gladly leave it, were it not essential to point out that real scientific cropping and maturity tests have in this country only been applied to the Potato during the last year or two, and that none of these new varieties have been put through the mill, and many would give but a sorry account of themselves if they were.

Before very long the report on the trials instituted at Ormskirk will be published, but, as I have myself had some considerable experience in this direction, I can assure you that it is no easy matter to determine whether any given variety is earlier or more prolific than any given standard one. Yet in our catalogues it would appear to be the simplest of matters.

I fear I have trespassed somewhat severely on your patience, but I rely on the sound common sense of the trade to realise that the state of affairs which I have discussed is, to use not too severe a term, a scandal, and one which no great self-respecting trade of national import, such as is that of our Potato seedsmen, can long endure in these days. Indeed, I much doubt whether in any other trade such unblushing misdescription of the goods offered to an unsuspecting public has been suffered to continue so long.

In respect to synonyms amongst those varieties sent for trial to Ormskirk, the reports which the Synonym Committee of the National Institute of Agricultural Botany have published have brought about a rapid and welcome amelioration. This Committee, of which I have the honour to be chairman, is composed for the most part of members of the Potato trade. I am convinced that, if the trade can assert itself, as it has already done at Ormskirk, in regard to one aspect of the evil, it surely can and will assert itself

in the matter of synonyms and false descriptions with which the catalogues of so many of its members are disfigured. I have, perhaps, spoken more openly and directly than some will care for, but it matters not if by so doing I have awakened the trade to the existence of an evil unworthy of the high standards of the English seed trade in general.

GARDEN NOTES FROM S.W. SCOTLAND.

THE immense and yearly increasing multitude of beautiful shrubs from among which every owner of a private garden, even the most extensive, has to make a selection, renders it more and more necessary to choose none of indifferent merit. Judged from a decorative point of view, Corokia Cotoneaster, a bizarre member of the Cornel family, was hardly worth bringing from New Zealand nearly fifty years ago; the proper place for it is a botanic garden. But Corokia virgata, a more recent introduction, is a very different proposition. It came here a few years ago under the name of *C. buddleioides*, another New Zealand species; but I fancy it is the plant which Cheeseman collected at Spirits Bay in the North Island, and which he mentions in his *Flora*, of 1906, as likely to prove a new species. Here, it is already 6 feet high, of erect habit. The leaves, dark olive green and glabrous above, are clothed with white tomentum below, as is also the young growth, contrasting with the black, older wood. It is a pretty object in spring, when thickly set with yellow, starry flowers, to be followed, in ordinary seasons, by yellow berries. In the present ungenial season, no fruit has matured. Long after November gales have despoiled the Rowan and Gean of their splendour, the Caucasian *Zelkova crenata* (still known sometimes as *Planera Richardii*) remains conspicuous in its ample autumn mantle of rich gold. It is a pity that this tree is not more commonly planted for effect in the fall. The foliage remains green till the very end of October, when it changes quickly and lasts in splendour for a full month. *Nothofagus obliqua*, the Roble Beech from Chile, is also valuable for late display. A seedling between 2 and 3 feet high was sent here from Kew in 1906 to test its hardiness. It is now 40 feet high, of very graceful habit, and has never suffered from spring frost, although it comes into leaf a fortnight before the European Beech.

The sunless summer which we have had to put up with this year has caused the Pampas Grass (*Cortaderia argentea*) to be very late in flowering. Only now—in mid-November—is it pushing forth its snowy plumes, which are bound to meet with rude buffeting in these shortening days. A native of Brazil, although perfectly hardy and of vigorous growth on our west coast, it needs more sun-heat than we can provide to bring it forward, and I strongly recommend the New Zealand Silvery Reed-grass (*Cortaderia conspicua*) as much better adapted for northern gardens. This plant, usually known as *Arundo conspicua*, does not produce the mountainous tussocks of foliage that distinguish Pampas Grass, but makes a handsome sheaf of bending leaves, a suitable setting for the arching wands—8 to 10 feet long—that bear the noble heads of silky-white flowers. One cannot pronounce one of these great grasses to be handsomer than the other, but the New Zealand species comes into flower far earlier than the Pampas Grass, and lasts longer in beauty. It began the display this year in August, and the waving plumes are still untarnished.

Last August, when noticing in the *Gard. Chron.* the beauty of *Dierama* (*Sparaxis*) *pulcherrimum*, I offered to send seeds thereof to anyone who cared to send a stamped directed envelope. I have a large bundle of envelopes sent in response to that notice, but I regret to say it is very doubtful whether I shall be able to fulfil the undertaking. Owing to the extraordinary cold of last summer, and the consequent lateness of the season, a very poor crop of seed has formed. What there is, is not yet ripe, nor does it seem likely that it will ever ripen properly. However, correspondents may be sure that I will do my best. *Herbert Maxwell, Monreith.*

THE CARE OF LAWNS.

ONE of the principal aids to the general attractiveness of the flower garden and shrubbery is a well-kept lawn. The perfect lawn should consist of fine grasses, be dense, uniform, elastic, evergreen and free from extraneous vegetation. It is easier to appreciate such perfection than to attain it, particularly on the light, hungry soils of this part of Surrey. Nevertheless, even under the most adverse conditions the best results may be obtained if the treatment is conducted on the right lines. Patience is, however, essential, as it is impossible in one year to convert a bad lawn into a good one.

The causes of failure with lawns are not far to seek. Instead of being, as in the case of the vegetable and flower gardens, continually enriched by the addition of manure, fertilisers and decayed vegetation, the lawn is constantly impoverished by the removal of the mowings, and frequently no manure is added. It must be borne in mind also that the grasses are not able to store food reserves in their root systems and consequently suffer much more quickly from impoverishment of the soil than many of the tap-rooted weeds. Hence a secondary result of the deterioration of a lawn is the appearance of a more vigorous type of unwanted vegetation. These intruders, it is true, give the lawn a luxurious greenness at certain seasons, but they crowd out the finer grasses and are finally the cause of unsightly, bare patches. Such vegetation, however, would have little chance of establishing itself in a lawn where the grass is kept in a robust and healthy condition.

Another matter deserves special mention. One of the principal causes of failure to obtain or maintain a good lawn is deficiency of humus. This applies especially to the light, sandy soils of this neighbourhood. One cannot, in this locality at least, maintain a lawn in a state of perfection simply by feeding, even generously with artificial fertilisers. Humus is continually removed by the process previously described, and it is, therefore, essential to replenish it frequently. These remarks would have less force in the case of a deep, rich loam.

It is thus obviously desirable when preparing for a fresh lawn to incorporate into the soil as much organic manure as possible. This may be in the form of farmyard manure, if available, but that derived from decaying vegetable matter from the compost heap is equally good. In the case of existing lawns similar material is very suitable, but as it must be given in the form of a top dressing it is essential that it should be well-decayed, free from weed seeds and stones, and in a fine state of division. Due thought must be given beforehand to the preparation of this material. In the winter all available leaves should be collected and stacked in the open, taking care that no seeding material is included in the heap. In the following year this partly-decayed material may be mixed with an equal quantity of lawn mowings as these become available and a sprinkling of finely-ground limestone added. By this means a heap of ideal compost equal to the famous *terreau* of French gardens becomes available, and if one wishes to use artificial fertilisers, such as kainit or bonemeal, these may be incorporated with the heap and the whole applied in one dressing.

The best time to apply this material is in the autumn, as soon as mowing becomes no longer necessary. All intruding weeds should, so far as possible, be removed; the lawn should then be thoroughly prodded with a spiked turf-maul, and the top dressing be swept into the holes where it becomes immediately available to the roots. This top dressing should be given at least once annually and very weak places may be encouraged by being given a further dressing during the growing season, if the operation is carefully carried out.

Lawns treated in this way respond much more readily to the application of nitrogenous or other stimulating manures during the summer and resist drought much longer than those not so treated. W. Auton, *Purford Court Gardens, Woking.*

GREENWICH PARK.

By far the most important lung of South London, Greenwich Park, may rightly claim supremacy for the wealth and variety of its flora, the magnificence of its trees, its areas of undulating grassland, its unique collection of shrubs; but, most of all, for that sequestered corner which can boast, in the truest sense, the name of the flower garden.

The latter garden is so enclosed by the judicious planting of tree and shrub, that once in it, one finds it difficult to realise that it is only a mile or two from London Bridge. Its shape is something of an irregular triangle, and its area about 4 or 5 acres. The arrangement of the place is simple, yet artistic; a long, curving border running from one end to the other on the south side, a very wide herbaceous border on the west, while on the other side are borders which are used to display the merits of one species of plant alone, and the effect of this can only be judged by those who watch the development of the several subjects used through the whole summer.



FIG. 127.—*CRATAEGUS OXYACANTHA GIREOUDII* (SEE P. 310).

The lawn of splendid turf, which fills practically the whole of the area between these borders, is devoid of any gravel paths, and is broken up only by the formation of large, oval, or circular beds, and some of the slower-growing Conifers, planted in twos and threes, which are tall enough to afford shade from sun and shelter from the wind. The beds are large, but do not appear so when viewed from a distance, as the whole garden has been kept well in proportion; but the size allows the garden artist to provide noble examples of summer bedding effects. One pleasing combination this season was *Pentstemon Lady Mary Hope*, with *Gladiolus White Giant*, and another of *Lilium tigrinum Fortunei*, and *Verbena venosa*, edged with *Centaurea*.

A bed of *Dahlia Moorcap*, with its dark foliage and deep crimson flowers, was a very striking object this autumn. Another bed, which the whole summer has been very bright, was filled with plants, about 3 feet high, of *Fuchsia Ballet Girl*, *Abutilon Thompsonii*, and a groundwork of single *Begonias*, *Alyssum*, and *Cineraria maritima*: whilst a companion bed was furnished with *Begonia fulgens* associated with *Leucophyton Brownii*.

In the long border, equally charming associations were obtained, many being original, and both the plants and the way in which they were looked after spoke volumes for those responsible.

Here was seen *Trachelium coeruleum* in com-

pany with *Lantana delicatissima*; *Lilium auratum* and *L. speciosum*, with *Fuchsia Amy Lye*, and the golden-leaved *Fuchsia*; *Leucophyton Brownii* and *Verbena Ethereal*; *Kochia* and *Celosia*; *Fuchsia gracilis* and *Begonia semperflorens*; *Salpiglossis*, blue and gold, and golden; *Godetia*, *Lavender* and *Gladiolus primulinus*. A border filled with *Antirrhinums* has been a blaze of colour the whole summer, and was charming even late in the autumn. During July a very fine display of *Delphiniums* filled another border, every plant being a specimen of good culture; all the very best varieties were used, which, as they were labelled very distinctly, proved a boon to the visitor, and, incidentally, to the trade. The border of *Dahlias*, too, may claim to have excelled anything attempted with them before. The use of all sections of the *Dahlia* in filling the border must have been a matter of difficulty, but it has been quite a success, some of the smaller pompons being literally covered with flowers.

Every credit is due to the Superintendent, Mr. Campbell, for maintaining the high standard of excellence set in Greenwich Park during the past ten or twelve years. J. S. D.

AMERICAN NOTES.

THE DOUBLE SAPONARIA.

THE note on the Double *Saponaria*, on page 149, interested me. I cannot recall ever growing this plant or even seeing it in any garden I visited in England, although I believe it is a native of some parts of Great Britain.

I was somewhat surprised to observe on the New Jersey railroad banks, which are mostly composed of ashes, great masses of pale pink double flowers the first summer I was here. For a time I was puzzled, until one day I observed among the Brambles and weeds near my garden a plant bearing the same flowers. It proved to be *Saponaria officinalis*, fl. pl., and I have not seen any but this one plant here except the great masses along the railroad tracks. Oddly, too, these latter are all double; the single form I have not noticed, and, according to some, the single is much less common than the double. I am planting this weed: and I have other American weeds in my garden, including that gorgeous Butterfly Weed, *Asclepias tuberosa*. I have even a seedling batch of the commoner Milk Weed. Of these there are a multitude of forms, including some of most exquisite pink shades. I have also several forms of *Asters*, apart from some named English varieties. T. A. W., *New Jersey*.

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

An Unusual Crop of Strawberries.—The recent frosts have brought to an end a rather unusual little crop of Strawberries in my garden. Because I think the foliage is so beautiful I planted in a rocky near the house a few roots of the ordinary red wild Strawberry obtained from the woody part of our grounds. The plants established themselves but did not flower or fruit in the early summer. This September they began to fruit, and through the whole of September and to near the end of October they have been bearing berries twice or three times the size of those of the wild plant and ripening not red, nor even pink, but quite white fruit, that was perfectly sweet and juicy and of delicious flavour. I do not know whether this is of any particular interest, or is merely the result of the very overcast rainy weather of the year; but it must be, I think, quite unusual to have Strawberry plants only yielding their crop in September and October. *Marie C. Stopes, Givons Grove, Leatherhead, Surrey.*

Wasps (see p. 286).—I have taken a special interest in wasps for nearly fifty years and find there is a lot to learn about them. Individual experiences are well worth recording. This year, up to the end of May, the weather evidently was suitable to wasps, for I do not remember queens being more numerous. From June onwards cold, wet weather prevailed, with the result that hardly a wasp was to be seen. The weather of 1920 was similar, with nearly the same result. The summer of 1921 was so dry and hot as to constitute a record, and wasps were extremely plentiful. It is puzzling that, following a scarcity of wasps, they should be very plentiful the succeeding year, and this has occurred more than once. We know that from a single nest many hundred queens are distributed, yet evidently very few survive, or, in a few years, there would be legions of wasps. Fortunately natural checks balance such an evil. I find similar checks in the case of *Tortrix viridiana*. Previous to 1920 Oaks were defoliated by this destructive caterpillar. The summer of 1920 was very wet and to that I attribute the scarcity of the *Tortrix*, for although 1921 was favourable to the pest, few survived from the previous year. The wet summer this year again proved a great check to it so that we have such an abundance of acorns as has not occurred for five seasons previously. The above remarks refer to Stonerwood Park and its neighbourhood. *G. Abbey, late of Stonerwood Park, Petersfield, Hampshire.*

White Fly.—The following method, which I have adopted and found very successful in dealing with White Fly, may be of interest to readers of the *Gard. Chron.* I select a dull morning and fumigate the house early, using an ordinary cup and lamp fumigator and X.L. All nicotine fumigant; afterwards, as soon as it is possible to enter the house, I spray the plants, the tops of the pots and stagings with X.L. All nicotine liquid spray, using a fine nozzle sprayer. The spray should be used as hot as is possible without causing injury to the plants, also at a strength which is recommended for killing red spider. I find that, if this is done on three occasions, allowing a fortnight to elapse between each application, there is very little trouble with White Fly afterwards. There was a very bad attack of the pest in these gardens during the latter end of 1920, and I tried several so-called remedies, but by the early part of 1921 the warmer houses were crowded with the fly. I fumigated and sprayed the houses on four occasions during February and March of that year, at intervals of a fortnight, and I am very pleased to state that I have now no trouble in keeping the pest under control. I have only had to spray twice since then, and our houses and plants are at present quite clear of this tiny but very persistent pest. *W. Parry, Auchentorlie Gardens, Bowling, Dumbarton-shire.*

SOCIETIES.

NATIONAL CHRYSANTHEMUM.

NOVEMBER 16 and 17.—This old-established Society was fortunate in holding its exhibition at a comparatively late date, as Chrysanthemums are about ten or fourteen days later than in a more normal season. As a consequence, the Royal Horticultural Hall was filled to its utmost limit with exhibits of wonderfully high quality. There were nearly two hundred separate exhibits. Even in some of the most difficult classes, such as the one for twelve vases of Japanese blooms, three blooms in a vase, the competition was so keen that many very fine displays failed to secure a prize. Many judges fully competent to express an opinion agreed that for size and quality the blooms shown on this occasion set a new standard of excellence, and there was also a consensus of opinion that no finer show of Chrysanthemums had ever been seen. All classes of the flower were represented, but Japanese and Single sorts predominated. In addition to the competitive exhibits, there were very good trade displays, these filling the whole of the space next the wall all round the hall, and the finest exhibit was the magnificent one from Mr. H. J. JONES, who, through it, added two more gold medals to the eight he had previously won this season. It was estimated that there were 15,000 blooms in the hall, but we imagine this did not include the small single and decorative blooms shown so largely by the trade.

In spite of the fog, the attendance was large, and from 2 p.m. to 4.30 p.m. on the opening day the hall was crowded with Fellows of the Royal Horticultural Society (admitted free), members of the N.C.S., and visitors.

The number of novelties brought before the Floral Committee at its meeting during the morning of November 16 was forty-eight, a number which demonstrates the activity of raisers, and also suggests that private and market growers are keenly on the look-out for new and meritorious varieties. We congratulate the N.C.S. upon its highly successful show.

AWARDS.

FIRST-CLASS CERTIFICATES.

Nero. A Japanese variety, II.1.b, of rich crimson colour, suitable for market. It is of fine reflexing form and most effective. Shown by Mr. H. SHOESMITH.

Wellington Wack. A charming decorative variety of great grace and beauty. Although of Japanese form, II.1.b, the florets are comparatively narrow, firm, but not stiff, and the colour is clear Primrose yellow. Shown by Mr. L. JONES.

Mrs. R. Harris. A lovely big single variety, V.2.a, of excellent form. The broad florets are of a pleasing shade of light yellow. Shown by Mr. WALTER JINKS.

November Cheer. For its rich rose pink colour and its neat, loosely incurving flowers this is of great value for decorating in November. It belongs to section II.1.b, and was shown by Messrs. WELLS AND Co., Merstham.

Hilda Shoebridge. This is an elegant large-flowered single variety, V.2.a. The ends of the broad florets are bluntly pointed and droop a little, thus giving grace to the blooms. The colour is soft silvery pink. Shown by Mr. J. SHOEBRIDGE.

Floria. A strong-growing single variety (V.2.a), with heavy, dark foliage. The flowers are of good size and fair form and deep pink colour. Shown by the BRIDGWATER NURSERIES.

Sunset. A showy single variety, with pointed florets of a clear light amber colour. The flowers of medium size and form (V.2.a). Shown by the BRIDGWATER NURSERIES.

Absolute. One of the handsomest of single varieties, the flowers being broad-petalled, of good form, and glowing bronze red colour, with yellow bases to the florets (V.2.a.). Shown by the BRIDGWATER NURSERIES.

Poulton's Climax. A big yet graceful Japanese variety, with narrow, slightly curling and drooping florets. It is a refined addition

to the white section. Shown by Mr. H. POULTON, Pipbrook, Dorking.

Radiant. A handsome reflexing Japanese variety, II.1.b, that is of great decorative value and very promising for market use. The colour is a rosy shade of terra-cotta. Shown by BARON SCHRÖDER (gr. Mr. Henderson), The Dell, Egham.

Crimson Perfection. A decorative variety of much merit. It is of pleasing reflexing Japanese form and of rich velvety crimson colour. The blooms are of medium size, II.1.b, and carried on good stems. Shown by BARON SCHRÖDER.

OPEN CLASSES.

The William Wells Memorial Class, which is open to competition amongst amateurs, attracts a great deal of attention—and the present occasion was no exception to the rule. The many vases of three blooms of the largest exhibition size and highest quality made a most impressive display. The best twelve vases were shown by Mr. E. H. PEARCE, Lord Wandsworth Agricultural College, Long Sutton, and this was a superb collection of such sorts as Majestic, Sir E. Letchworth, Wm. Rigby, Mrs. R. C. Pelling, A. F. Tofield, Helena Margerison, and Mrs. Gilbert Drabble. Capt. R. B. BRASSEY (gr. Mr. J. G. Quinn), Cottesbrooke Hall, Northampton, won second prize, and his best vases were of His Majesty, Mrs. Geo. Monro, Majestic, Golden Champion, and Princess Mary. Baron SCHRÖDER (gr. Mr. E. J. Henderson), The Dell, Egham, who won third prize, had fine blooms of Majestic, Mrs. Geo. Monro, and Princess Mary.

Baron SCHRÖDER was easily first prizewinner in the class for 18 Japanese blooms in six varieties, where he included splendid blooms of Mrs. Geo. Monro, Princess Mary, Mrs. Gilbert Drabble, Mrs. R. C. Kelly and Gen. Petain; second, Mrs. HAMILTON FELLOWES (gr. Mr. C. Hebbourn), Langley Park, Warpleston, showing Mrs. Geo. Monro, Mrs. A. Davis and Louisa Pockett of high quality; third, Mr. E. H. PEARCE.

The Holmes Memorial Challenge Cup, which requires 36 Japanese blooms, distinct, shown on boards was won by E. G. MOCATTA, Esq. (gr. Mr. W. Holden), Woburn Park, Addlestone, with a collection of blooms so large as to overlap. Besides this exceptional size, the quality was first rate. Princess Mary, Mrs. Geo. Monro, Mrs. C. Edwards, Victory, Queen Mary, Gen. Allenby, Wm. Rigby, and Peace are the names of a few of the varieties so well set up; second, Col. THOMSON (gr. Mr. D. Barnard), The Manor House, Eppingham, who had superb blooms of Edith Cavell, Majestic, and Wm. Rigby; third, Mr. E. H. PEARCE.

Mr. E. G. MOCATTA also had the best twenty-four Japanese blooms, and these were equal, if not superior in merit to his magnificent collection in the large class. The depth of colour in His Majesty, Mrs. Geo. Monro and Mrs. J. Bulmer was unsurpassed in the whole of the show. Princess Mary, Wm. Rigby and Peace, amongst the yellow varieties, were also of great merit; second, Major DALGETY (gr. Mr. W. Baxter), Lockersley Hall, Romsey, who had splendid blooms of Mrs. Geo. Monro, Wm. Rigby, Mrs. A. Davis, Mrs. J. Bulmer and Victory.

Major DALGETY was the foremost of the many exhibitors of twelve Japanese blooms, and his excellent collection included Mrs. A. Davis, Helena Margerison, Louisa Pockett and Norman Chittenden; second, F. C. SROOF, Esq. (gr. Mr. G. Carpenter), West Hall, Byfleet, whose admirable collection included Queen Mary, Golden Champion, Mrs. A. Davis, and Shirley Golden; third, Mrs. HAMILTON FELLOWES.

Competition was very keen and the quality exceptionally high in the class for twelve distinct Japanese blooms in which Major DALGETY won the first prize. His most excellent set contained wonderfully fine blooms of Mrs. A. Davis, Helena Margerison, Victory, Louisa Pockett and Norman Chittenden. F. C. SROOF, Esq., was a worthy second in this great class, and he included magnificent blooms of Queen Mary, Golden Champion, Mrs. A. Davis and Shirley Golden; third, Mrs. HAMILTON

FELLOWS. The quality of this class was even surpassed in that for six Japanese blooms, where Major DALGETY also won first place. His splendid blooms were of Victory, Louisa Pockett, Majestic, Mrs. A. Davis, Helena Margerison, and Wm. Rigby; W. H. ALLEN, Esq. (gr. Mr. H. Blakeway), Bedford, second; and Mrs. H. FELLOWS was third, while many very meritorious exhibits were unplaced.

The best vase of three white Japanese blooms was of immense specimens of Louisa Pockett, shown by Sir JEREMIAH COLMAN (gr. Mr. J. Collier), Gatton Park, Reigate, and these were also of high quality; Mrs. McDOWELL NATHAN (gr. Mr. H. Newton), Little Heath Wood, Potter's Bar, second, with Mrs. Gilbert Drabble of quality equal to any of this variety in the show. In the similar class for yellow varieties Mrs. R. C. Pulling and Wm. Rigby were the most popular varieties; first, W. H. ALLEN, Esq., with the former, while Mrs. McDOWELL NATHAN was second, with Princess Mary. The best vase of any other colour was Majestic, shown by Mr. E. H. PEARCE; Mrs. NATHAN second with Mrs. A. Davis.

Incurved varieties were very well shown. The best vase of six blooms was staged by E. WORMALD, Esq. (gr. Mr. R. Lay), Sheepwell House, Potter's Bar. In the classes for twenty-four and for twelve varieties, on boards, J. P. HIGHAM, Esq., Drury Hill, Notts, had most praiseworthy collections of such varieties as Boccace, G. F. Evans, Le Peyron, Mrs. Judson, Souv. de W. Clébran, Clara Wells, Frank Trestian and Master C. Hall. L. E. CHALMERS, Esq. (gr. Mr. A. B. Hudd), Farrants, Bickley, was second in the large class with a collection of equally large blooms which lacked finish, and he was first with six incurved varieties, where he had almost perfect blooms of Mrs. P. Wiseman and Godfrey's Eclipse.

The MARQUESS OF RIPON was awarded the first prize in the class for six vases of Anemone blooms, showing Ceres, Cordelia, Arthur Coombe and Snow Queen. The best six vases of Pompons were excellent examples of such sorts as Miss Elise Dordan, Mrs. W. Sabey, W. Westlake and Black Douglas, shown by Mr. J. W. HUSSEY, Matford Lodge, Exeter. Miss DEBENHAM (gr. Mr. A. Porter), Ivy House, St. Albans, who came second, was first with six vases of undisbudded varieties. The first prize for six vases of Anemone singles was awarded to J. C. JAY, Esq. (gr. Mr. J. Osman), Barnet.

The class for nine vases of large singles brought very good competition. The first prize was won by L. E. CHALMERS, Esq., with a superb exhibit of Molly Godfrey, Susan, Stewart Smith, Margaret, Esme Waters and Sandown Brilliance; second, Mrs. MINCHIN, who staged vases of Sandown Radiance, Mrs. J. B. Minchin, Mavis and Isobel Felton. The best six vases of large singles were shown by F. G. YARROW, Esq. (gr. Mr. A. Robertson), Abbey Road, St. John's Wood, who had splendid examples of Sandown Radiance, Crimson Velvet and Molly Godfrey; second, Mr. CHALMERS, who showed an elegant vase of mixed varieties. The MARQUESS OF RIPON was awarded the first prize for a vase of small-flowered singles.

A splendid competition resulted in the class for twelve vases of large single Chrysanthemums, distinct, for which the George Monro Challenge Cup was offered. The trophy was won by Mr. H. WOOLMAN, Sandy Nurseries, Shirley, Birmingham, with splendid blooms of Lizzie Robertson, Phyllis Cooper, Rycroft Crimson, Mavis, Mrs. W. Smith, Sandown Radiance and Coronet; second, F. G. YARROW, Esq., Abbey Road, St. John's Wood (gr. Mr. A. Robertson), who had choice blooms of Reginald Godfrey, Emma Walters, Sandown Radiance and Crimson Velvet; third, Sir CHARLES NALL-CAIN, The Node, Welwyn (gr. Mr. T. Pateman).

There were three entries in a class for three vases of large single Chrysanthemums, distinct. Excellent blooms shown by Mrs. J. B. MINCHIN, Terrilands, Pinner (gr. Mr. W. J. Taylor) were adjudged the best. The varieties were Molly Godfrey, Bronze Molly and Mrs. J. B. Minchin.

In the class for a vase of single Chrysanthemums, the judges awarded the first prize to

the biggest exhibit, shown by R. BARBER, Esq. (gr. Mr. J. Bedson), Bromley. It was rather formal in arrangement, but prettily decorated with Asparagus and Berberis, and included blooms of fine quality. Many preferred the second prize exhibit, shown by the MARQUESS OF RIPON, Kingston Hill (gr. Mr. T. Smith). The arrangement was delightful, and every bloom was displayed to the best advantage.

The class for one vase of large exhibition Japanese blooms was a great success, and the premier exhibit, shown by G. RICHARDSON, Esq., Holly Mead, Tulse Hill (gr. Mr. J. Vanstone) was of outstanding merit. The varieties

NON-COMPETITIVE EXHIBITS.

The trade growers supported the Society in their customary wholehearted manner, and their generous groups of splendid blooms contributed in no small degree to the success of the show. Mr. H. J. JONES made history, and created a record which will be hard to equal. He made this show the occasion for winning his tenth gold medal in fourteen weeks, and we have recorded above that his magnificent group of Chrysanthemums won the enthusiastic praise of the committee. Along the back of the group there were large stands of Japanese varieties of such quality as to be worthy of a



FIG. 128.—CHRYSANTHEMUM ORIOLE, R.H.S. AWARD OF MERIT, NOV. 14 (SEE P. 302).

were Mrs. W. Rigby, Mrs. G. Drabble, Mrs. G. Monro and Majestic. The blooms were arranged in a handsome pedestal vase. Second, Mr. F. YARROW.

THE MARQUESS OF RIPON showed the best vase of incurved blooms, mixed varieties, arranged with Privet sprays, Codiaum foliage and Fern fronds; second Mr. J. HIGHAM, Nottingham, who showed Nelly Threlfall only.

AMATEURS' CLASSES.

The best vase of five blooms of Japanese Chrysanthemums in the Amateurs' classes was shown by Miss DEBENHAM, Ivy House, St. Albans (gr. Mr. A. S. Porter), the variety being Daily Mail; second Miss DARNELL.

Mr. G. RICHARDSON, Tulse Hill (gr. Mr. J. Vanstone), excelled in the class for a vase of Chrysanthemums, open to amateurs only; 2nd, Mr. G. H. BENTLEY, The Swallows, Long Park, Chesham.

place on any exhibition board. The chief sorts were Majestic, Wm. Rigby, Princess Mary, Mrs. Spencer, Louisa Pockett, Mrs. Geo. Monro, and Mrs. Gilbert Drabble. Besides this great array of large blooms there was an almost countless collection of decorative Japanese varieties, but good as were these, they were eclipsed by the baskets of singles, of which Bronze Beauty, Hilda Shoebridge, and Phyllis Cooper were in superb form. All the other types were well represented, and the green blooms of Mme. C. Roger attracted a deal of attention (Special Large Gold Medal and the Clay Medal for the best non-competitive exhibit).

Just inside the hall door Messrs. W. WELLS & Co. set up an admirable collection of representative varieties. Amongst the exhibition Japanese we specially noted Majestic, Edith Cavell, Mrs. Geo. Monro, Mrs. Gilbert Drabble, Louisa Pockett, and Wm. Rigby. Besides these

the single-flowered varieties, particularly Ceddie Mason and Winifred, were excellent, while the graceful Anemone-flowered Mabel Weston was an admirable example of that highly decorative type (Gold Medal).

Near the left-hand annexe, Messrs. KEITH, LUXFORD AND Co. staged a worthy collection of the various types of Chrysanthemum. Such single-flowered sorts as Mrs. Loo Thomson, Flossy, Florrie King, Oriole, Margaret Davis and Catrona were admirable, as also were the many large-flowered Japanese varieties, amongst which there were several sterling seedlings. In the centre of the group a large vase of the dainty little Pompoms included Baby Doll, Golden West and Mary Pickford (Gold Medal).

Such varieties as Mavis, Winifred Howe and Mrs. W. Smith amongst the singles he grows so well were finely shown by Mr. H. WOOLMAN, who also had beautiful blooms of the Japanese Ida, Miss A. E. Roope, and Mrs. J. T. Henry (Silver-Gilt Medal). An exceedingly attractive group was arranged by Mr. Wm. YANDALL, who had beautiful baskets of Bronze Molly, Josephine Bernier, Mavis, Mrs. W. Smith, Golden Glory and other varieties (Silver-Gilt Medal).

BARON BRUNO SCHRÖDER, The Dell, Egham, left his valuable group of Chrysanthemums from the previous Tuesday's R.H.S. show. These were chiefly of decorative plants of Caprice du Printemps and its varieties (Silver Medal). Messrs. W. J. GODFREY AND SON had many singles of their own raising which possessed much charm of grace and colouring (Silver Medal). Messrs. J. W. COLE AND SON had elegant little collections arranged on either side of the clock, and these contained good blooms of such sorts as Mrs. Geo. Monro, Nadine, Mrs. R. C. Pulling, and Mrs. Chas. Davis (Silver Medal).

SHEFFIELD CHRYSANTHEMUM.

NOVEMBER 10-11.—The thirty-fifth annual exhibition of this Society was held in conjunction with the National Potato Society's show in the Drill Hall, Edmund Road, Sheffield, on these dates. While Chrysanthemum growers were sympathising with each other because of the lateness of the season, they nevertheless put up creditable displays of blooms.

The principal class was for eight vases of Japanese blooms, distinct, three blooms in each vase. The 1st prize was awarded to Lieut.-Col. Sir RANDOLF BAKER, D.S.O. (gr. Mr. A. E. Usher) for monster blooms of Mrs. J. Gibson, W. Rigby, Victory, Mrs. G. Monro, Queen Mary, Shirley Aristocrat, Edith Cavell, and Mrs. Algernon Davis; 2nd, Mr. H. WOOLMAN, Shirley, Birmingham, with fine specimens of Mrs. R. C. Pulling, Mrs. A. E. Roope, Majestic, W. Turner, Mrs. Spencer Chichester, Mrs. T. J. Fleming, and Princess Mary; 3rd, Brig.-Gen. Sir J. F. LAYCOCK (gr. Mr. G. W. Musk). In the class for four vases, Mr. A. E. USHER again excelled with massive, deep blooms of Victory, W. Rigby, Salonica, and Mrs. G. Drabble; 2nd, G. CHAMBERS, Esq. (gr. Mr. E. G. Bonver), his best sorts being Mrs. R. C. Pulling, Mrs. A. Davis, and Mrs. G. Monro; 3rd, Mr. G. W. MUSK.

For one vase of a pink variety three competed. They all staged the variety Mrs. A. Davis, and Mr. A. E. USHER was successful with perhaps the best three blooms in the show; 2nd, Mr. G. W. MUSK; 3rd, Mr. W. C. FLETCHER. In the class for a vase of a yellow variety, Mr. USHER again excelled with handsome blooms of W. Rigby; 2nd, Mr. A. FLETCHER; 3rd, Mr. W. C. FLETCHER. Mr. USHER also won the first prize for a vase of a white variety.

Competition was not keen in the class for incurred varieties, and Mr. G. W. MUSK had matters much his own way. Keener rivalry was evident in the class for a basket of Chrysanthemums arranged for effect; R. PALMER MOREWOOD, Esq. (gr. Mr. G. W. Staward) was placed first with a light arrangement of perfect blooms of the decorative and single type and foliage; 2nd, Mr. W. SMITH.

Fruit in the open classes lacked the colour of last year, and in the absence of the usual

decoration the general effect in the table class was not pleasing. The TODDINGTON ORCHARD Co. were successful with Apples and Pears of large size in considerable variety; 2nd, HUGH ANDREWS, Esq. (gr. Mr. J. H. Tooley). In the class for two bunches of white Grapes the winners were in the same order as in the last class, with R. DYON, Esq. (gr. Mr. H. J. Nicholson) a good third. In a similar class for black Grapes R. J. NELSON, Esq., excelled with large, well-coloured bunches of Barbarossa; 2nd, TODDINGTON ORCHARD Co.; 3rd, Mr. J. H. TOOLEY. The last two exhibitors won most of the prizes in the single classes for Apples and Pears.

Competition was keen in the open vegetable classes. The principal class was for a collection arranged for effect on 30 sq. ft. of tabling, and the winner, H. ANDREWS, Esq., (gr. Mr. J. H. Tooley), excelled with large Ailsa Craig and Improved Reading Onions, Hollow Crown Parsnips, Prizetaker Leeks, Gem Cauliflowers, Long Red Carrots, Improved Abundance Potatoes, Best of All Tomatoes and Giant Celery; 2nd, MAJOR HARCOURT WEBB (gr. Mr. G. W. Gaiger). For the special prizes presented by Messrs. Sutton and Son there was fair competition and the winners were Mr. W. PERKS, Mr. C. H. WILLFORD and Mr. G. JESSOP in this order. Mr. PERKS also won the first prize in Messrs. Webb and Son's class; 2nd, W. BINGHAM.

Trade displays contributed largely to the success of the show. Mr. H. WOOLMAN had two stands of Chrysanthemums, one on each side of the hall. Messrs. KEITH, LUXFORD AND Co., Harlow, showed the leading varieties of Chrysanthemums in the best possible condition. The BRIDGEWATER NURSERIES also had a good display of Chrysanthemums. Messrs. W. ARTINDALE AND SON, Sheffield, showed a good group of Primula obconica.

STAFFORDSHIRE COUNTY FRUIT SHOW.

AN exhibition of fruit, grown in Staffordshire, was held in the large Lecture Hall at the County Technical School on Saturday, November 11. The exhibition was arranged under the auspices of the Staffordshire Horticultural Sub-Committee. Mr. J. Stoney, the horticultural superintendent, was responsible for the organisation of the exhibition and the display emphasised the possibilities of various parts of Staffordshire for the growing of dessert and cooking Apples. There were exhibits from all parts of the county, including the evening school gardens, which have an eighth of an acre devoted chiefly to Apples, and which are used as small demonstration centres in their respective areas. Exhibits were also sent from the county demonstration fruit plots, including three exhibits from County Council small holdings, and orchards which are in the process of renovation, and from private growers, including LORD STAFFORD, who sent some excellent examples of commercial Apples packed in half-sieves. These included Lane's Prince Albert, Newton Wonder, Annie Elizabeth, Lord Derby, Bramley's Seedling, Allington Pippin and Cox's Orange Pippin. These Apples were gathered from a seven-acre orchard which was planted about seven years ago on up-to-date lines. He also showed thirty dishes of Apples and Pears in fine form.

Other interesting exhibits were the boxed Apples shown by Mr. MENZIES, of Tittensor, an enthusiastic grower who cultivates thirty acres within a few miles of Stoke-on-Trent. His boxes of James Grieve, Charles Ross, and Newton Wonder were excellent examples of boxed fruit, which were readily purchased by the buyers present. Other boxed specimens included Newton Wonder, shown by Mr. BARNES and Mr. IYSON from Lichfield, and Mr. PERCIVAL of Penkridge, who combines fruit growing with poultry farming. Mr. PERCIVAL showed excellent boxes of Allington Pippin. Major MOAT, J.P., O.B.E., chairman of the Horticultural Sub-Committee, also exhibited excellent examples of Newton Wonder (boxed), as well as a dish of the new variety named Queen Mary.

Amongst the best exhibits from private

growers were those from Lieut.-Col. MEYNELL, D.S.O., Hoar Cross. This collection included all the best varieties of Apples and Pears, which were remarkably well coloured. Other exhibitors in this section were the Rev. Preb. DUNKLEY, the chairman of the Staffordshire Education Committee, who put up exceptionally well-coloured Blenheim Pippin, Newton Wonder, and some fine specimens of Hambling's Seedling. Sir GRAHAM BALEFOUR, M.A., exhibited the finest coloured Ribston Pippins, and Mr. FRANK SMITH, Wheaton Aston, exhibited superbly coloured Lane's Prince Albert; these were from a grass orchard. A large collection of Apples and Pears from the STAXTON BOYS' INDUSTRIAL HOME, as well as bottled fruit from that institution, showed that instruction in fruit growing and preserving forms a valuable part of the curriculum.

A large collection of fruits from the COUNTY FARM INSTITUTE at Rodbaston, along with diagrams illustrating the pruning of trees, and methods recommended for the cleansing of trees, occupied the end of the large hall.

Major Moat presided at the opening ceremony, and was supported on the platform by Mr. Lobjoit, the Controller of Horticulture; the Rev. Preb. Dunkley, Chairman of the Education Committee; Sir Graham Balfour, Director of Education; several members of the Agricultural Committee; Dr. Crowther, Principal of Harper Adams College; Mr. J. C. Rushton, Principal of the Farm Institute and Assistant Director for Agricultural Education; Mr. J. Stoney, Horticultural Superintendent; Mr. Whiting, Ministry of Agriculture; and Mr. A. T. Rudge, Instructor in Horticulture.

Mr. Lobjoit complimented the Horticultural Sub-Committee on the excellent exhibition, and particularly on the fruits in boxes and sieves, which demonstrated that many parts of Staffordshire were excellent for fruit production. After comparing the importation of fruit from overseas with home-grown fruit, especially with fruit shot into baskets or any other container without sorting, he dwelt upon the importance of keeping trees clean from insect pests and disease by spraying. The life histories of some of the most destructive pests were explained, including the winter moth, woolly aphis, scab, and silver leaf. The pruning of trees he considered was of immense importance, and it was imperative that a good foundation be laid, but after that stage had been reached it was essential that the grower should observe the general characteristics of the tree, as many varieties required careful consideration, otherwise they might easily be spoiled by over-pruning. Methods of heading orchard trees and regrafting them were also described.

During the afternoon and evening Mr. Whiting demonstrated the grading of Apples and various methods of packing, and several growers packed boxes under his supervision. The largest consignments of fruit were sold after the demonstration, and the smaller quantities were packed and sent to the local hospitals.

NORWICH CHRYSANTHEMUM.

THE autumn three-days' show of the Norfolk and Norwich Horticultural Society was held in St. Andrew's Hall and the adjacent Blackfriars' Hall. A great improvement was noticed in the class for a circular group of Chrysanthemums and foliage plants. The first-prize collection, from Mrs. BARKER-HAULO, of Langley Park, included some very fine specimens of large flowered Chrysanthemums brought down to an edging containing some well coloured Coleus. The Misses MCCLINTOCK, Catton Grove, struck a lighter and more varied vein, and made a pretty effect.

Large blooms of Chrysanthemums are still popular with growers, and again the gardener to the LOWESTOFT CORPORATION did himself great credit by showing some extraordinary well-grown specimens. In the miscellaneous section Mr. SYDNEY MORRIS, Earham Hall, staged some wonderful specimens of berried shrubs both in a competitive class and one not for competition. Carnations were a greatly im-

proved feature. The first-prize collection, from Mr. J. A. CHRISTIE, contained fine examples of White Pearl, and a new pink seedling of his own raising, which we learn is to be named Mrs. Christie.

Of pot plants the winter-flowering Begonias staged by Mr. J. E. MOXEY were worthy of special mention. The Lorraine type were not so good as we have seen them before. Primulas of the chinensis type were a bright feature, as also were Salvias and zonal Pelargoniums. Nerines, a flower not often seen at local shows, have a great advocate in Mr. CHRISTIE, who staged some charming coloured seedlings of his own.

Fruit was the most attractive feature of the show. Lord HASTINGS won first place for a collection of 12 varieties of fruit of splendid quality, his bunches of Muscat Grapes being superb. This being the third time he has secured this honour, he becomes the possessor of the challenge cup presented some time ago by Sir F. Adair, Bart. Coming to the general classes for Grapes, that old veteran fruit grower, Mr. WM. ALLAN, gardener to Lord Suffield, deserved every praise for his three bunches of black sorts and also for his Muscats. In Pears also he had a wonderful exhibit of 6 varieties—Doyenné du Comice up to 18 ounces and Charles Ernest up to 22 ounces each. Mr. CHRISTIE was a large exhibitor and winner in the competitive classes for Pears, and, further, he staged in Blackfriars' Hall a collection of Pears in such variety as has not been seen at any show before in this district. They were put up mainly to demonstrate the utility of the Lorette system of pruning, in which Mr. Christie is a great believer, for the production of good crops of fine fruit. The arrangement of the collection with Nerines reflected great credit upon the gardener, Mr. S. High.

In the classes for Apples it was well demonstrated that the soil of Norfolk can produce this fruit equal to any in England for quality and colour. Mr. SYDNEY MORRIS staged a fine collection of nine dishes of dessert kinds and similar praise applies equally to the six dishes, distinct, staged by Mr. J. A. CHRISTIE. The best dish of the popular Cox's Orange Pippin was from Mr. WM. ALLAN. At Framingham Manor (Mr. Christie's) a great feature is made of Ribston Pippin, and we admired the fine dish of these Apples that secured for him the premier place in the class for this variety. The Rev. W. L. STOCK, Haynford, a somewhat new exhibitor, had some very notable exhibits in several classes.

Vegetables were quite up to the standard of old-time days. The best collection was set up by Mr. S. HIGH, gardener to Mr. Christie, and the superb quality of the ten varieties, with most effective arrangements, well warranted the premier position.

The trade growers, as usual, helped by their exhibits to make the show attractive and educational. Messrs. DANIELS BROS., LTD., Norwich and Tunstead, had a very fine display of flowers, fruits, and vegetables grown at their nurseries. The best Apples for the district were well in evidence on their stand, and the fruits all the products of two and three-year-old trees. This exhibit was awarded a Gold Medal. Messrs. SUTTON AND SONS, Reading, made a large and varied display of well-grown vegetables, embodying the more rare and choice kinds not always met with. Messrs. WINDER AND THOMPSON, Lingwood, had a fine array of Roses of the leading and newest sorts, really wonderful for a November show, the blooms all coming from the open. Mr. LEE BOYCOTT, Upton, had a stand devoted to implements. An exhibit worthy of special mention was that of the EAST NORFOLK FRUIT GROWERS' ASSOCIATION, consisting of uniform boxes with properly graded and packed Apples from local growers. The owners of Westwick Gardens (Colonel B. J. Petre), Honing Fruit Gardens (Mr. E. G. Cubitt), Hoveton (Mrs. Blofield), Lingwood (Mr. Frank Neave) have done great service by their persistence in this work of educating others to follow their example.

CARDIFF GARDENERS.

A MEETING of above society was held at Cardiff on Tuesday, November 14; Mr. P. MYERS presided. The Association's cup was awarded to Mr. F. WEBBER, for six vases of single Chrysanthemums, Mr. T. EDWARDS gaining second place. Mr. T. THOMSON, The Cottrells, Glamorgan, gave an address on "Spring Flowers." He referred at some considerable length to spring bedding, early flowering plants, shrubs and trees.

ROYAL CALEDONIAN HORTICULTURAL.

NOVEMBER 7. The ordinary monthly meeting of this society was held at 5, St. Andrew Square, Edinburgh, on this date, Mr. David King, president, in the chair.

A paper on "Modern Methods of Culture and New Varieties of Hardy Fruits Introduced in Recent Years," by the late Mr. G. P. Berry, Ministry of Agriculture and Fisheries, was, in Mr. Berry's unavoidable absence, read by the Secretary.

In dealing with the influence of the stock on the graft, Mr. Berry said that he had frequently been puzzled to give a satisfactory explanation to growers for the diverse behaviour of particular varieties of Apples growing together under precisely similar conditions as to soil and climate, some even in the same row ripening later, and others failing to colour, while others made meagre growth and produced indifferent crops compared with their neighbours, and this applied both to bush plants on dwarfing stocks and to others on the free stock. This diversity, however, was easily explained when one took into account that stocks raised from seed might produce a large number of different types, and that if any particular variety was worked on these seedling stocks as many different types of plant would result. Where free stocks were used this variation would not disappear until standard types were selected and reproduced vegetatively—by layering or cuttings. He referred to the research work which had been carried out in this direction in connection with Paradise stocks at the Wye College, where Pear and Plum stocks were also being dealt with. The result of these researches showed that the dwarfing stocks could be reduced to a definite number of types, of which four were outstanding, namely, (1) the broad-leaved English Paradise, (2) the Dofcin, or "English Paradise," (3) Nonsuch, (4) the very dwarfing French Paradis Juane de Metz. Quantities of these types had been distributed to the various county institutes and agricultural schools, as well as to the nursery trade, and it was hoped that the time was not far distant when the grower would be able to procure the particular stock he desired when he purchased his plants. Investigations had also been carried out in connection with Black Currants, and it had been found that these could be classified into four groups, namely, (1) French, (2) Boskoop Giant, (3) Victoria, and (4) Baldwin.

Mr. Berry also referred to the experiments which were being conducted at the Wye College in connection with pruning, which, he said, would seem to indicate that our orthodox methods in private gardens were too severe, and reduced the fruit crop, and that the vigour of the plants appeared to have an influence on the setting of the flowers. With reference to the Lorette system, which takes the form of repeated very drastic summer pruning, or pinching, which starts when the shoots are about two inches long, and is carried back to the ring of scales, he had come to the conclusion that the success of the system was largely dependent on the operator being able to control the water supply to the root system, and that it had yet to be proved that it was economically sound. Experiments which he had made personally showed that in a season with an average rainfall, equally distributed over the period, it worked very well; but when copious rains fell after a spell of dry weather it was otherwise. Where, however, the plants were under glass or on a very light, porous soil, incapable of holding much moisture, it offered fair prospects of success.

Mr. Berry stated that of the large number of new varieties of hardy fruits, especially Apples,

which came before the Royal Horticultural Society's Fruit Committee in the course of a few years many were never more heard of, and a large percentage of them were no improvement on existing kinds. Of those Apples which seemed to give promise of eventually becoming good commercial kinds he mentioned Ellison's Orange, a dessert variety resembling Cox's Orange Pippin, but more fertile and more reliable as a cropper, and other promising varieties were Laxton's Superb, Laxton's Premier and Peerless. Of Plums, Laxton's gage, an abundant bearer which always carried a crop, was likely to become a commercial variety in the Gage-growing districts, and President was a commercial Plum of the future.

The exhibits were: Begonia Emily Clibran, from Mr. John Downie, Edinburgh (silver medal); Gloxinias, from Messrs. Dobbie and Co., Ltd., Edinburgh (silver medal); Dessert Apple Red-coat Grieve, from Mr. Hal Jones, Letchworth (First-class Certificate); and Onions, from Mr. J. A. Sword, Inverlaldmond, Cramond (Cultural Certificate).

HENLEY-ON-THAMES AND DISTRICT HORTICULTURAL.

A NON-COMPETITIVE exhibition of fruit was held in the Congregational Hall, Henley-on-Thames, on November 2, under the auspices of the above Association. Just over 380 dishes of Apples and Pears were staged from the principal gardens in the district, and the exhibits called forth general admiration. The exhibition was open to the public free, its chief object being to point out what can be done in the district in fruit growing. In the evening a lecture on Apples and Pears was given by the County Instructor in horticulture, and questions were invited at the close of the lecturer's remarks.

Obituary.

Charles Frost.—The American horticultural papers record the death of Mr. Charles Frost, florist, of Kenilworth, New Jersey. He was a native of Newmarket, and settled in America shortly after his marriage in 1867. After some years he acquired a farm in Kenilworth, N.J., and engaged in business as a market gardener. Subsequently, he commenced specialising in Pansies and ultimately developed a famous strain of these flowers, and sent out such varieties as Giant Masterpiece, Kenilworth Show, and Princess Upright. He was regarded as an authority on Pansies in the United States, and wrote the article on Pansies in the *Cyclopedia of Horticulture*. He was also engaged in writing a book on Pansies, their growth and development, but he did not live to complete it.

TRADE NOTES.

THE premises, stock and business of the well-known firm of Hassall and Co., Orchid growers, Southgate, London, which, owing to the death of Mr. A. Hassall, had to be disposed of, have been purchased by Mr. D. A. Cowan and Mr. J. C. Cowan, who will trade under the name of Cowan and Co. Messrs. D. A. and J. C. Cowan have also purchased the business of John Cowan and Co., Orchid growers, Gateacre, Liverpool, and have removed the best of the stock to Southgate. Owing to advanced years Mr. John Cowan senior is retiring and the Gateacre premises have been closed. In future the business will be conducted entirely from Southgate, London, N.14. The new proprietors of the fine Orchid nurseries at Southgate are two of the best-known and generally respected men in the trade and their wide experience should make the venture a great success.

THE Rural Industries, Ltd., have received a second order from H.M. King George for wattle hurdles, the making of which keeps a large number of rural workers employed throughout the winter.

MARKET.

COVENT GARDEN, Tuesday, November 21, 1922.

Cut Flowers, etc.: Average Wholesale Prices.

s. d. s. d.	s. d. s. d.
Adiantum deco- rum, doz. bun. 10 0-12 0	French Flowers
—cuneatum, per doz. bun. 6 0-8 0	—Roses Safrano per pkt 24s' .. 2 6-3 0
Asparagus plu- mosus, per bun. long trails, 6s 4 0-5 0	—Violets, Parma, per bun. 6 6-7 0
wed. sprays .. 2 6-3 6	Single per doz. 3 0-4 6
short .. 1 0-1 6	Gardenias, per box .. 6 0-9 0
—Sprengeri, per bun. long sprays .. 2 6-3 0	Heather, white, per doz. bun. 4 0-10 0
med. .. 1 3-1 6	Lilium longiflorum 5 6-6 0
short .. 0 9-1 0	—speciosum long per doz. .. 3 0-4 6
Camellias, white per box .. 4 0- -	short .. 6 0-7 0
Carnations, per doz. blooms .. 3 6-5 0	Lapageria per doz. .. 4 0-4 6
Croton leaves, var., per bun. 2 6-4 0	Lily of the Valley, per doz. bun. 24 0-42 0
Chrysanthemum pink, per doz. bun. .. 15 0-18 0	Orchids, per doz. —Cattleyas .. 12 0-18 0
—bronze .. 15 0-18 0	—Cypripediums 6 0-9 0
—white .. 15 0-18 0	Pelargonium, per doz. bunch, double scarlet 10 0-12 0
—yellow .. 15 0-18 0	Poinsettia, per doz. blooms 18 0-21 0
—per doz. blooms —white .. 3 6-8 0	Richardias (Arums) per doz. .. 7 0-10 0
—yellow .. 3 6-8 0	Roses, per doz. blooms—
—pink .. 4 0-8 0	—Frau Karl Druschki .. 1 6-2 6
—bronze .. 4 0-8 0	—Madame A. Chatenay .. 4 0-6 0
single varieties disbudded blooms, per doz. 3 0-5 0	—Melody .. 4 0-7 0
—Spray coloured per doz. bun. 18 0-30 0	—Niphetos .. 2 0-3 0
—Spray white .. 24 0-30 0	—Ophelia .. 4 6-8 0
Fern, French per doz. bun. 1 0-1 3	—Liberty .. 5 0-7 0
Forget-me-not per doz. bun. 12 0-15 0	—Richmond .. 5 0-7 0
French Flowers —Acacia (Mimosas) per bunch .. 1 6-2 0	—Sunburst .. 4 0-6 0
—Lilac, white, per doz. sprays .. 6 0-7 0	—White Crawford 3 0-4 0
—Narcissus, paper white, pr. doz. bun 4 0-4 6	Smilax, per doz trails .. 3 0-5 0
	Violets, single .. 3 6-6 0

REMARKS. Supplies have been much heavier during the past week, and the demand fairly good, owing, doubtless, to reduced prices. Chrysanthemums of all grades are more plentiful, and their prices considerably lower compared with those of the previous week. Single varieties are now at their best, and are making a very brilliant show. Some excellent sorts are being marketed, both sprays and disbudded blooms. Of the larger Chrysanthemums, incurved varieties are most in demand including Mr. Roots, Enfield White, and Money Maker, white; Romance and Liverpool, yellow; Bronze Hortus, November Bronze, Ivy Gay, December Pink, Market Red, and Mrs. Brooker. Carnations are a trifle cheaper than last week, although supplies are not large. Lily-of-the-Valley keeps firm in price owing to a limited supply. Richardias (Arums) are again on the down grade. Lilium longiflorum is again cheaper, but the pink and the white forms of L. speciosum are getting dearer. Good Roses are getting gradually fewer, especially red blooms, which were very scarce one or two mornings last week. The newest subjects in this department are Roman Hyacinths, of flowers are being received from France. They consist of Carnations, Marguerites, Narcissus, scarlet, white and carmine Ranunculus, Acacia (Mimosas), large bunches of Parma Violets, and many baskets of single Violets; Safrano Roses, single mixed Anemones, baskets of pink Heather, Eucalyptus, Chilies and Solanum berries.

GARDENING APPOINTMENTS.

Mr. W. E. Murray, for the past two years General Foreman at Scone Palace Gardens, Perth, as Gardener to W. D. GRAHAM MENZIES, Esq., Hallyburton House, Coupar Angus, Forfarshire.

Mr. E. Durham, previously for four and a half years Gardener to H. J. Mason, Esq., Holme Park, Ashburton, S. Devon, and one year seven months to G. DE LISLE BUSE, Esq., Eastington Park, Stonehouse, Glos., as Gardener to Geo. F. Moore, Esq., Chardwar, Bourton-on-the-Water, Glos. (Thanks for 2s. for R.G.O.F. Box.—Eds.)

Mr. R. Edwards, for the past twelve months Second Gardener at Stretton Hall Gardens, near Stafford, as Gardener to H. R. COOKE, Esq., Davenport House, Bridgnorth, Shropshire. (Thanks for 2s. for R.G.O.F. Box.—Eds.)

Mr. G. Abbey, for the past five years at Stonerwood Park, and previously for eight years at Aston Rowant, as Gardener to V. F. THOMPSON, Esq., Norton Manor, Sutton Scotney, Hampshire.

Mr. W. E. Talboys, for the past 31 years Gardener at Rayleigh, Croydon, and previously six years at Dowdeswell Court, Gloucestershire, as Gardener to W. HOLMES REDDAN, Esq., Thurgarton Priory, Notts. (Thanks for 3s. for R.G.O.F. Box.—Eds.)

Mr. T. W. Webb, for 25 years Gardener to the late Mrs. G. A. BIRKS, Kingsbridge Vicarage, South Devon, as Gardener to H. E. CAMPBELL, Esq., Coombe Royal, Kingsbridge.

ANSWERS TO CORRESPONDENTS.

EVERGREEN CLIMBER WITH FRAGRANT FLOWERS:

W. J. P. Evergreen climbers with fragrant flowers suitable for an exposed, draughty situation are not very numerous. The Mexican Orange Flower, *Choisya ternata*, is perhaps the best subject, if it will succeed in your district. If your garden was in the south or west we should recommend *Osmanthus Delavayi*. *Jasminum officinale* major, the White Jasmine, though deciduous, or nearly so, produces such quantities of thin, green branchlets, it may very well be used as an evergreen. The deliciously fragrant blossoms are freely produced from June to October. There are also two evergreen or semi-evergreen Honeysuckles, *Lonicera flexuosa* and *L. Halliana*, which are worth trying.

LARGE APPLES: R. C. The largest fruits of the varieties you mention, of which we have record, are, Warner's King, 2 lb., shown by Mr. Robert Smith at the Ledbury Exhibition in October, 1888; Gloria Mundi, 2 lb. 5½ oz., sold in Covent Garden Market in October, 1913; Peasgood's Nonesuch, 1 lb. 12 oz., shown by Mr. Bannister in October, 1893.

LILiums: F. W. H. Your bulbs have evidently suffered through insufficient root room and a cold, tenacious soil. For the successful cultivation of Lilies, the soil should be trenched deeply; in the case of heavy land, from 1½ ft. to 2 ft. deep, to permit of effective drainage. Your small bulbs of *L. auratum* are not worth planting, as flowering bulbs are very cheap, and may be depended on to flower their first season. These Japanese Lilies do not take kindly to our capricious climate, hence they are imported in large numbers annually. *Lilium regale* is of good constitution and equal to *L. Henryi* in vigour. Plant the bulbs of this species at once in deeply trenched soil in their flowering quarters, in a compost of loam, well-broken peat, and sharp sand. Plant at twice the depth of the bulbs, and protect them during wet weather by placing a hand-light over them to ward off rains. Liliiums of all kinds should never be allowed to become dry at the roots or to have the latter damaged.

NAMES OF FRUIT.—H. C. P. Apples—1, Lord Derby; 2, missing; 3, Royal Jubilee; 4, Lord Suffield; 5, Yorkshire Beauty; 8, Winter Greening. Brown Pear—Beurré Diel; yellow, Doyenné Boussoch. *L. S.* 1, King of the Pippins; 2, Huyshe's Prince Consort; 3, Marie Louise; 4, Baumann's Red Winter Reinette; 5, Bergamotte Espersen; 6, Columbia; 7, Vicar of Winkfield; 8, Franklin's Golden Pippin; 9, Summer Golden Pippin; 10, Langton's Nonesuch; 11, Warner's King. *F. A. A.* 1, Fearn's Pippin; 2, Court Pendu Plat; 3, Lady Henniker; 4, Dumelow's Seedling (syn. Wellington); 5, Twenty Ounce; 6, Marie Louise. *W. A.* Apples—1, Stone's; 2, Warner's King; 3, Winter Hawthornden; 4, Dumelow's Seedling (syn. Wellington). Pears—1, Beurré Bosc; 2, Comte de Lamy. *T. O. C.* 1, Northern Greening; 2, Round Winter Nonesuch; 3, Cellini; 4, Dutch Mignonne; 5, James Grieve; 6, Jolly Beggar; 7, Ribston Pippin; 8, Sam Young. *G. B.* Apple—Small's Admirable. Pears—1, Beurré Hardy; 2, Beurré de Jonghe; 3, Uvedale's St. Germain. *E. D.* 1, Brown Beurré; 2, Autumn Bergamotte; 3, Beurré Sterckmans; 4, Le Lectier; 5, Beurré Bachelier; 6, Doyenné Gris; 7, Délices d'Anger. *W. R. G.* 1, Bess Pool; 2, Gloria Mundi; 3, Passe Colmar; 4, Aromatic Russet; 5, Beurré Bachelier; 6, Maltster; 7, Warner's King; 8, Lord Derby.

NAMES OF PLANTS: W. M. 1, *Pinus Banksiana*; 2, *P. Murrayana*; *Cupressus Lawsoniana*; 4 and 5, *Abies lasiocarpa*; 6, *Magnolia Soulangeana*; 7, *Pinus Pinaster*; 8 and 12, *Abies Nordmanniana*; 9, *A. pectinata*; 10, *Cupressus sempervirens* var.; 11, *Tsuga Pattoniana* var. *glauca*.

HARDY MAPLES, AND PRIVET FOR A HEDGE: J. E. H. The following twelve Acers (Maples) are attractive trees, most of them producing quantities of ornamental fruits. Acer capillipes, A. griseum, A. Heldreichii, A. Lobelii, A. macrophyllum, A. monspessulanum, A. nikoense, A. pennsylvanicum, A. Pseudoplatanus vars. erythrocarpum, Pilgrig and Prinz Handjery. The best Privet for a hedge is *Ligustrum ovalifolium*.

OXALIS EDULIS TUBERS: W. A. You may be able to obtain tubers of *Oxalis edulis* from Messrs. Cooper, Tabor and Co., Southwark Street, or Messrs. Vilmorin-Andrieux and Co., 4, Quai de la Megisserie, Paris.

PEACHES ON THE BACK WALL OF A VINERY. Puzzled. You do not state at which season of the year your employer saw a fine crop of Peaches growing on the back wall of a vinery. We have seen fair crops of Black Hamburg Grapes and Peaches grown together in a cool house late in the season. Failure would result in planting the back wall of your Muscat vinery with trained Peaches. No sun could reach the latter, and very little air, and the temperature of the Muscat house would be altogether too high to grow Peaches successfully.

TOMATOS AND CUCUMBERS: J. W. W. With regard to the weight of marketable fruit a Tomato plant will carry, much depends on the variety, character and length of the season, space at disposal, and more or less on attention in regard to feeding, etc. Bunches of Tomatos vary in size from 1 lb. to 3 lb. each, and each plant may be allowed to carry from 6 to 12 bunches, according to the length of shoot. In a short season 6 or 8 bunches would be all that would ripen, therefore 10 lb. or 12 lb. of fruit would be a good average crop. The same remarks apply to Cucumbers under glass. With care and attention, one batch of plants may be kept in a healthy and fruitful condition all through the season. More fruits would be obtained by having young plants in readiness for replanting the same house two or three times during the season.

WEIGHTS IN COVENT GARDEN MARKET: H. C. The following fruits and vegetables, if consigned for sale at the Covent Garden Market, should weigh (nett)—Half-sieves: Gooseberries, 28 lb.; Cherries, 24 lb.; Currants, 24 lb.; Plums, 28 lb.; Damsons, 28 lb.; Mushrooms, 12 lb.; Brussels Sprouts, 20 lb. Bushels: Apples, 46 lb. to 50 lb.; Walnuts, 48 lb.; Pears, 55 lb.; Scarlet Beans 40 lb. A "flat" of Cucumbers depends entirely upon the size of the graded fruit, and varies from 24, 30, 36, 42, 48, to 60 fruits. Early in the season, say, in February and March, the flats generally contain three dozen Cucumbers. Later, when the plants have increased in vigour, occasionally flats consisting of 24 and 30 fruits are included in each consignment. English Carrots, Turnips and Beetroots are sold in dozen bunches, the latter consisting of from six to twelve roots, according as the roots are large or small. A market bundle of Asparagus consists of 100 sticks. Parsley, Mint, and Sage should be made into good-sized bunches.

YOUNG VINES: R. S. Cut your young Black Hamburg vines down to about 8 inches from the soil. Train the strongest shoot that develops as a leader, and stop this when it is about 6 feet long. Prune the rod again next winter to, say, 4 feet. The vines may be allowed to carry two bunches the following year, or three, if they are small ones, and about six bunches the second year, according to their size and strength, increasing the number as the vines gain strength. Retain one or two shoots which break below the leader, and stop them about the sixth leaf: these will strengthen the base of the vines and favour root action.

Communications Received.—E. F.—T. R. L.—J. S.—C. F. G.—R. P. S.—J. H. R.—E. J. C.—J. T.—S. A.—R. I. H.—J. G. M.

THE

Gardeners' Chronicle

No. 1875.—SATURDAY, DEC. 2, 1922.

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 41.2°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, November 29, 10 a.m. Bar. 30.3; temp. 51°. Weather—Fine.

In the death of Henry John Elwes on the 26th ult. at Colesborne, at the age of seventy-six, there passed away one whose name is well and widely known. To state that he was perhaps the greatest living traveller of the day, an authority second to no one in Europe on trees, a lepidopterist whose collections enrich our national museum at South Kensington, the author of what is still the authoritative work on Lilies—though published so long ago as 1880, and a big game hunter and ornithologist of great repute, by no means exhausts the list of his activities.

After leaving Eton Elwes spent five years in the Scots Guards, but the spirit of adventure which was strong in him to the end caused him to resign his captain's commission and begin that life of scientific travel and adventure from which such a rich harvest has resulted. His journeys were made in Turkey, Asia Minor, Tibet, in India four times, in North America and Mexico three times; in Chile; in Russia and Siberia three times; in Formosa, China and Japan twice; in Nepal and Sikkim. He was the official representative of Great Britain at the Botanical and Horticultural Congresses at Amsterdam in 1877, and at Petrograd in 1884. He was the Scientific member of the Indian Embassy to Tibet in 1886. Few, if any, men knew every country of Europe so well as he, and he greatly benefited by his excellent knowledge of French and German. For nine years Elwes was a member of a

wild-boar shooting syndicate in the Ardennes, and he stalked chamois regularly in the Austrian Tyrol.

He was a past president of the Royal English Arboricultural Society, and of the Entomological Society of London; past vice-president of the Royal Horticultural Society, and a Victoria Medallist. In 1921 he was elected president of the British Ornithological Union, having been a member for 55 years. In 1897 the Royal Society elected him a Fellow.

Elwes' first publication appeared in the *Ibis* of 1869, the subject being "The Bird Stations of the Outer Hebrides." Four years later, in June, 1873, he published in the *Proceedings of the Zoological Society* his paper "On the Geographical Distribution of Asiatic Birds," his most important contribution to Ornithology, and to it he attributed his subsequent Fellowship of the Royal Society. In 1880 his great monograph on the Genus *Lilium* appeared, a book which has long been out of print, but is still the recognised authority on the subject. From 1880 to 1906 he published 27 papers on the lepidoptera of many regions, and described numerous new species of his own finding. In 1888 there appeared in the *Transactions of the Entomological Society* his "Lepidoptera of Sikkim," a very valuable record of the numerous species of that country. He was in Formosa in 1912, and succeeded in bringing home alive several specimens of the splendid Mikado Pheasant.

Mr. Elwes' botanical discoveries in all the many countries he visited were very numerous, and he introduced many species. The *Botanical Magazine* has figured no fewer than 87 plants of his growing or finding; many fine plants now familiar in most gardens we owe to him. It is not unfitting to add here that largely through his generosity, and by his active interest, that venerable publication (*Bot. Mag.*) has now been launched again on what we all hope will be another century of unbroken prosperity and even greater usefulness. The School of Forestry at Cambridge has greatly benefited by his munificence, and owes many of its finest timber specimens to him. In 1900, with his friend, Prof. Augustine Henry, as collaborator, Elwes began the preliminary labours which resulted in the production of that monumental work, *The Trees of Great Britain and Ireland*. The first of the seven volumes appeared in 1906, and the last in 1913. Never before has a book on European trees been attempted on such a scale, and with so lavish an expenditure of money in its preparation. Indeed, it can only be compared with Sargent's *Sylva of North America*, that great fourteen-volume record of American arborescent species. Elwes especially undertook the task of visiting every place in this country where remarkable specimens exist, as well as every European collection of note. The number of trees described which Elwes himself had seen and measured is overwhelming evidence of the untiring zeal he devoted to this work, well-nigh impossible except to one in whom the boyish spirit of adventure survived. The fact that both he and Henry had seen almost every species in its native land gave great additional value to their descriptions of the cultivated plants. Never was a great labour more fittingly divided, Elwes making incessant journeys to see and take particulars of specimens, and Henry, the exact botanist, writing the scientific descriptions. To the writer the ubiquitous character of their researches was vividly brought home when in 1917, during war service in France, he had occasion to visit a little known property in

the Medoc. He saw there some remarkable Oaks, Pines, and other trees of the S.E. United States, grown from seeds sent home by Michaux 100 years ago. Though the existence of these trees was scarcely known in France, the proprietor stated that a few years previously two gentlemen had come from London to see them, a Monsieur Elwes and a Monsieur Henri! Some twelve years ago the writer paid a visit to Grasse, in the Riviera, on the business of a public company; Elwes accompanied him solely to see two individual natural hybrid Oak trees which he believed could be found within a few miles of that place. It is needless to add that the two trees were duly found and photographed on the very day following that of arrival! This is not the place to describe the great book in detail or enlarge on what it has meant for arboriculturists generally. Its scientific accuracy, expressed in plain, straightforward and admirable English, has given an incalculable impetus to forestry and arboriculture in this country, and has inspired with enthusiasm everyone fortunate enough to possess it. Elwes, indeed, had a ready pen, and was master of an easy, vigorous style rarely surpassed in botanical literature. No slipshod statement of fact or hearsay evidence would satisfy Elwes' critical faculties, indeed, there are some who think he at times expressed his dissent with needless emphasis. He had little knowledge of the arts of compromise or how to agree with his adversary in the way. When in pursuit of a subject he sometimes urged his views on his hearer without giving him an opportunity to express his own, a failing not uncommon in those of masterful intellect in whom the sense of humour is, perhaps, somewhat deficient. He had difficulty in realising the point of view of others; no one was more ready to acknowledge their achievements in his publications, but the judgments he expressed of the character of men, or the merits of plants, were sometimes precipitate and prejudiced. A charming characteristic was his readiness to admit when he was wrong, and he combined a chivalrous courtesy with a self-assertiveness which those who did not know him well were apt to misjudge. No sketch of Elwes' life should omit mention of his amazing powers of assimilation of knowledge and of his prodigious memory.

As a West Country squire the handsome, burly figure of Elwes was well known, in the hunting field and elsewhere, among his more stay-at-home neighbours. His estate of Colesborne in the Cotswolds is, unfortunately, situated for the most part on the cold oolitic formation of that district, and he deplored, as indeed we all may, that he possessed no acres of green-sand or old red sandstone on which to make his plantations and pinetum. Had such been available, it is safe to say that his would by now have been the most complete collection of trees hardy in Great Britain. In a frosty valley near his house he formed a "Centenary Plantation" of trees of many species grown from seed collected for the most part in this country in 1900, a year remarkable for the ripening of tree seeds of all kinds. Here careful temperature and other records have been kept, and the origin of the trees in each plot is known. It was a delight to Elwes to show his guests the results, and he was as much interested in, and as careful to point out, the failures as the successes. Truth to tell, the former were almost as numerous as the latter. In his garden, however, he was more fortunate. His glass-houses were full of plants rarely seen elsewhere in cultivation, many of them introduced by himself.

In 1890 his friend Max Leichtlin gave

him his collection of South African Nerines. Elwes grew these successfully ever since, and did more than anyone else to improve them by hybridisation. In recent years he took a keen interest in the cultivation of succulent plants, and succeeded remarkably with many species of Mesembryanthemum, Haworthia, and other desert species. For many years his garden contained a fine collection of bulbous plants; in 1874 he discovered six new Crocuses in Asia Minor, and ever since, with many species of Fritillary, Tulip, and Snowdrops, they have flourished at Colesborne. He had always taken a keen interest in Alpine plants, and near the end of his life contemplated writing a book on these at a time when most of his friends would have preferred him to devote all the energies of his declining years to an autobiography.

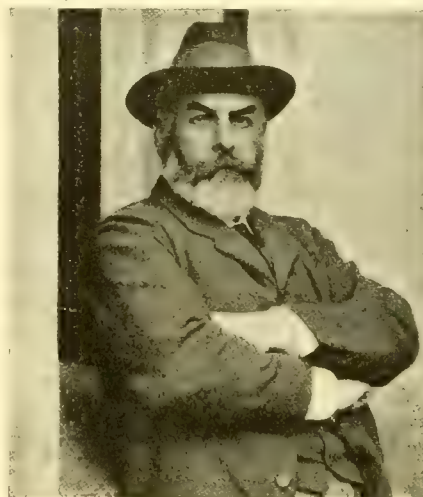
Elwes was at his best in his own home. An admirable host, he imparted information to his guests on all scientific subjects, with such kindly insistence that even the most indifferent could not fail to catch his enthusiasm. Like most amateur gardeners, he was generous with his plants.

Elwes succeeded to Colesborne on the death of his father in 1891. He was the eldest of a family of seven. One of his sisters married, as his first wife, Sir Michael Hicks Beech (afterwards Lord St. Aldwyn), and another was the first wife of the late Frederick du Cane Godman, F.R.S., who shared all of Elwes' botanical and zoological interests, and was his greatest friend. A story Elwes was fond of telling was of when in the 'seventies he and Godman were on a coach on the way to the Yosemite Valley in California. They were sitting on a back seat and named to each other every butterfly and tree they passed. The driver was becoming more irate every minute at hearing two "tender-foot" Britishers identify things of which he knew nothing unless it was the occasional local name. On coming to a tree of *Fremontia californica*, covered with its yellow blossoms, the lady at his side asked what it was. "I call it Slippery Elm," was his reply, "but I don't know what the pair of bug-fiends back of me will say it is!" Elwes married in 1871, Margaret Susan, the second daughter of the late W. S. Lowndes-Stone, of Brightwell, in Oxfordshire, who, with an only son, Colonel Henry Cecil Elwes, D.S.O., M.V.O., survives him. F. R. S. Balfour.

Coloured Plate.—With the present issue we present our readers with a supplementary coloured illustration of Apple Guelph. This handsome and useful variety was raised by the late Mr. Chas. Ross from a cross between the varieties Charles Ross and Rival. Fruits were exhibited by Mr. W. Pope, Welford Park Gardens, Newbury, before the Fruit Committee of the Royal Horticultural Society on October 7, 1913, when the merits of the variety were recognised by the award of a First-Class Certificate. Guelph is a large, round Apple, of the Chas. Ross type, suitable for dessert or culinary purposes. The flavour is first-rate and very suggestive of that found in Cox's Orange Pippin. The colouring is very beautiful, being rich yellow, which on the sunny side is heavily flushed with crimson. The calyx cavity is shallow and saucer-shaped and the calyx segments short, while the short stem is somewhat deeply inserted. The original tree has maintained its character as a healthy and free grower and regularly produces heavy crops of handsome fruits of excellent quality. Mr. Pope informs us that it has never once failed to crop at Welford Park since it first fruited in 1911. The variety was introduced to commerce by Mr. Whiting, of Faversham, Kent.

"Transactions" of the National Chrysanthemum Society.—The special floricultural societies are gradually returning to their pre-war importance

and several are resuming publication of their useful transactions and year-books, which, taken over a series of years, are the best records of progress in the particular flower with which the Society is associated. We are glad to see that the National Chrysanthemum Society is in a position to again issue its *Transactions*, and although the work is still of modest proportions compared with those of pre-war years, the thirty odd pages are filled with matter of interest to Chrysanthemum lovers. There are two excellent illustrations, the one of the Society's cup that was won by Mr. H. J. Jones at the Holland Park Hall show, and the other of Mr. H. J. Jones' superb group of Chrysanthemums to which it was awarded. An article on "Early-flowering Chrysanthemums," by Mr. Harold Wells, shows the importance which this type of Chrysanthemum has in gardens and records how many of the best varieties were raised. It is interesting to know that sports of white varieties usually revert to yellow, and many of these sports give short-petalled yellows. Yellows do not sport to white, although those that have sported from white to yellow may revert to the white form. In his remarks on "Chrysanthemums in Floral Decoration," Mr.



THE LATE MR. HENRY J. ELWES, F.R.S., V.M.H.

Mark Mills gives some valuable hints on the arrangement of these beautiful flowers that are useful to exhibitors, and he emphasises the importance of every flower being given sufficient space so that it may be seen to the best advantage. Owing to the season of Chrysanthemums autumnal foliage is largely used with the flowers, but Mr. Mills points out that pink blooms seldom show to good effect if mingled with autumnal foliage. Mr. C. Harman Payne's remarks on the Le Mans Chrysanthemum Exhibition, 1921, will be read with interest by all lovers of the flower, and it is gratifying to know that Mr. H. J. Jones was the winner of the second grand prize of honour of that show, at which other English growers were represented. Sympathetic reference to the death of the president, Sir Albert Rollit, shows the great loss the Society has sustained in his decease. Other pages are devoted to a list of awards made by the Floral Committee in 1921, the report of the Executive Committee in 1921, and the financial statement.

Horticultural Executive Committee of the British Empire Exhibition.—The horticultural features of the British Empire Exhibition of 1924, at Wembley Park, will be more or less under the control of a Horticultural Council, of which Lord Lambourne is President, but it appears that the major part of the business will be delegated to an Executive Horticultural Committee, which at present consists of four representatives from the Royal Horticultural Society, four from the Horticultural Trades' Association, and two other gentlemen, a somewhat severe

limitation having regard to the great floricultural interests which the exhibition authorities hope to attract to Wembley. The members of the Executive Committee are: Mr. R. W. Wallace, Tunbridge Wells; Mr. W. A. Bilney, Weybridge; Mr. W. Cuthbertson, Duddingston; Mr. W. R. Dykes, secretary Royal Horticultural Society; Mr. M. C. Allwood, Haywards Heath; Mr. A. G. Jackman, Woking; Mr. Owen Murrell, Shrewsbury; Mr. C. E. Pearson, Lowdham; Mr. G. Monro, Covent Garden; and Mr. H. V. Taylor, Deputy Controller of Horticulture; with Mr. W. Watson, Branstone Road, Kew, as the Organising Secretary.

National Dahlia Society.—We are glad to know from the report of the Committee for 1922, read at the annual meeting of the National Dahlia Society on Tuesday last, that this old floricultural Society is making steady progress. There is a small increase in the membership and the finances are satisfactory, showing a credit balance of £13 17s. 10d. The past season was a most favourable one for Dahlias and the annual exhibition was one of the most successful held during recent years. The show for 1923 has been fixed for September 19, a later date than usual, but, judging from experience over several years, a time when the flowers are at their best. We congratulate the Society on its efforts to improve the Dahlia from a garden point of view, and plenty of evidence was forthcoming at the meeting that this beautiful autumn flower is being used more and more extensively each year for garden decoration.

Retail Prices for Agricultural and Horticultural Produce.—Sir R. Saunders, Minister of Agriculture, announced in the House of Commons, on Monday last, the 27th ult., that his department was appointed a Departmental Committee to inquire into the methods and cost of selling and distributing agricultural, horticultural and dairy produce, and to consider whether, and, if so, by what means the disparity between the price secured by the producer and that paid by the consumer may be diminished. The great disparity between producers' prices and those charged by retailers is a common grievance amongst growers and the purchasing public, and while every allowance may be made for the greatly increased cost of establishment charges, the difference of sometimes several hundred per cent. between growers' and retailer's prices is far too great, making not only for discontent by the public, but for a curtailment of trade.

Association of Economic Biologists.—A general meeting of the Association will be held at Manchester on Friday and Saturday, December 15 and 16. On the 15th inst., in the Botanical Department of the University, Dr. W. Lawrence Balls will open a discussion on "Genetics in Relation to Applied Biology." After tea there will be a demonstration of specimens and research, apparatus, etc., and Dr. S. G. Paine will read a paper on "Internal Rust Spot (Sprain and Net Necrosis) in the Potato and the possible Association of this Disease with Leaf Roll." After dinner in the University Refectory, there will be informal discussions on "The Place of Applied Biology in Universities," and "The Relation of Biology to Medicine." Saturday's programme will include a visit to the British Cotton Industry Research Association, Shirley Institute, Didsbury, Manchester.

The Survey of Fruit Soils.—An investigation is being undertaken by the horticultural stations at Cambridge University and Long Ashton, to ascertain the extent to which fruit growing can be correlated with soil type in two very distinct districts, viz., East Anglia and West Midlands. In East Anglia fruit is grown on a variety of soils, whilst in the West Midlands it is grown on, apparently, a single definite soil type. Other factors in fruit growing, such as climate, altitude, aspect and water table, appear to be relatively uniform in the first area, although they differ widely in the second. It would appear to be necessary to examine the soil to a depth of two feet, which seems, from a pre-

liminary examination undertaken by the Long Ashton Station, to be the extent and depth of root range of fruit trees. The main survey will include an examination at each plantation visited of soil character and the behaviour of the trees. A small grant has been recommended by the Development Commissioners and sanctioned by the Treasury, and if satisfied with the working of the scheme these authorities are prepared to recommend further grants.

Appointments for the Ensuing Week.—Tuesday, December 5: Royal Caledonian Horticultural Society's meeting; Bournemouth Gardeners' Association's meeting.—Wednesday, December 6: Royal Agricultural Society's Council meeting; National Viola and Pansy Society's meeting; Glasgow and West of Scotland Horticultural Society's lecture on "Our allotments—as they are, and what they might be," by Mr. Alex. Buist.—Thursday, December 7: Manchester and North of England Orchid Society's meeting.—Saturday, December 9: Ringwood Society's meeting.

"The Gardeners' Chronicle" Seventy-five Years Ago.—*Dr. Hooker's Botanical Mission to India.*—The increased and increasing patronage which the Government of this country affords to science is a subject of high satisfaction to all naturalists. This patronage is peculiarly evinced in the liberality with which the treasures contained in the British Museum, and those in the Royal Gardens of Kew, are rendered available to the public good. In connection with the latter establishment, we have to announce that one of the most enthusiastic votaries of botany, whose name stands at the head of the present article, has just quitted this country to further its interests. Dr. Hooker, having brought his *Flora Antarctica*, part of the results of a previous voyage, to a close, has been appointed by H.M. Government to investigate the vegetable productions of India, and especially of the Himalaya mountains; and as a treaty is now in progress of negotiation between the British powers in Hindustan and the Chinese, with reference to the boundaries of Thibet, it is possible even the latter interesting region may be visited by Dr. Hooker in the course of his journey. The most important assistance, in exploring the botany of Northern India, is promised to our traveller by His Excellency the Governor-General, Lord Dalhousie, and by the Court of Directors of the Honourable India Company. After spending about twelve months in this undertaking, Dr. Hooker's instructions are to return in 1849 to Calcutta, and thence proceed to Singapore and Borneo. At the latter island, the valuable aid of His Excellency, Mr. Brooke, and the protection afforded by H.M.S. *Meander* (commanded by the Hon. Capt. Keppel, to which ship Dr. Hooker will be attached as supernumerary medical officer), will enable Dr. Hooker to fulfil the designs of the noble and enlightened First Lord of the Admiralty, Lord Auckland, who directs that he shall pursue his botanical researches and draw up a report on the vegetable productions of the British settlement of Labuan and such parts of Borneo as can safely be explored. It is especially his object to ascend, if possible, the great mountain of Keeney Baloo, supposed to be 14,000 feet in height. Dr. Hooker embarked at Portsmouth on November 11 in H.M. steam frigate *Sidon*, which conveys His Excellency, Lord Dalhousie, to Alexandria, en route for Calcutta, and he may be expected to arrive there towards the latter end of this month (December). Two or three months will probably be devoted to investigating the plains of Bengal, and particularly the fossil vegetable remains in the coal formations at Burdwan; and then Dr. Hooker will journey northward, perhaps to Sikkim; but his exact route must considerably depend upon circumstances which it is impossible yet to foresee. *London Journal of Botany Gard. Chron.*, December 4, 1847.

Publication Received.—*The Fungicidal Properties of Certain Spray-Fluids.* III. By Messrs. E. Horton and E. S. Salmon. Reprinted from the *Journal of Agricultural Science*, Vol. XII, Part III. University Press, Cambridge.

TREES AND SHRUBS.

PSEUDOLARIX FORTUNEI.

THE Golden Larch, the popular name given to *Pseudolarix Fortunei* because of its gloriously coloured foliage in autumn, was first introduced by Robert Fortune, from China in 1853. In some nursery catalogues the name *Pseudolarix Kaempferi* appears, and still more rarely the name of *Larix Kaempferi*. From a true Larch the subject of this note differs in having clustered male catkins (in the Larch they are borne singly); and in the cones falling to pieces when ripe (those of the Larch fall and remain intact). The leaves are larger and stouter than in the Larch, the largest exceeding two inches long and $\frac{1}{2}$ -inch wide. Compared also with the tall, quick-growing Larch the *Pseudolarix* is a sturdy, thick-set tree with stiff, horizontal branches, and it is of slower growth.



FIG. 129.—CONES OF PSEUDOLARIX FORTUNEI.

In autumn the leaves fall and reveal thickly set clusters of woody cones, some two inches broad and deep (Fig. 129). Taken from the branches and placed in soil they might paradoxically be passed by as Houseleeks.

As a lawn specimen *Pseudolarix Fortunei* is a most beautiful and interesting tree. The best means of increasing it is to raise plants from imported seeds. So far we have failed to obtain good seeds from the Kew trees. 4. O.

ACER NIKOENSE.

THE Nikko Maple in its glorious autumn foliage is this year the most beautiful tree among the large collection of *Acers* near the flag-staff at Kew. This clean-growing, upstanding young tree, some 20 feet in height, has leaflets of a rich, dark red or crimson hue, and provides a gorgeous display of glowing colour in the autumn sunlight.

Acer nikoense was first introduced by Mr. Chas. Maries, who sent home seeds from Japan to Messrs. James Veitch and Sons, in 1881. It is also a native of Central China, and wild trees grow up to about 50 feet in height. The leaves consist of three leaflets with a densely hairy stalk, the centre leaflet up to $\frac{1}{2}$ or 5 inches long, 2 to $2\frac{1}{2}$ inches wide at the centre, oval, tapering to the ends, the side leaflets being rather smaller and stalkless, densely hairy beneath and with shallow, wide-toothed margins. The small, yellow, pendent flowers are mostly developed in threes, and they are followed by thickly felted, brown nutlets. 4. O.

THE ROSE GARDEN.

ROSA SPECIES.

THERE are many species of *Rosa* of great beauty, and where space permits they should find inclusion in the garden in greater or lesser degree in accordance with the space at command. Some have beauty of flower and perfume; others beauty of wood; and most have the great charm of producing pretty fruit, generally known as hips.

Rosa lutea, the Austrian Briar Rose from which originated the fine race of *Pernetiana* Roses; *R. alba*, the White Cottage Garden Rose; *R. blanda*, *R. Brunonis*, *R. Hugonis*, *R. Jundzillii*, *R. pomifera*, *R. rugosa*, The Rhamnus Rose of Japan, of which there are many lovely hybrid forms; *R. Giraldui*, *R. Helenae*, *R. Moyesii* and its variety *R. M. rosea*, *R. Pratii*, *R. Soulieana*, *R. omeiensis*, and *R. Will-*

mottiae are all worthy of inclusion for their floral beauty; whilst for coloured wood, such species as *R. lucida*, *R. nitida* and *R. Pratii*, with their bright red stems in winter, *R. longicuspis* with chocolate-coloured growths, *R. omeiensis pteracantha*, with wonderful translucent red spines, and *R. rubrifolia* with plum-coloured foliage and wood, all have their claim to decorative effect, especially during the winter.

Rose species producing ornamental hips are numerous. Two old favourites are *Rosa pomifera*, the Apple-fruited Rose, with large, red fruits; and *R. rugosa*, with large, flat-shaped, deep red fruits that at first glance look something like red-coloured Medlars. Other good fruiting species are *R. Moyesii*, with bright red, bottle-shaped fruits; *R. Helenae*, that develops many bunches of red fruits; *R. setipoda*, one of the most beautiful of fruiting Roses; *R. Soulieana*, with medium sized, egg-shaped, orange-red fruits; and *R. Giraldui*, which carries masses of long-shaped, scarlet hips. Further species that are almost as good as those already mentioned for their pretty hips, are *R. acicularis*, *R. alpina*, *R. albaica*, *R. bracteata*, *R. humilis*, *R. macrophylla*, *R. nitida*, *R. Webbiana*, *R. caudata*, *R. Davidii*, *R. nipponensis* and *R. Willmottiae*.

Some of the kinds named are rampant growers, and where it is possible to devote space entirely to these wild Roses a very interesting collection may be formed. E. Beckett.

The Week's Work.

HARDY FRUIT GARDEN.

By H. MARKHAM, Gardener to the EARL OF STRAFFORD,
Wrotham Park, Barnet.

Espalier Trained Trees.—The pruning of these trees should be done in mild weather, whether they are trained on walls or on wires stretched along the sides of paths. Neglected trees which may have useless snags will need extra care and judgment in reducing their number, so that those left to fruit may develop strong fruit buds for some few years to come. It is not uncommon to see espalier trees crowded with useless shoots that weaken those that should bear fruits. All fruiting wood should have ample space to develop strong, fruitful flower buds which will be strong enough to set their fruits in adverse weather. Prune the young shoots of the current season to a couple of buds; any that are required for extension should be left 10 inches to 12 inches in length.

Planting Young Trees.—Plant young trees 14 feet apart, and very strong growers 16 feet asunder. Plant in good soil that is efficiently drained. Choose only useful varieties that will maintain a supply of fruits over a long season. In laying the foundation of a young tree, be very careful to select shoots at equal distances apart to build up an evenly balanced tree. The leaders will need to be shortened to one bud above where the next pair of branches or tiers is required. In some cases, with good attention, two pairs of tiers may be made in one season by allowing the leader to grow a suitable length and resorting to what is known as notching—that is, by cutting well into the wood just above the buds required to form the bottom pair of branches.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the
DUKE OF MARLBOROUGH, K.G., Blenheim Palace,
Woodstock, Oxon.

Laelia anceps and its Varieties.—These Orchids and all the inmates of the Mexican house should be examined. Those developing flower spikes should be neatly staked, cleaned, and so arranged that they receive the maximum amount of sunlight. These Orchids delight in an abundance of light, air, and moisture whilst making their growth, but need a decided rest after flowering. At this season they should be watered whenever they become dry, until their flowers are fully developed. Care should be taken that the long spikes do not touch the glass, or many flowers will be spoiled. In houses where the head room is limited the flower spikes should be tied down, so that they do not reach the roof.

Laelia harpophylla.—This bright orange-red Laelia is not so extensively cultivated as its merits deserve. The flowers are very attractive, especially when seen in the mass, and when arranged in a group these plants always command attention. They should now be removed to a light position in the Cattleya house, and afforded plenty of water at the roots only, until the flowers open, when the plants should be kept on the dry side in a cool, intermediate house.

Trichopilia.—*Trichopilia fragrans*, one of the best white sweet-scented Orchids, is developing its flower spikes, and will soon be in bloom. It is a plant worthy of a place in any collection, for spikes of deliciously-scented white Orchids suitable for any kind of decoration are not plentiful, and undoubtedly Orchids will be grown in the future for decorative purposes more than they have been in the past. This plant requires a trifle more heat than *Odontoglossum crispum*, and may be grown in the warmer end of the cool house, or in any moist house where the winter temperature does not fall below 50°. *T. suavis*, *T. coccinea*, *T. tortilis*, *T. crispa*, and *T. marginata* require a few degrees more heat and are best wintered

in a house having a cool intermediate temperature. Most of these plants have completed their growths, and should not receive too much water, or their pseudo-bulbs and leaves will quickly become spotted. So long as the pseudo-bulbs remain plump, very little or no water will be required, but if they show signs of shrivelling, a moderate amount of moisture may be afforded.

Resting Trichopilias.—Whilst at rest these Orchids should be grown in a moderately dry position, where they may enjoy a certain amount of light, but not actual sunshine, as the sun will quickly turn the leaves from the deepest green to a sickly, unhealthy hue. When about to open their flowers, the plants are best removed to a shady position in the Cattleya house, where the blooms will open better and be less likely to become spotted than if left in the cool, damp atmosphere of the cool house. *Trichopilias* should be repotted soon after growth commences, and they will succeed in a similar compost to that used for *Odontoglossums*. In potting, keep the plants well elevated up in the pots, as, should moisture lodge in or about the young growths, there is a danger of them rotting. The plants now flowering will be best potted when the days lengthen in the early spring. When growing freely they delight in an abundant supply of water at the roots. In cases where, from any cause, the plants are late in making their growths, and are in consequence now growing, they may be given a light position in the Cattleya house so that they may become matured as speedily as possible. Some of the small growing kinds are best grown suspended from the roof rafters on the shady side of the house.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir C. NALL-CAIN, Bart.,
The Node, Codicote, Welwyn, Hertfordshire.

Lily of the Valley.—Where this charming, sweetly-scented flower is in constant demand good strong crowns should be obtained for forcing. They may either be grown in 5-inch or 6-inch pots, or they may be placed thickly in boxes, from which they may be removed, when in flower, to ornamental bowis. These will be found to take no harm, as they will have formed no fresh roots at this stage. To be successful with the early forcing of this flower a temperature of 75° to 80° is necessary. The soil or fibre in which they are grown should never be allowed to become dry; the pots or boxes may be covered with moss to conserve the soil moisture.

Violets.—Since they were placed in frames Violets have made good growth and are now well established in the soil. Give attention to pinching out all runners, and remove all decaying leaves. Disturb the soil between the plants lightly at intervals, as this will keep the atmosphere about the plants sweet. To be successful with Violets in frames plenty of fresh air should be admitted to the latter on all favourable occasions, and whenever frost is not expected air should be admitted even at night, for Violets resent a close atmosphere.

Primula malacoides.—Seedlings of this *Primula* raised from seed sown as advised in a previous calendar are ready for transferring to their final pots. I do not favour the use of large receptacles for these plants; I have found them to flower more profusely in pots 4½-inch in diameter than in those of a larger size, provided stimulant is given the roots in the form of liquid manure; moreover, they are less liable to rot off at the collar in small receptacles. These *Primulas* should be grown in a cool house where heat is only employed to exclude frost.

Schizanthus.—Plants of *Schizanthus* of the large flowering hybrids raised from seeds sown as advised for flowering in the greenhouse next spring should be ready for placing in 5-inch or 6-inch pots. Place them on a shelf near the roof-glass, and use only sufficient fire-heat to keep out frost. A light, open compost is the most suitable for these plants. When they have well filled their receptacles with roots, give the latter a little concentrated fertiliser.

THE KITCHEN GARDEN.

By JAMES E. HATHAWAY, Gardener to JOHN BRENNAND,
Esq., Baldersby Park, Thirsk, Yorkshire.

Tomatoes.—Plants in bearing require careful attention. Those which are carrying fruits that are ripening should not be given too much water; the temperature should be maintained at 60°, and air admitted on all favourable occasions.

Carrots.—A sowing of Carrots of the Early Horn type should be made in frames or on a hot-bed. If sown in drills, Radishes may be sown thinly between each row. Before sowing the seed see that the heat of the hot-bed is not too strong.

Salads.—To maintain a regular supply of salads, small quantities of Dandelion and Chicory should be introduced into heat every week. Mustard and Cress should be sown every week; these salads are easily grown in shallow boxes, sowing the seed on the surface of the soil and covering the box with paper until the plants have germinated. Lettuces growing in frames should receive careful attention, admitting plenty of fresh air or the foliage will damp off. Blanch sufficient Endive to meet the requirements of the establishment.

Mint and Tarragon.—These herbs may be lifted, placed in boxes and forced. They both force readily.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER CLAY,
M.P., Ford Manor, Lingfield, Surrey.

Pot Vines.—These have largely gone out of fashion, but the majority of growers who are required to furnish ripe Grapes in May still grow or buy a few pot vines annually to ensure a longer rest to the vines in the earliest permanent house. Pot vines, provided they are ripe and well rooted, yield good crops of fruit. Successful forcing depends more on the preparation of the vines than on the detailed operations of forcing. I have seen very strong vines a complete failure, whilst weaker, but thoroughly ripened canes have developed plenty of good bunches. Ripened wood is very desirable; well rooted vines, with hard, brown stems, which have had a good rest, may now be started with every chance of success, by those who understand the routine of forcing. The pit or house should not be too large, but light and well heated; a span-roof admits most light, and this type of house requires most fire heat, so that often a good lean-to house facing south is the best for early forcing. If the house or pit is deep enough to receive it, a good body of fermenting material is useful, not only as a stimulant to the roots, but also for keeping the house supplied with atmospheric moisture. See that the drainage hole is not stopped, and then lightly top dress the roots with a mixture of loam and bone-meal. Stand the plants in position, and let the temperature range from 48° to 53° at night, and as high as 60° by day; admit a little fresh air to keep the atmosphere of theinery sweet and healthy. Tepid water applied to the roots plays a very important part, but of two evils, it is better to give too little moisture than too much, as an excess before the buds break often destroys the most valuable roots.

Early Peaches.—In a recent calendar I mentioned the importance of pruning the trees early in the early Peach house, cleansing the house and trees and making ready generally for starting forcing. If ripe Peaches are required from trained trees in May or early June, the house should be closed forthwith, as it is better to start early at a low temperature with plenty of air than to force hard against time and spoil the flavour at the finish. Inside borders should be carefully examined to ascertain if they are in a moist condition down to the drainage, and although late to remedy a common defect, they should be well watered with tepid water if the soil is found to be dry. For some time after the house is closed it will not be necessary to use fire-heat, especially if fer-

menting material is employed and frequently turned. Fresh air is most important to the welfare of the trees before the buds break. Therefore it is better to utilise the hot-water pipes than to keep the house shut up and full of cold vapour. Many experienced growers think that ventilation through the early stage is of trifling importance; this is a mistake, as trees that are started with a free circulation of fresh air expand stronger and more perfect flowers than others which do not receive this attention. On fine, bright days the ventilators may be opened, and, when the buds become prominent, gentle fire-heat will permit of the admission of more air, also gentle dewing of the trees with the syringe once or twice during the brightest part of the day. A temperature of 40° to 45° is suitable at first, then, as the buds swell, 45° may be taken as the minimum, and 55° as the maximum, rising to 60° with sun-heat in the middle of the day.

THE FLOWER GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

Antirrhinum.—Antirrhinums raised from seed sown last month should be pricked off into boxes and placed in cold frames, where protection can be afforded them for a time. Keep the frames close for a few days to enable the plants to become established in their new quarters, and thereafter gradually admit air to them, increasing the amount so that in time the lights may be removed, and only utilised during very severe weather.

Roman Hyacinths.—The earliest batch of these bulbs should be well rooted, and may be removed from their plunging material and stood in a cold frame for a week or ten days before introducing some of the stronger specimens into the forcing house. To insure fairly long spikes the pots should not be arranged too close to the roof-glass.

Rose Planting.—Rose growers from now onwards will be engaged in the preparation of the ground and the planting of Roses. Select, if possible, a south or south-western aspect, for Roses love sunlight, and choose a situation protected from the north and north-east, so that keen winds from those quarters do not harm the plants. Let the aspect otherwise be open, for it is not necessary to have a closed-in site for Roses, and possibility of stagnant atmosphere should be avoided, as that would be likely to favour attacks of mildew on the plants. Where protection has to be devised against winds, close-growing hedges are ideal for breaking the force of winds, whilst permitting a free passage of air.

Drainage.—An important point, especially on heavy, tenacious soils, is the ridding of these, by some effectively improvised drainage, of surface water in times of heavy rains, as Roses are harmed by stagnant water around their roots.

HARDY FLOWER BORDER.

ORIENTAL POPPIES.

PAPAVER orientale is an old garden favourite of true regal splendour; for a gorgeous display and combination of colour it is a distinct rival to the best of the Darwin Tulips or the Chinese Paeonies.

Flowering during May, June, and frequently into July, the plants reign supreme for general garden effect, the different varieties producing a glorious combination of colour from pure white to silvery pink, through salmon-pink to the darkest shade of blood crimson; indeed, all shades are represented except blues and yellows.

These beautiful oriental Poppies are indispensable to any phase of gardening, whether it be the planting of round or oval beds, or for massing in clumps. When planted with a groundwork of Yellow Alyssum, *Phlox subulata* variety *Lelia* or *Achillea mongolica*, over which these giants throw up their numerous stout stems, crowned with crimped, shimmering,

satin-like flowers from amidst huge masses of handsome foliage, they are exceedingly effective.

On October 21 I had a dozen or more flowers of the most beautiful shades on my table, which is proof of the plants' persistence in flowering. The varieties included the gorgeous salmon-pink, *Mrs. Perry*, also *Lady Frederick Moore*, a large flower, with translucent colouring of the most delightful shade of pink, suffused with salmon; *Princess Ena*, one of the most charming sorts, with dainty orange-salmon coloured, Tulip-shaped flowers; *Mrs. Lockett*

in October for the second time this year, the moist season evidently proving of great benefit to them. Both foliage and flower stems were quite as showy as during May and June. Other meritorious varieties are *Col. Bowles*, *Goliath*, *Beauty of Livermere*, *bracteatum*, *multiflorus*, *Brilliant*, *Mogul*, and *Royal Scarlet*, all shades of rich scarlet to blood crimson and most effective; *King George* and *Lord Lambourne* are departures from the general form in Poppies, having characteristics quite distinct from all others in their prettily-fringed petals



FIG. 130.—CHRYSANTHEMUM NOVEMBER CHEER. N.C.S. FIRST CLASS CERTIFICATE, NOV. 16. SHOWN BY MESSRS. W. WELLS AND CO. (SEE P. 314).

Agnew, another shade of salmon, shaded orange, in shape resembling *Papaver tuliferum*; *Enfield Beauty*, a variety with stout stems, and one that should be in all collections, as it produces numerous flowers of rich salmon colour, with conspicuous maroon-coloured bases well into July; *Private Gerald Perry*, a tall-growing variety of exceeding merit, producing soft apricot-pink flowers, with large crimson spots; *Immaculata*, a perfectly spotless flower of bright scarlet, and very distinct; *Crimped Beauty*, prettily crimped flower, of a delightful shade of orange scarlet; *Miss Julia James*, a pretty dwarf-growing variety, of sturdy habit, with rich salmon-pink flowers, distinctly cup-shaped, and with a conspicuous maroon blotch; and *Betty*, a distinct variety of miniature habit, with flowers a delightful shade of apricot, passing to shell pink.

The above and several other varieties flowered

(resembling a Parrot Tulip), with rich orange-scarlet flowers.

In the salmon, apricot and silvery pink shades, *Countess Stair*, *E. A. Bowles*, *Jenny Mawson*, *Marie Studholme*, *Princess Victoria Louise*, *Lady Haskett* (*Pigmy*), and *Mrs. Maurice Bevan* are all effective. For dark maroon or mahogany purple shades, *Mahogany*, *Ameliore* and *Menelik* are distinct and showy.

To Mr. Amos Perry, of Enfield, we owe the introduction of the pure white oriental Poppy, which formed the subject of a supplementary illustration in *Gard. Chron.*, and it is certainly one of the most important additions to this family. The flowers are unique in shape, of a pure white, with a crimson maroon central blotch at the base of each petal.

These Poppies are of the easiest culture: almost any kind of soil suits them, but they succeed best in a deep, rich loam. *W. Logan.*

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Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 5, Tavistock Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

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OLD ENGLISH HERBALS.

IT is somewhat difficult to form a just estimate of this new contribution to the literature dealing with herbals.* So many of its pages are such delightful reading that one almost hesitates to criticise it in any way. Nevertheless, it is of importance, in considering such a book as this, to recognise fully the writer's motives for writing it. In the present instance, it is an intense interest in herb-lore and folk-medicine which has guided the author in her selection from, and comments on, the old English herbals from the earliest times down to 1715, which is the date of the latest work dealt with in the text. In several places this intense interest has led the writer to express her own opinions in very poetical and mystic phrases, which may or may not meet with the approval of the serious student. Her attitude towards the old books is expressed thus: "There is only one way of understanding these old writers, and that is to forget ourselves entirely and to try to look at the world of nature as they did. It is not 'much learning' that is required, but sympathy and imagination." Regarding the medicinal value of herbs, the writer holds that "Even the most cursory reading of the book [Gerard's *Herbal*] suggests how much we lose by the lack of the old simple belief in the efficacy of herbs to cure not only physical ills, but also those of the mind and even of the heart. . . . Doctors are cautious folk nowadays, but it is wonderful to think of a time when the world was so young that people were brave and hopeful enough to imagine that mere humans could alleviate, even cure, the sorrows of others. If ever anything so closely approaching the miraculous is attempted again one feels very sure that we shall turn, as the wise men of the oldest civilisations did, to God's most beautiful creations to accomplish the miracle." Further, the book ends with a long paragraph, in which a belief in brownies and other fairies is advocated, intermingled with some references to the mystic connection between flowers and stars. It is, indeed, plainly evident that the writer is not interested in the study of herbals from the point of view of the history of botany; and although many interesting examples of the early medical beliefs and cures are given, there is no systematic attempt to trace the evolution of early medical science in England.

Of the seven chapters of the book, the longest is the first, on the Anglo-Saxon herbals, and is, perhaps, the most successful portion. Basing her researches upon four of the oldest MSS., the *Leech Book of Bald*, the *Lucnunga*, and the Saxon translations of the *Herbarium of Apuleius* and the so-called *Peri Didaxeon*, the writer reconstructs with much sympathy and imagination the picture of our Anglo-Saxon ancestors in their relations to the plant life around them. A careful study of these MSS. of the tenth and eleventh centuries has shown that the beliefs they contain are far older than the MSS. themselves, and take us back to the dawn of history: "It is almost overwhelming to recognise that possibly we have here fragments of the plant lore of our ancestors who lived when Attila's hordes were devastating Europe, and that in the charms and ceremonies connected with the picking and administering of herbs we are carried back to forms of religion so ancient that, compared to it, the worship of Woden is modern." These ancient beliefs in relation to herbs are amply explained, and those in relation to the origin of disease, the doctrines of "elf-shot," "flying-venom," and the "worm" are presented to our minds with much skill. However, much appears to have been done by the aid of simple herbal remedies, without any reference to the mystic charms and amulets, which were a feature of all early medicine. A description is given of an Anglo-Saxon vapour-bath, which may have suited our hardy ancestors, but would probably prove fatal to a modern!

Among many of the interesting prescriptions quoted is one that contains a touch of the humour of those early times: "Against bite of snake, if the man procure and eateth rind out of Paradise, no venom will hurt him. This said he that wrote this book that the rind was hard gotten!" A glimpse of some of these ancient medical beliefs in practice is given in the form of an imaginative visit to an Anglo-Saxon hamlet. One slight error occurs in this chapter on p. 9, where among several garden plants said to be common both to Anglo-Saxon and modern cottage gardens, the Sunflower is inadvertently included.

Between these early MSS. herbals and the next original writings on herbals by Englishmen there appears to be a considerable gap, the next of any importance being the *De Proprietatibus Rerum* of Bartholomaeus Anglicus, the encyclopaedist of the Middle Ages. The chapters dealing with the English printed herbals naturally assume the character of a compilation from other sources, but the quotations from the herbals themselves are mostly those dealing with the survivals of ancient herb-lore and folk-medicine. The greater part of the third chapter is devoted to William Turner and his *Herbal*. The account of Turner's life has been compiled from the detailed biography by Dr. B. Daydon Jackson, which is attached to his facsimile edition of Turner's *Libellus de re herbaria novus*. Many minor errors appear to have crept into the transcription made for the present book, notably on p. 79, where the date of the letter, January 24, 1559-60, is obviously an error for March 25, 1563; and in the same letter the word "viterly" is omitted. Further, "Doctor Wolton" should be "Doctor Watton."

A whole chapter is devoted to Gerard's *Herbal*, but the more important second edition by Thomas Johnson is dismissed with a mention. An attempt is made to excuse Gerard for his peridy, by an appeal to the great fascination of his *Herbal*; but in this detail in the history of botany I think that the verdict of previous writers will be upheld, namely, that Gerard condemned himself when he stated in his address to the reader that Dr. Priest's translation (which formed the basis of the *Herbal*) had perished. The chapter ends with a reference to Shakespeare being a neighbour of Gerard, when the former is said to have lodged with a Huguenot named Mountjoy from 1598-1604, at the corner of Mugwell (now Monkswell) Street. Among the



The proper name of it amongst the Indians is *Picich*, for the name of *Tobacco* is given to it by our Spaniards, by reason of an Island that is named *Tobaco*.

It is an herbe that dooth growe and come to bee very greate: many times too bee greater then a Lemmon tree.

FIG. 131. — REPRODUCTION OF THE FIRST PRINTED ILLUSTRATION OF THE TOBACCO PLANT, FROM NICOLAS MONARDES' "JOYFULL NEWES OUT OF THE NEWE FOUND WORLDE" (1577).

few authentic facts concerning the life of Shakespeare, has this one ever been included?

In the chapter dealing with "Herbals of the New World," reference is made to a little-known book by John Josselyn, *New England's Rarities Discovered*, London, 1672, from which is printed in full a most interesting list of the garden plants and vegetables grown by the Pilgrim Fathers. A slight error occurs in this chapter, where Petiver's herbarium is stated to be at present preserved in the Victoria and Albert Museum; it is, however, to be found in the British Museum (Natural History).

The remainder of the book deals with Parkinson's works in a very appreciative manner, also with those of Culpeper and William Coles. The three bibliographies placed at the end of the book will be found useful to students, comprising as they do the MS. Herbals to 1400, the English printed Herbals, and a selection of the foreign Herbals.

The illustrations comprise a coloured frontispiece from a twelfth century MS., and seventeen other illustrations in half-tone. One of the latter, showing the first printed illustration of the Tobacco plant is reproduced in Fig. 131. *S. Savage.*

* *The Old English Herbals.* By Eleanor Sinclair Rohde. Longmans, Green and Co. 21s. net.

MR. KINGDON WARD'S SEVENTH EXPEDITION IN ASIA.*

No. III. TO LICHANG.

We left Ta-li on March 26, a beautiful spring day. The recent rain had brought out the smell of the rusted earth, and hedges of Roses, Honeysuckle and Elaeagnus scented the lanes.

The main road to Lichang-fu, by Ho-ch'ing, is not followed by the muleteers, except by request, as there is a high mountain to cross. Instead, they follow the north road as though going to the Mekong river, then turn off abruptly above the Yangtze. This latter route I had followed nine years ago, so I decided to go by Ho-ch'ing this time.

The narrow valleys north of the Ta-li lake, overflowing with rich crops of Rice, Beans, and Opium, are a picture of peace and plenty in spring. By the roadside are whispering brooks, trimmed with weeds, amongst which a dark-flowered form of *Primula malacoides* is prominent. In the hedges, Jasmine, both canary yellow and snow white, Barberry, and a smother of Roses, greet the eye. The villages are shaded by Paulownia and Walnut trees; a gentle hum rises from the bees in the fruit trees. Three marches brought us to Nui kai, or "cow market," where the roads diverge. We were now in the limestone country (a hot spring gurgles from the foot of a cliff huddled by), which stretches northwards in lofty crumpled ranges for many leagues, a paradise of flowers. But above the alluvium of the valley, opulent with crops, the mountains are still rather bleak at this season.

On March 29, we turned in towards the 12,000 foot range, powdered with freshly fallen snow, which separates the Chien-ch'uan valley from the Yangtze; and after the mid-day halt, entered a limestone ravine, and began to climb in earnest.

The sides of this ravine were clothed with scrub Oak, amongst which flowered an occasional bush of *Rhododendron Delavayi*, with *R. decorum*, the latter not yet in flower. The sunniest scarps, however, were pocked with the tightly closed spheres of *Selaginella*, and with *Didissandra*, amongst which a tender vine just coming into leaf was the only green thing.

On the sheltered slope, an abbreviated form of *Primula lichiangensis* was struggling into flower. Higher up, a streak of golden yellow caught my eye. I turned away, unwilling to be "drawn." "A Barberry," I said to myself. "or a weed." Then I repented, and climbed the cliff, ashamed of my slackness. In a few minutes I stood gazing at a beautiful *Suffruticosa Primula*! Speechless with delight, I could only stare. Presently, "*Primula Forrestii*, what a splendid thing." (I had never seen it before, except in a photograph.) I looked at it curiously. "Fancy *Primula Forrestii* at 8,000 feet! And I always thought it came from high up on the Lichiang range! The plant is not very like its portrait (see Fig. 132), but I suppose this is a dwarf form." Thus I soliloquised. Then I collected a few specimens, saved what seed I could from the old capsules, and went my way.

We climbed another thousand feet and found the slopes pink with *Rhododendron racemosum*, the brilliant silver under surface of whose stiff leaves unfortunately does not show readily.

An hour's climb next morning brought us to the pass, which has an altitude of about 10,500 feet. In the Oak forest a small tree *Rhododendron* was in full bloom. The rather narrow, tubular corollas, in moderate trusses, are cream coloured, with dark speckles all over the inside; or, frequently without speckles, flushed with flesh pink. The stiff leaves are glabrous. (K. W. 5,019; probably 5,010.) I think I found this species in fruit last year, near Yung-pei; but I do not know its name.

There was another species of *Rhododendron* just coming into bloom—a bush or small tree, with little purple flowers in trusses of five or

six. I had collected foliage, fruit, and seed of this plant last year at Mu-li (it was known to me as *R. "rusty leaf"*), but I had not then seen the flowers. It had snowed in the night, and a sprinkling of snow still lay on the sheltered slope.

Descending from the pass, we found a shallow, marshy trough, with patches of dwarf *Rhododendron* (*R. intricatum*?) and Bamboo scattered over the slopes. This was backed by Oak forests, in which grew specimens of a large-leaved tree *Rhododendron*, not in flower. Further west, on the Burma frontier, this valley would have been filled with alpine meadow; here it was only turf, showing as yet no sign of returning life. After a descent of about 1,500 feet, we entered another limestone ravine, and here, without a doubt, was *Primula Forrestii* in all its glory. There was no mistaking it after seeing a photograph and reading a description; for half a mile it coloured the cliffs in amazing profusion. It grew under ledges, under Pine trees, in thickets, well sheltered, in a thoroughly drained loamy

puvinata, form cushions studded with flowers nestling down amongst the leaves. Its gay gamboge-coloured flowers, enveloped in an elusive fragrance, are as charming as anything in the *Suffruticosa* section. By the way, *P. pulvinata* is the only other short-stemmed form with yellow flowers I know.

Continuing the descent to Ho-ch'ing, we crossed a barren spur, covered with sharp edged outcrops of grey limestone. *Androsace spinuliflora* was in fruit here, and the small blue *Nivalis Primula* collected last year. (K.W. 4,154). Tufts of *Rhododendron racemosum*, bushes of Barberry, and low thickets of *Rosa sericea*, with tiny flowers, besides *Daphne*, added the only touch of colour. Lower down, violet-flowered *Primula pseudo-denticulata* reappeared.

On the Ho-ch'ing plain, *Chionanthus chinensis* was in full blossom. Well is it named the Snow-drop Tree!

Ho-ch'ing, a small walled city with several handsome buildings, was reached at dusk. Here we put up at an extremely dirty inn.



FIG. 132.—PRIMULA FORRESTII.

marl. I am beginning to think that some of the finest plants—amongst which I include *P. Forrestii*, grow by the wayside, and require no search. Certainly it would be impossible to go to Ho-ch'ing by this road, summer and winter, and miss it!

Imagine my surprise on comparing *P. Forrestii* (K.W. 5,017) with my first *suffruticosa* mentioned above (K.W. 5,014) to find that they were quite different species!

To compare them shortly. *P. Forrestii* is a bigger plant in all its parts than *Primula* 5,014, and has twice as many flowers on the truss. It is hairy all over—*P. 5,014* is quite glabrous. The calyx and bracts are of a different shape, and are not mealy, at least, not in the mature state, whereas in *P. 5,014* they are enveloped in meal. The leaves are larger, with longer petioles, and a more crenate margin; and the meal on the under surface is dead white, or silver. In *P. 5,014* the meal on the under surface of the foliage is pale greenish silver.

I am well satisfied that *P. 5,014* is not even a variety of *P. Forrestii*. In habit it is intermediate between those forms which, like *P. Forrestii* and *P. redolens*, hoist the flowers well above the foliage; and those which like *P.*

On March 31 we completed the journey to Lichiang, covering 25 miles, and not reaching the city till 9 o'clock at night, having been thirteen hours on the road, including the mid-day halt. A high limestone ridge is crossed between Ho-ch'ing and Lichiang, but the stream from the latter valley flows direct into the Ho-ch'ing valley, issuing from the base of the cliff. Both valleys are ancient lake beds, and streams from the boundary range have cut deep "chines" through the Pine-clad alluvium. *P. Kingdon Ward.*

New Name for a Hybrid Berberis.—On October 31, a hybrid Berberis received an Award of Merit from the Floral Committee of the Royal Horticultural Society when shown by Lady B. Stanley, under her name. It was illustrated in Fig. 114, p. 283, and described in our issue of November 4, p. 274; we now learn from Mr. W. R. Dykes, Secretary of the Royal Horticultural Society, that it was not Lady Stanley's intention that the Berberis should bear her name, and the Committee has agreed that the plant should be called, in future, *Berberis Sibbertoft Coral*.

* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 23, August 20, September 3, October 8, October 29, 1921, January 7, January 21, March 11, March 25, April 8, April 22, May 6, May 20, June 3, June 17, July 1, July 15, July 22, August 5, August 26, September 9, September 24, October 7, October 21, November 4, and November 18, 1922.

ORCHID NOTES AND GLEANINGS.

CATTLEYA MARITA.

MR. J. T. BARKER, gardener to his Grace the Duke of Marlborough, Blenheim Palace, Woodstock, sends a fine flower of a new cross between *Cattleya* President Wilson (*Fabia* × *labiata*) and *C. Dowiana aurea*, raised at Blenheim. It may be classed with *C. Hardyana alba*, the mauve colour of *C. labiata* having been obliterated by the second introduction of *C. Dowiana*. The sepals and petals are white, with a very slight sulphur shade. The broadly expanded lip is very finely coloured. The front half is bright Tyrian purple, and the base reddish-purple, with numerous gold lines extending to the patches of bright yellow which are on the middle area. A narrow purple margin extends over the side lobes. The flower is very fragrant, and the hybrid will doubtless prove constant as an autumn and winter blooming form.

CATTLEYA ADULA, GLEBE VARIETY.

CATTLEYA ADULA, first flowered by Messrs. Charlesworth in 1905, resulting from a cross between *C. bicolor* and *C. Hardyana*, has been a great favourite, and displayed considerable variety in its flowers, which vary in form and in colour from the varieties of *C. Iris* (*bicolor* × *Dowiana*), flowered by the same firm in 1901. None of the forms compares favourably with the beautiful specimen of *C. Adula*, Glebe variety, shown by Mrs. Mary Joicey, The Hill, Witley (Orchid grower Mr. J. Mackall), in her admirable group at the Orchid Show of the Royal Horticultural Society on October 31.

This variety probably resulted from the reverse cross, for its sepals and petals, which are of a charming shade of gold-bronze, with rose veining, and the round, flatly-displayed, ruby-purple lip has a much nearer approach to the *C. Warszewiczii* in *C. Hardyana* than other forms. The flowers of all this section are fragrant and last a considerable time in perfection.

DR. FRED BEDFORD'S ORCHIDS.

THE catalogue of the very remarkable collection of Orchids of the late Dr. Fred Bedford, Esq., of Marden, Kent, received from the sale agents, Messrs. A. J. Keeling and Son, Westgate Hill, Bradford, Yorkshire, shows the loss which the Orchid interests have sustained by the death of this sincere lover of Orchids. He had many rare species which he retained in good condition.

Though rare species formed the bulk of the collection, hybrids were well represented by the best obtainable in those sections in which the owner took the greatest interest, and these are well set forth in the admirable catalogue. The completeness of the collection of species may be understood when it is stated that it embraces over one hundred species of *Masdevallia*; thirty of *Bulbophyllum*, and nearly as many of *Cirrhopetalum*, a good number of *Catasetus*, a very large number of species of *Dendrobium*, and proportionate representation of smaller genera. It is to be hoped that these will obtain good homes. The Orchids were one of the chief pleasures of their late owner.

Laelio-Cattleya PORTIA-PUMILA.

As an example of his success in continuing the blue tint which he has so successfully developed in a large number of *Cattleyas*, into the *Laelio-Cattleyas*, Sir Jeremiah Colman, Bt., Gatton Park, Surrey (gr. Mr. J. Collier), sends a flower of his *Laelio-Cattleya Portia-pumila* (*C. Portia* × *L. pumila*) which, with *L.-C. Parysatis* *coerulea*, he first flowered in 1918. In the *Laelio-Cattleya* now sent the dominating factor is the *C. Bowringiana* *violacea* shown from Gatton Park in 1902. The flower sent is light mauve-blue, the lip being of a darker violet tint. That the importance of these Gatton blue hybrids for giving novelty of colour cannot be over-estimated was shown in the fine groups staged from Gatton Park, both at Holland Park Hall and still more prominently in that arranged at the Royal Horticultural Hall on October 31.

NEW HYBRIDS

(Continued from November 4, page 265).

Name.	Parentage.	Exhibitor.
Brasso-Cattleya Balmoral ...	<i>C. Mossiae</i> × <i>B.-C. The King</i> ...	Sir G. Holford.
Brasso-Cattleya British Queen ...	<i>B.-C. Digbyano-Mendelii</i> × <i>C. Lord Rothschild</i> ...	Mrs. Gratrix.
Brasso-Cattleya Harry F. Menue ...	<i>B.-C. Mrs. J. Leemann</i> × <i>C. D. Undine</i> ...	Sanders.
Brasso-Cattleya Rosette ...	<i>B.-C. Digbyano-Mossiae</i> × <i>C. Luddemanniana</i> ...	Stuart Low.
Brasso-Cattleya R. Seymour Fannin ...	<i>B.-C. Digbyano-Trianae</i> × <i>Dowiana</i> ...	Sanders.
Brasso-Laelio-Cattleya Invicta ...	<i>B.-L. Digbyano-purpurata</i> × <i>C. Hardyana</i> ...	Sanders.
Cattleya Alaska ...	<i>Lady Veitch</i> × <i>Snow Queen</i> ...	Sanders.
Cattleya Hazel ...	<i>Brenda</i> × <i>Percivaliana</i> ...	Sir Geo. Holford.
Cattleya Our Prince ...	<i>Dowiana aurea</i> × <i>King George</i> ...	Flory & Black.
Cattleya Peerless ...	<i>Gaskelliana alba</i> × <i>Lady Veitch</i> ...	Sanders.
Cattleya Salina ...	<i>labiata alba</i> × <i>Astron</i> ...	Cowan.
Cattleya Silver Queen ...	<i>Percivaliana</i> × <i>Snow Queen</i> ...	Sir Geo. Holford.
Cattleya Snowcap ...	<i>Claesiana alba</i> × <i>Saturn alba</i> ...	Armstrong & Brown.
Cattleya Veronica ...	<i>Pittiana</i> × <i>Mossiae</i> ...	Sanders.
Cattleya W. Young ...	<i>Dowiana aurea</i> × <i>Elaine</i> ...	Sanders.
Cymbidium Joan ...	<i>giganteum</i> × <i>Doris</i> ...	Stuart Low.
Cypripedium Ada ...	<i>luteolinsiae</i> × <i>Lord Wolmer</i> ...	Cowan.
Cypripedium Aquila ...	<i>Alcibiades illustris</i> × <i>Germaine Opioix</i> ...	Cowan.
Cypripedium Catherine Hardy ...	<i>Gaston Buttel</i> × <i>Pyramus (Hera Mostyn)</i> ...	Dr. Craven Moore.
Cypripedium Fusilier ...	<i>Selene</i> × <i>Gurka</i> ...	Cowan.
Cypripedium Gwen Dixon ...	<i>Actaeus</i> var. <i>Bianca</i> × <i>Golden Gem</i> ...	Cowan.
Cypripedium Henry Flues ...	<i>Germaine Opioix</i> × <i>Goliath</i> ...	Geordie Dixon.
Cypripedium Moonlight var. Linda ...	<i>Actaeus</i> var. <i>Bianca</i> × <i>Moonbeam</i> ...	Dr. Craven Moore.
Cypripedium Ophis ...	<i>Fairrieannum</i> × <i>Germaine Opioix</i> ...	Cowan.
Cypripedium Pleuron ...	<i>Arthurianum</i> × <i>Pitam</i> ...	Cowan.
Laelio-Cattleya Adela ...	<i>L.-C. Nelthorpe Beauclerk</i> × <i>C. Octave Doin</i> ...	Stuart Low.
Laelio-Cattleya Dodona ...	<i>Haroldiana</i> × <i>Nelthorpe Beauclerk</i> ...	Cowan.
Laelio-Cattleya Dominic ...	<i>C. Luddemanniana</i> × <i>L.-C. Dominiana</i> ...	Sir G. Holford.
Laelio-Cattleya Epsilon ...	<i>C. Empress Frederick</i> × <i>L.-C. Dominicanana</i> ...	McBean.
Laelio-Cattleya Evadne ...	<i>C. Maggie Raphael</i> × <i>L.-C. Orion</i> ...	Stuart Low.
Laelio-Cattleya Josette ...	<i>C. Octave Doin</i> × <i>L.-C. St. Gothard</i> ...	C. Sladden.
Laelio-Cattleya Joyce ...	<i>C. Mendelii</i> × <i>L.-C. Domes</i> ...	Stuart Low.
Laelio-Cattleya Liliana ...	<i>C. Sibyl</i> × <i>L.-C. Thylene</i> ...	Cowan.
Laelio-Cattleya Morvuth ...	<i>St. Gothard</i> × <i>Lustre</i> ...	Sir G. Holford.
Laelio-Cattleya Mrs. Chamberlain ...	<i>L. purpurata</i> × <i>L.-C. Lustre</i> ...	Sir G. Holford.
Laelio-Cattleya Ruby ...	<i>L.-C. Hyena</i> × <i>C. Empress Frederick</i> ...	Stuart Low.
Laelio-Cattleya Shyla ...	<i>C. Pizarro</i> × <i>C. Octave Doin</i> ...	Stuart Low.
Laelio-Cattleya Tamar ...	<i>L.-C. St. Gothard</i> × <i>C. Trianae</i> ...	Cowan.
Laelio-Cattleya Venaja ...	<i>L.-C. Baroness Schneider</i> × <i>Dowiana aurea</i> ...	H. T. Pitt, Esq.
Odontioda Euid ...	<i>Oda Brewii</i> × <i>Odm. Wilkeann</i> ...	Sanders.
Odontioda Socotra ...	<i>Oda Devossiana</i> × <i>Odm. eximium</i> ...	Stuart Low.
Odontoglossum Achilles ...	<i>Black Prince</i> × <i>eximium</i> ...	Sanders.
Odontoglossum Bonar Law ...	<i>nitidum</i> × <i>amabile</i> ...	Charlesworth.
Odontoglossum Crusader ...	<i>McNabianum</i> × <i>Aireworth</i> ...	Stuart Low.
Odontoglossum Enid ...	<i>Damaris</i> × <i>Artemis</i> ...	Stuart Low.
Odontoglossum Joyce ...	<i>Olgar</i> × <i>Aireworth</i> ...	Stuart Low.
Odontoglossum Pericles ...	<i>McNabianum</i> × <i>Lambeauianum</i> ...	Stuart Low.
Odontoglossum Re-echo ...	<i>eximium</i> × <i>Ashteadense</i> ...	Pantia Ralli.
Potinarua Royal Purple ...	<i>B.-L.-C. Gerald</i> × <i>S.-C. westfieldensis</i> ...	Flory & Black.
Sophro-Cattleya Boltonii ...	<i>S. grandiflora</i> × <i>C. Percivaliana</i> ...	P. Smith, Esq.
Sophro-Laelio-Cattleya Helia ...	<i>C. Fabia</i> × <i>S.-L.-C. Helen</i> ...	Sanders.

Erratum.—*Cattleya Janet P. Crawford*, *Gardeners' Chronicle*, Nov. 4, p. 265, should read *Crawford*.

NOTES FROM A WELSH GARDEN.

ONE of the most beautiful and satisfying shrubs in this garden is *Pieris formosa*, which is at this season developing its generous racemes of drooping buds. These elegant sprays, which tip almost every branch, may break into the lovely waxen-white globes at any time between January and spring, the actual flowering date being largely governed by the weather. Indeed, we have had *P. formosa* in full bloom at Christmas, and on another occasion it wisely held back until so late as May. Unquestionably the finest of its race, *P. formosa* has proved hardy enough to withstand anything up to 20 deg. of frost here (we are six miles from the sea), and although it is liable to have its more exposed flowers injured, it has a convenient habit of sheltering many of its bloom clusters with a canopy of its large and rich green leaves. A western aspect is desirable, as is protection from wind, the latter being especially apt to mar the beauty of the young leaves which succeed the flowers in bold tufts of bronzy crimson with a brilliant gloss. This is not of necessity a peat shrub. It has flourished here for some years in light woodland loam, with a little rough leaf mould intermixed at planting time.

Another winter-flowering shrub which at this season gives promise of flowering is *Berberis Bealii*, with its large yellowy-green, horny foliage abundantly furnished with formidable spines. In much the same manner as those of *P. formosa*, the one-sided racemes of Plum-coloured buds rise in a cockade at the extremities of the new shoots, the bright yellow flowers opening early in the year. These blossoms have a delicious fragrance, a distinctive and pleasing feature in a winter-flowering shrub, and it has been our experience that the fully expanded inflorescence is much less liable to injury by frost than are the buds of late autumn. *B. Bealii* is here afforded the partial protection of tall Oaks, and this does not appear to have any ill-effect upon the general well-being of the shrub.

But one can hardly pass over the *Barberries* without adding a word in praise of *B. vulgaris*, which, in spite of its many rivals, still can claim a place of distinction in the autumn and winter garden. It is not only that the pendant racemes of its fruit are borne in such abundance and with such unfailing regularity every year. Nor is the amazing brilliance of the berries the most noteworthy feature of this fine old shrub. One has to give *B. vulgaris* full credit for the fact that its fruit will hang in full splendour for three, four, and sometimes even five months, defying the birds and weather.

Among the *Cotoneasters*, a species which here carries its large, blood-red berries later than do most members of the genus, is *C. bullata*. Long after the majority of its kind have been stripped by birds *C. bullata* will remain in fruit. To assign a reason for this is difficult, for the big and luscious berries are not distasteful to all birds, since there have been a few occasions upon which a stray visitor—probably a jay—has wrought much mischief. But as a berry-bearing species and one that can be relied upon to carry its crop well into winter I know of no member of this fascinating group that can rival *C. pannosa*. The countless clusters of little Pear-shaped fruits which this fine evergreen produces with such extraordinary prolificacy every season do not attain their full crimson until the autumn is well advanced, and they almost invariably remain to adorn the drooping branches until the end of January or later. The closely allied *C. Franchetii* possesses in a lesser degree many of the good points of *C. pannosa*, but it has not that remarkable grace of form which accords the latter so prominent a place among its kind.

A sharp white frost in early November appeared to cause *Buddleia alternifolia* to shed most of its older leaves, these falling without changing colour. Or is it the natural habit of this shrub to be semi-deciduous? The tender growths were quite uninjured, which says something for the hardiness of the species in a frost that was keen enough to destroy completely all hope of bloom on *Desmodium penduliflorum* and other fairly reliable subjects.

Throughout the autumn *Vinca acutiloba* has given a succession of its delightful blossoms, the clean-cut, sharply pointed segments having just enough blue in them to accentuate their glaucous whiteness—a really charming plant for a half-shady corner.

Although we are half-way through November and the weather has lately been anything but mild, *Sollya heterophylla* is still flowering cheerfully on a south wall. The dainty, clear blue bells, poised on hair-like stems, of this twining shrub look as if they ought to belong to something much more fragile and delicate than the ample, leathery, Myrtle-like leafage of this species suggests. *A. T. Johnson, Taly-corn.*

COLONIAL CORRESPONDENCE.

NOTES FROM AUSTRALIA.

AUSTRALIAN Daffodil displays for 1922 are events of the past, and have further emphasised the progress being made by Victorian seedling raisers: particularly so in the approach towards buff pink colouring in the cups and trumpets. A very fine incomparabilis seedling from Mr. L. Buckland secured the blue ribbon as the best bloom at the Royal Horticultural Society of Victoria's show; and at the Canterbury display the best bloom was a Leedsii seedling from Mr. A. Clark. A Leedsii seedling from the latter raiser also carried off champion honours at the Daffodil and Sweet Pea show in Sydney. Mr. D. V. West further established his lead in trumpet sections, so that Poeticus was the only section in which an imported variety won.

The Canterbury Committee caters for growers of Australian flora, and amongst the many exhibits staged in these classes were some 37 species of *Acacia*, and a collection of *Orchids*, mostly terrestrial.

On page 325 of your Vol. LXXI, Mr. W. R. Dykes refers to the neglect of *Iris* species by raisers.

Few will argue against the tall Bearded *Iris*es being the leading class of to-day, but countless flower lovers value the varied groups and species which make it possible to have *Iris* flowers every day in the year. The best of the newer sorts shown in 1922 are, as yet, unknown to me, but Dominion favoured me with four spikes in 1921, and I very much value such as *Isoline*, *Magnifica*, *Mercedes* and *Quaker Lady* from the 200 odd tall, bearded varieties which have flowered in my garden. Still I place *Iris unguicularis* (syn. *I. stylosa*) as indispensable; its first blooms freely appearing weeks before tender plants, such as *Dahlias*, yield to the autumn frosts—and not until *I. Vartani*, *I. reticulata*, *I. tingitana*, *I. tuberosa*, *I. Susiana*, *I. fimbriata*, and many pumila seedlings have flowered and passed by do the fragrant flowers of the Algerian *Iris* become scarce—surely each clump must develop a hundred blooms during its 5-6 months of flowering. On p. 294 Mr. E. A. Bunyard refers to the native habitat of this *Iris* being in the Orange and Grape districts—with me the commercial production of these two fruits is prevented by the night temperature dropping at times to 24.5 deg. The *Regalis-Cyclus* group and the *Cushion Iris*es also are worthy a place in any garden, although with the former one could wish that seedling raisers would not label with a separate name each minute variation. *I. anglica* Giant, *I. hispanica* (syn. *Xiphium*), and *I. juncea* are magnificent *Iris*es, and the gorgeous blooms of *I. Kaempferi* seedlings have their own special charm.

With respect to the question of conveying *Iris* blooms a distance, I have tried tying a woollen thread around the swelling bud, but if kept tied thus for, say, 24 hours after the petals were due to expand, the wool cuts into the fragile bud or seriously deforms the flower; I roll waxed tissue paper completely around the bud and twist or screw the top end of the paper. This will suppress expansion for several days without injuring the flower, and treated thus I have had excellent results in sending *Iris* buds over 1,000 miles by parcel post. *G. Errey, Warburton, Victoria.*

GLASSINESS IN APPLES.

THIS peculiar condition in the texture and appearance of Apples is not so prevalent this season as in 1921. The cause of glassiness has never been explained, and it is not due to fungous or insect attacks. It seems, therefore, to be due to either climatal or cultural conditions or to a combination of both; is it possible to discover the cause through notes from cultivators in *The Gardeners' Chronicle*?

As some growers are not acquainted with it I would briefly describe it as a dark coloration of portions of the fruit when approaching ripeness, the glassy parts being often more conspicuous in the centre of the fruit, although it is sometimes evident on the outside near the eye. The firmness of the fruit remains for several weeks, and no change is noticed in the flavour, although I find that some persons object

and not one glassy fruit has been found. Trees of Lane's Prince Albert and Rival, growing near to the above tree, but in a fully exposed situation, produced glassy fruits in 1921, but this season they are all sound. These trees are grafted on the Paradise stock. Fearn's Pippin worked on the free stock carried very heavy crops in 1921, and not one fruit was glassy; this year the three trees only averaged two fruits each, and the Apples were as sound as in 1921. If other cultivators who have suffered would describe the conditions under which the fruits were grown, with the name of the variety, and the kind of stock they are grafted on, it may be possible to determine some means of counteracting this complaint. *W. H. Divers, V.M.H., Westdean, Hook, near Surbiton.*

[Glassiness in Apples is a purely physiological condition and results from water penetrating the intercellular spaces, instead of air. The majority of Apple trees are grown on stocks of a dis-



FIG. 133.—CHRYSANthemUM ABSOLUTE. N.C.S. FIRST-CLASS CERTIFICATE, NOV. 16. SHOWN BY THE BRIDGWATER NURSERIES (SEE P. 314).

to eating glassy Apples, thinking they may be injurious, yet there is no cause for alarm on that point, as I have eaten dozens without experiencing any ill effects. The trouble is seldom, if ever, heard of in gardens in the Midland and Northern districts, but in 1921 it was very prevalent in the Southern Counties. Certain varieties are more liable to be affected than others. Two fruits of Roundway Magnum Bonum shown to the R.H.S. Fruit Committee on November 14, were badly affected and the grower reported that this variety always suffered in his garden. A tree of Cornish Aromatic growing here had almost every fruit affected in 1921; this particular tree is a half standard, growing in a shady position, open only to the North and East. The soil is London clay that has not been cultivated to any extent; the situation is low and very wet in rainy seasons, but 1921 was very hot and dry, and the tree carried a heavy crop of fine fruits. This year the crop has been lighter; the rainfall this summer was too plentiful at times, whilst the temperature was moderate,

timet nature, and the roots of grafted trees may appropriate more water than the variety on its own roots might do. The trouble seems to be akin to that of splitting in such fruits as Grapes and Peaches when trees are copiously watered following a period of drought.—Eds.]

POTATOS IN INDIA.

Dr. Burns, who was leader of the Indian Delegation at the International Potato Conference in London a year ago, took out with him to India in May last twelve of our leading British varieties of Potatoes for trial. He informed us at the Conference that the Potatoes they use for seed in Bombay are all imported from Italy. It is therefore a great pleasure to hear from the Director of Agriculture, Bombay Presidency, that the results obtained by Dr. Burns are better than have been secured by any seed from Great Britain hitherto.

Dr. Burns gives a full account of the culture

adopted and how the plants withstood the diseases and pests prevalent in India. All that information will doubtless appear in the official *Bulletin*, but the actual figures are interesting and may be helpful to your readers abroad, and I therefore append them:—

Variety.	Weight of seed planted in lbs.	No. of cut sets made	Weight of crop in lbs.
The Bishop	3.35	64	7.80
The Ally	3.25	65	25.61
Roderick Dhu	3.45	69	15.20
Arran Comrade	3.34	74	37.60
America	3.50	88	24.00
Great Scot	3.25	80	39.19
Witch Hill	2.89	87	58.71
Tinwald Perfection	3.50	64	25.35
Majestic	3.36	68	33.10
Immune Ashleaf	3.50	66	42.41
Midlothian Early	3.55	75	39.10
Crusader	3.25	84	39.75

In another table Dr. Burns sets forth the ratio of seed to yield. Arran Comrade is 11.95; Great Scot, 10.82; Witch Hill, 20.31; Immune Ashleaf, 12.11; Midlothian Early, 11.01; Crusader, 12.25. These returns would be good in this country. In India they are wonderful when we consider the temperature at growing time is never under 85° and the average crops about four tons per acre. I have only one comment to make, and that is on the smallness of the cut sets. They were all under 1 oz. in weight; the average was about $\frac{1}{2}$ oz. This is too small for ordinary use. W. Cuthbertson, Duddingston, Edinburgh.

FOREIGN CORRESPONDENCE.

MELONS AND TOMATOS IN SWEDEN.

Which are the best ten sorts of Melons? This is, I realise, a rather wide question, also, I am sure, a very interesting one, as tastes differ in Melons as in other things. Of course, one must reckon on new and better sorts being raised every year. At least, some are better flavoured, but are they good growers and easy to set fruits and of good constitution? I grow eight or ten sorts here, principally to advise the students as to which are disease resisters and of the best flavour. The following is a list of sorts grown here this year:—Green Gem, Al, Golden Champion, Superlative, Emerald Gem, Hero of Lockinge (a very old favourite of mine), King George, Goodrich Champion, Petterson's Net (a Danish variety of very large size, but not much flavour), and Stanley.

The last-named variety is of English origin, and one of the best as regards growth, constitution, and flavour; moreover, it is a free setter—in fact, the fruits show almost too soon, and must, of course, be plucked off to allow the plants to gain strength, especially early in the year. The fruit is of medium size, green-fleshed, and of very fine flavour. It has not been a good summer here for Melons this year, but I am glad to have had Stanley to fall back on. The first fruits were ripe in the early part of May, and after the first crop was finished, which was about midsummer, the plants were still green and healthy. I cut all the side shoots back to one leaf, then kept the house closed and syringed the plants four times daily. About the middle of July we began to harvest the second crop, and up to the middle of September I cut about forty fruits averaging from two to four pounds each. To have Melons until the end of October is a great asset in furnishing dessert for the elk-shooting season, which is a big sport in Sweden. I do not advocate that Stanley Melon be the only one which will give the results above stated, but my experience with many sorts is that they are subject to canker, and oftentimes it is difficult to ripen the one crop. Is this canker in the constitution of the Melon? I grow Melons in frames after a crop of early vegetables; here we have to depend on frames from February until July for most of our vegetables. I should like to obtain seeds of the Countess Melon. I used to consider it the earliest and best Melon in cultivation.

With regard to Tomatos, the varieties are so numerous, it is difficult to decide which to grow, and oftentimes, as is well known, the

best will fail. I have grown Princess of Wales with good results. The fruits are of fine flavour and colour. Stirling Castle is also a good variety; it is early, a free setter, the fruits smooth, well-formed, of medium size, and weighty, and, of course, for commerce, weight is a great consideration. I have had clusters of fruit of Stirling Castle with from eighteen to twenty-four fruits. Comet is still good.

The earliest Tomatos I grow on the back stage of a three-quarters span Melon house. They set well early in the season, and we have ripe fruit the last week in April. These plants are from seed sown in October, and grown in small pots until the end of January, when I plant them in a shallow border.

I consider too much soil is oftentimes the cause of disease and bad setting; it is much better to feed the plants with a well-ried manure. I use Thomson's vine and plant manure with good results. The people in this country are beginning to use Tomatos more freely, and consequently, of course, more people grow them. I have sold Tomatos at the end of April and early May for nine kroner per kilo, or five shillings per pound, which I consider is a very good price indeed. It would be very interesting to hear which are the best sorts grown in England. By this I mean the earliest, best-flavoured, richest-coloured, best-shaped, heaviest fruits, and plants able to resist disease. James Page, Adelsnas Trädgård, Sweden.

HOME CORRESPONDENCE.

Trial of Commercial Fruits at Wisley.—It is good news (page 261) that the Ministry of Agriculture and the Royal Horticultural Society are going to undertake the testing of new varieties of hardy fruit from a commercial standpoint. In Apples particularly I consider that there is plenty of opening for better varieties. Several of those that we have at present are not of the best type for boxing. At the Imperial Fruit Show one could not help envying the overseas growers some of their fine, bold Apples, mostly of a rounder type than ours, which are very suitable for boxing. Varieties of pearmain shape are always awkward, because they vary so much in height or length. *Market Grower*.

Irish Apples at the Imperial Fruit Show.—As a regular exhibitor of hardy fruit from Ireland at the autumn fruit shows of the R.H.S., I was naturally interested in the recent Imperial Fruit Show organised by the *Daily Mail*, and keenly regretted that the rules governing the staging of exhibits precluded me—and, I am sure, many others—from attending, and showing fruit there. In the classes open to amateurs in Great Britain and Ireland rule 11 states that exhibits must reach the building 4 clear days before the show was to open. This would have involved starting from here nearly a week before the opening day, whilst rule 12 provides for the unpacking and staging of all exhibits by a reception committee and, as I was further informed on inquiry, under no circumstance would exhibitors be allowed to stage their own fruit. Now this rule may work very well in the commercial classes, where the fruit is exhibited in the receptacles and as packed at the farm—the removal of the lid being all that is required in presenting it for judgment. But in the case of collections of fruit, packed, perhaps, six varieties in one box, and having to be unpacked and set up in the different varieties on plates, I maintain that it is impossible for any reception committee to deal fairly and satisfactorily with hundreds of different dishes of fruit, and indeed few growers of exhibition fruit would care to risk the results of a whole season's labour and skill being, perhaps, nullified at the last moment by unsympathetic treatment. My reason for writing is to express the hope that, in the event of an imperial, or even a national, show being held next year, it may be possible to have the rules for this section drafted on more practical lines,

such as those governing similar classes in the great autumn fruit shows of the R.H.S., where the hundreds of exhibitors bring and stage their products with the greatest order and punctuality, thus enabling judging to start "to the minute," besides making it possible for the exhibitors themselves to stay on for the opening of the show without the loss of several days valuable time. T. E. Tomalin, Bessborough Gardens, Piltown, Co. Kilkenny.

Acclimatisation.—The true meaning of this word is best defined by R. Irwin Lynch (p. 224), when he quotes Darwin as saying: "Acclimatisation must be readily effected during a long course of descent," that is, by the repeated reproduction of a plant from seeds. If it comes from a warmer country than ours, descendants may give rise to individuals that are better able to resist the rigours of our climate. How many generations it would take to do this no one can predict in the case of any individual plant. The Potato has gone through an indefinite number of generations in this country, yet no one variety seems to be harder than when first introduced. Selection is usually directed on different lines than for hardiness, namely, utility to man as food. It would have called for extraordinary patience, on purely scientific lines, to have selected varieties for hardiness from the time of its introduction till now, with doubtful issue. J. P. (p. 272) enquires whether the Eucalyptus is acclimatised. The answer is in the negative, according to my observations. I have seen Eucalyptus globulus about 60 ft. high in Guernsey, and 12 ft. high in a garden near London, yet this latter specimen was killed by the first severe frost. J. P. introduces the word "naturalised" on the same page, but does not define what he means by it. Botanists use the term for plants that sow and maintain themselves in this or any other country, in spite of climate, competition with other plants, or other agencies. Nowhere have I seen a wild Peach. Seedling Figs frequently arise from imported fruits. J. F.

Gardeners' Kalendars.—I was greatly interested in Mr. Jacob's list of Garden Kalendars on pp. 20, 136, 252. Looking through my gardening books I find I have one of Bradley's and three volumes of Miller's. I enclose copies of the front pages of these works, in the hope that they may prove of interest to readers:—*New Improvements of Planting and Gardening, both Philosophical and Practical. In Three Parts.*—(1) Containing a new system of vegetation, explaining the motion of the sap, and generation of plants, of soils, and the improvement of Forest Trees, with a new invention whereby more designs of garden plants may be made in a hour than can be found in all the books of gardening yet extant; (ii) The best manner of improving flower gardens or parterres, of raising and propagating all sorts of flowers and of the adorning of gardens; (iii) Of improving Fruit Trees, Kitchen Gardens and greenhouse plants, with the Gentleman and Gardeners' Kalendar. To which is added the scarce and valuable tract intitled Herefordshire Orchards. Illustrated with Copper Plates. By Richard Bradley, Professor of Botany in the University of Cambridge and F.R.S. Printed for F. and F. Knapton in St. Paul's Churchyard. A. Bettesworth and C. Hitch in Paternoster Row, F. Pemberton in Fleet Street, and D. Browne Without Temple-Bar. M.DCC.XXXI. The second is:—*Gardener's Dictionary.*—Containing the Methods of Cultivating and Improving the Kitchen, Fruit and Flower Garden, as also the Physic Garden, Wilderness, Conservatory and Vineyard. In which likewise are included The Practical Parts of Husbandry; and the method of making and preserving Wines, according to the Practice of Foreign Vignerons. By the Author. Philip Miller, F.R.S., Gardener to the Worshipful Company of Apothecaries at their Botanic Garden in Chelsea. In three Volumes. Printed for the Author, and Sold by C. Rivington at the Bible and Crown in St. Paul's Churchyard. M.DCC.XLI. A. S. Walker, East Lane, Dedham, Essex.

SOCIETIES.

ROYAL HORTICULTURAL.

NOVEMBER 28.—The severely cold weather of the several preceding days had the effect of reducing the exhibition of Tuesday last to very modest proportions, while the gloomy day reacted upon the attendance. Orchids, Carnations, Chrysanthemums, Cyclamens, and Alpines were the leading subjects on view, and novelties were limited to the three first-named.

Orchid Committee.

Present: Sir Jeremiah Colman, Bt. (in the chair), Prince Shimadzu, Messrs. Jas. O'Brien (hon. secretary), R. Broman White, Frederick J. Hanbury, J. Wilson Potter, Pantia Ralli, W. J. Kaye, T. Armstrong, C. J. Lucas, A. McBean, Chas. H. Curtis, J. Cypher, J. T. Barker, J. E. Shill, H. T. Pitt, S. W. Flory, Fred. K. Sander and Arthur Dye.

FIRST-CLASS CERTIFICATE.

Odontoglossum Armstrongii var. *Aureole*, from Messrs. ARMSTRONG AND BROWN, Orchidhurst, Tunbridge Wells. The second to flower of the wonderful hybrid for which Messrs. Armstrong and Brown for the original form obtained a First-Class Certificate in October last year. That form had the clear yellow markings on the pure white ground in blotches on the inner parts of the segments. The variety *Aureole* with its first flower showed the inner two-thirds of the segments entirely bright chrome yellow, the margins and outer thirds being pure white. A remarkable break of great beauty.

CERTIFICATE OF APPRECIATION.

To *Odontoglossum Armstrongii*, as a recognition of one of the most remarkable breaks yet made in Orchid hybridisation. The only regrettable incident being that the parentage is not yet disclosed.

AWARDS OF MERIT.

Odontoglossum eximillius var. *Tintoretto* (*eximium* × *illustrissimum*), from J. J. BOLTON, Esq., Claygate Lodge, Claygate (gr. Mr. S. Lyne). A superb hybrid with sepals and petals clear Tryian purple with a narrow pure white margin and white front to the lip. The plant bore a spike of six well-developed flowers.

Odontoglossum Magnificent (*majesticum* × *Magali Sander*), from Messrs. SANDERS, St. Albans. A very showy flower of large size and fine substance, dark ruby purple with white tips and ruby blotch in front of the yellow crest.

Cypripedium Godefroyae splendens, from Messrs. SANDERS. A very remarkable variation, the flower, while being of true *Godefroyae* shape, having the broad proportions of *C. bellatulum*; it is clear white uniformly blotched with dark claret-red.

CULTURAL COMMENDATION.

To Mr. J. E. SHILL, gr. to Baron Schröder, for a magnificent plant of *Laelio-Cattleya Schröderae grandiflora* (L.-C. *Bella alba* × *C. Maggie Raphael alba*). The plant was the finest yet seen of this remarkable hybrid raised at The Dell, and bore two spikes of five and four flowers respectively. The sepals and petals are white and the broad lip dark violet.

GROUPS.

Sir JEREMIAH COLMAN, Bt. (gr. Mr. J. Collier) was awarded a Silver Banksian Medal for a very interesting group, including some good hybrids, and specially noteworthy species, among which were the extremely rare *Coclogyne miniata* with orange scarlet flowers, unique in the genus; *C. Veitchiana*, with long drooping sprays of white flowers; *C. barbata* with fringed, blackish lip; the rare *Laelia Lindleyana*, the tassel-like *Bulbophyllum lemniscatum*, the red *B. cupreum*, *Restrepia striata*, the singular *Dendrobium Coclogyne* and others rarely seen. Messrs. STUART LOW AND CO., Jarvisbrook, Sussex, were awarded a Silver-Gilt Flora Medal for a very fine group with good blue *Vanda coerulea*, yellow *Oncidiums*, and elegant *Dendrobium Phalaenopsis*, including the pure white form, arranged with showy *Laelio-Cattleyas*, among which their fine form of L.-C. *Luminosa aurea* and other fine forms were noted.

MESSRS. SANDERS, St. Albans, were awarded a Silver Flora Medal for an excellent group remarkably well set up. Among the novelties *Brasso-Cattleya Boadicea* (B.-C. *Digbyano-Schroderae* × *C. Warszewiczii*) is a large new type with mauve flowers and dark lip of quite new shape; *Laelio-Cattleya Enchantment* (L.-C. *Isabel Sander* × *C. Rex*) has a very showy violet lip with white margin; *Odontoglossum eximium* var. *Diana*, a pretty form; *Brasso-Cattleya Hercules* (B.-C. *The King* × *C. Luddemanna*), a very good novelty, and the charming *Odontioda Fairy* (*Oda. Vuylstekeae* × *Odm. Magali Sander*) good both in form and marking. Messrs. COWAN AND SONS, Southgate, received a Silver Banksian Medal for a group of splendidly grown *Cypripediums* with a fine specimen of the new and very beautiful *Brasso-Cattleya British Queen*, and a good example of *Odontoglossum crispum xanthotes* in the centre.

MESSRS. CYPHER AND SON, Cheltenham, were awarded a Silver Banksian Medal for a fine group of *Cypripediums*, the best noted being *Cyclops*, a grand form of *Nydia*, *Corsair*, *Priam*, *Lecanum Gratrixiae*, the best form of this fine old hybrid; *King of the Belgians*, *Actaeus Bianca*, than which no better yellow and white has yet appeared.

R. WINDSOR RICKARDS, Esq., Usk Priory, Monmouthshire, showed *Cypripedium Chrysotens* (*chrysotoxum* × *nitens*), a large flower of fine shape and beautifully marked; and *C. Draco* Usk Priory var., with a very large, heavily blotched dorsal sepal.

MESSRS. ARMSTRONG AND BROWN showed *Odontoglossum Nora* (*ardentissimum* × *Dora*), a pretty flower and finely coloured; *Cypripedium Pacavia* of the same class as *Pyramus*, but lighter, and other hybrids.

MESSRS. FLORY AND BLACK showed two good *Brasso-Cattleyas*. H. T. PITT, Esq., showed *Brasso-Cattleya Lloyd George* (B.-C. *Marguerite Fournier* × *C. Lord Rothschild*), and two very fine *Cypripediums*.

Floral Committee.

Present: Messrs. E. A. Bowles (in the chair), Chas. E. Pearson, H. J. Jones, W. B. Gingell, M. C. Allwood, D. B. Crane, Clarence Elliott, H. V. Warrender, Gerald Loder, R. C. Notcutt, Sydney Morris, C. R. Fielder, W. Howe, John Heal, Jas. Hudson, W. J. Bean, and A. G. Jackman.

AWARDS OF MERIT.

Carnation Topsy.—This is a deep, rich, velvety crimson, perpetual-flowering variety of considerable merit. The flowers are large and substantial, and the petals are fringed. Calyx and stem are alike good. Shown by Mr. C. ENGELMANN, Saffron Walden.

Chrysanthemum Pink Favourite.—An incurving Japanese variety of great substance. It is a sport from the popular white variety *Favourite*, and is of a soft silvery pink shade. Shown by Mr. NORMAN DAVIS, Framfield, Sussex.

Chrysanthemum Mrs. A. Robertson.—A large single variety of clear pink colour; fine form and substance. Shown by Mr. NORMAN DAVIS.

Chrysanthemum Robert Collins.—A single variety of the largest size, and of rich and glorious orange bronze colouring. A graceful variety. Shown by Mr. G. CARPENTER, West Hall Gardens, Byfleet.

Chrysanthemum Golden Butterfly.—This is a free-growing market variety, carrying somewhat stuffily-petalled, golden yellow flowers of Japanese type. The plant shown, in a 24-sized pot, carried eight large flowers. Shown by Messrs. SCOTT AND WICKHAM, Witley Nurseries, Witley, Surrey.

Chrysanthemum Dr. J. M. Inglis.—A handsome large, late-flowering Japanese variety of rose purple colouring, with silvery reverse to the broad, curling florets. Shown by Mr. KEITH LUXFORD, Sheering Nursery, Harlow.

GROUPS.

In view of the anticipated winter show of the British Carnation Society which was abandoned, Carnations were an important floral feature of the meeting. Three large groups of even merit were arranged, and these contained goodly numbers of fresh and, in many instances,

fragrant Carnations. An interesting part of the collection arranged by Messrs. ALLWOOD BROS. was the selection of Perpetual-flowering Border Carnations. These were shown in vases and also as specimen blooms on boards in the old-time fashion. The chief varieties were *Sussex Crimson*, *Sussex Purple*, *Sussex Bizarre*, and *Sussex Beauty*, and all were of considerable garden beauty. Their Allwoodii varieties were, of course, well represented, and prominent amongst the true Perpetual varieties of Carnations were *Edward Allwood*, of vivid colouring, *Salmon Enchantress*, *Triumph* and *Wivelsfield Apricot* (*Silver Flora Medal*).

Bright colour and high quality were noticeable in the collection displayed by Mr. C. ENGELMANN. The brilliant *Laddie*, which has received an Award of Merit, was very prominent. Thor also attracted deserved attention, as also did *Marion Willson* and the fragrant *Mary Allwood* amongst the many varieties so well shown (*Silver Flora Medal*).

Adjoining their attractive collection of Orchids Messrs. STUART LOW AND CO. set up an extensive collection of very good Carnations. Their large white *Pearl* was splendidly represented, and the new *Eileen Low* attracted attention amongst several other valuable pink sorts. *Boadicea*, a new Perpetual *Malmaison* of a distinct shade of rosy cerise, has great decorative value (*Silver Flora Medal*).

A particularly good collection of Chrysanthemums was well arranged by Messrs. KEITH LUXFORD AND CO. There were many large-flowered Japanese varieties shown in generous quantities. These were apparently mostly new sorts of American raising and included *H. V. West*, deep golden yellow with long, broad petals; *F. Spring Watts*, chestnut and gold; the new *Dr. J. M. Inglis*, and *Mrs. R. C. Pulling*. Amongst the many singles were *Baby Jack*, in graceful sprays of yellow flowers, *Catrina*, rich old Rose, *Molly Godfrey*, *Mensa*, which holds its own as the best medium-sized white, and *Flossy*, a large, pure white sort of much merit (*Silver-Gilt Banksian Medal*). Mr. NORMAN DAVIS displayed a good quality of his new *Pink Favourite* with the parent, *White Favourite*, and *Cream Favourite*, all valuable decorative sorts. Messrs. W. GODFREY AND SON showed various single-flowered varieties.

A considerable number of well-grown greenhouse Cyclamens were contributed by Messrs. BLACKMORE AND LANGDON. These included *Salmon King*, *Salmon Scarlet*, and *Giant White* (*Silver Banksian Medal*). A group of splendidly grown plants of the old favourite *Plumbago rosea*, which in former years found a place in most hot-houses, was shown by Mrs. F. B. SUMMERS (gr. Mr. J. Branded), Alton, Hants. These were particularly bright and had travelled unusually well (*Silver Banksian Medal*).

An attractive collection of Winter-flowering Sweet Peas was displayed by the ROLVENDEN NURSERIES. Although these are decidedly smaller than the summer-flowering varieties, they made a decorative display. The chief varieties were *Flamingo*, pink shades; *Princess*, mauve; *Mrs. Kerr*, salmon shades; and *White Star* (*Silver Banksian Medal*).

MESSRS. F. H. CHAPMAN, LTD., showed a selection of their seedling *Nerines*. These were mostly under seedling numbers, and one, a compact truss of large, waved, salmon-pink flowers, was very uncommon (*Bronze Flora Medal*).

A large collection of double and single Violets of great merit was displayed by Mr. J. J. KETTEL (*Silver Banksian Medal*). Messrs. W. CUTBUSH AND SON contributed a small rockery planted with *Conifers* and *Alpines*. Mr. F. C. WOOD staged various *Alpines* in pots, principally *Saxitrages* and *Sempervivums* (*Bronze Flora Medal*). The Misses HOPKINS exhibited succulent plants in small pots, and early *Polyanthuses*.

Fruit and Vegetable Committee.

Present: Messrs. C. J. A. Nix (chairman), J. Cheal, W. Poupart, W. Seabrook, S. B. Dicks, G. Reynolds, J. Wilson, Geo. F. Tinley, E. Beckett, E. Neal, W. H. Divers, E. A. Bunyard, W. Wilks, F. Jordan, T. Pateman, A. Metcalfe, G. Harriess and A. N. Rawes.

A few seedling Apples were submitted for award, and beyond this there was no further business. An unnamed Apple, which suggested the parentage Lord Derby crossed with Warner's King, was shown by Mr. C. F. LAWRENCE, County Education Office, Northampton; Apple George Carpenter, which was exhibited at the last meeting, and a seedling from Wellington, somewhat like Chelmsford Wonder, were all recommended for inclusion in the new trial of market varieties at Wisley.

NATIONAL CHRYSANTHEMUM.

NOVEMBER 27.—The Floral Committee met at the Royal Horticultural Hall, Westminster, and had a number of novelties to consider. The following received awards:—

FIRST-CLASS CERTIFICATES.

Mrs. Collins.—This is a Japanese variety with somewhat small but neat and firm flowers of a rich clear chestnut red colour. A useful decorative sort. Shown by Mr. G. CARPENTER, West Hall Gardens, Byfleet.

Fernandez.—A showy Japanese variety with large flowers of a pleasing shade of chestnut bronze. Shown by Mr. KEITH LUXFORD, Harlow.

Edytha.—A small decorative variety of the richest reddish purple or wine red colour. The flowers have a dish, but the central petals incurve and hide it. Shown by Mr. NORMAN DAVIS.

Golden Butterfly.—Shown by Messrs. SCOTT AND WICKHAM.

Robert Collins.—Shown by Mr. G. CARPENTER.
Mrs. A. Robertson.—Shown by Mr. NORMAN DAVIS.

Pink Favourite.—Shown by Mr. NORMAN DAVIS.

These last four varieties received the Award of Merit of the R.H.S. on November 28, and are described on the preceding page.

The Committee desired to see again the varieties West Hall Pink (Mr. G. Carpenter), and Mrs. F. J. Yarrow, a handsome single (Mr. A. Robertson).

MARLOW CHRYSANTHEMUM.

NOVEMBER 8. The enthusiasm of the president, A. L. Lawrence, Esq.; the vice-president, Captain H. B. Wright; and the hon. secretary, Mr. Fred Todd, has been the means of creating a fine exhibition at the well-known Thames-side town of Marlow, and we feel sure their enthusiasm will continue and stimulate others with a desire to grow and show Chrysanthemums and add a pleasant educational feature to the winter attractions of the town.

The show held on the above date was so successful that the Public Hall was not large enough to permit of the most effective arrangements. Nevertheless, the display was good and the quality of the flowers excellent.

Captain WRIGHT (gr. Mr. Stowe), The Rookery, Marlow, won the first prize in the class for eight vases of Japanese varieties, three blooms in each, and he showed giant flowers of W. Rigby, Mrs. K. Luxford, Lord Stuart of Wortley, Mrs. G. Monro (extra good), General Petain, W. Turner, Mrs. Algernon Davis, and R. C. Pulling; 2nd, Mrs. HORNBY LEWIS (gr. Mr. French), who staged grand flowers of R. C. Pulling. For a vase of three blooms of one Japanese variety Mrs. HORNBY LEWIS led with superb blooms of R. C. Pulling, one of which was adjudged to be the best bloom in the show; 2nd, W. H. LAMB, Esq. (gr. Mr. Evers).

Captain WRIGHT was successful in the class for two vases of Japanese blooms with fine flowers of R. C. Pulling and Mrs. G. Monro. He was also first prize winner and cup holder in the class for twelve Japanese blooms shown on boards, his best flowers being of R. C. Pulling, Mrs. G. Monro, Jas. Stredwick, and Mrs. A. Davis; 2nd, W. H. LAMB, Esq. For six blooms, on a board, A. R. HEATH, Esq. (gr. Mr. Platt), was the most successful competitor, Mrs. HORNBY LEWIS gaining the second prize.

The last-named exhibitor secured first prize for a vase of Japanese blooms, and Mr. J. LANGLEY came second, each showing R. C.

Pulling. The best vase of single varieties came from A. R. HEATH, Esq., who showed Ceddie Mason; 2nd, Mr. J. LANGLEY, with Florrie King. Captain WRIGHT was first prize winner in the class for six vases of single varieties, with Phyllis Cooper, Bertha Fairs, Cattriona, and Jessica in fine form; 2nd, Mrs. HORNBY LEWIS.

In an open class Mrs. ALEX. ROBINSON, Bourne End, exhibited the best hand-basket of Chrysanthemums and ornamental foliage, and she contributed a very artistic design in which yellow and bronze flowers and autumn-coloured foliage were the leading features; 2nd, Captain WRIGHT. In the ladies' class for a hand-basket Mrs. J. PLATT and Mrs. ALEX. ROBINSON were first and second prize winners respectively. Mrs. S. GREEN showed the best bouquet of Chrysanthemums, winning with the variety Rayonnante.

Mr. H. BROWN, Maidenhead, had the best trade display, and put up a fine group of floral designs in a variety of flowers (silver medal); Mr. BLACKMORE 2nd (bronze medal). Mr. W. Yandell was also an exhibitor, but a non-competing one, and his strong group of Chrysanthemums was awarded a silver medal. A similar award was made to Lady TERRINGTON (gr. Mr. Berry), Spinfield, Marlow, for a large group of well-grown plants of Begonia Gloire de Lorraine.

Plants and groups were not very good. Mr. ELKINGTON had the best display of flowers arranged for effect, and he was easily first prize winner; 2nd, Captain WRIGHT. In the amateurs' section Mr. C. H. YATES had the best collection of blooms arranged for effect.

Although not extensively shown, fruits were well displayed, especially by Mr. H. ELKINGTON, who secured first prize for eight dishes of fruits—four each of Apples and Pears—and exhibited capital specimens of Nouvelle Fulvie, Durondeau and Doyenné du Comice Pears; 2nd, Mr. W. H. LAMB; 3rd, Mr. MORAKE.

Mr. M. J. THATCHER showed the best collection of six kinds of vegetables.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

THE monthly meeting of this Society was held in the R.H.S. hall on Monday, November 13, Mr. Chas. H. Curtis presiding.

Four new members were elected.

Two members over the age of 70 years withdrew £87 7s. 6d. from their deposit accounts, and the sum of £49 3s. 1d. was passed for payment to the nominee of one deceased member; the sum of £7 3s. 3d. was also passed for payment to the nominee of a lapsed member.

The sick pay for the month on the private side was £35 2s. 5d., and on the State section £46 8s. 6d., whilst maternity benefits amounted to £6.

Grants towards dental treatment amounted to £16 0s. 6d., and for optical treatment £1 3s.

The Trustees reported that they had invested £1,500, and were instructed to invest a further £500.

The Secretary produced the Government Auditors' certificate for the year 1921, certifying the accounts as correct.

NOTTINGHAM CHRYSANTHEMUM.

THE annual exhibition of the Nottingham and Notts Chrysanthemum Society was held in the Albert Hall, Nottingham, on the 9th, 10th and 11th ult. The schedule included thirty-seven classes for Chrysanthemums.

The Society's Certificate for the champion incurved and the champion Japanese blooms were both won by Nottingham growers, Mr. J. P. HIGHAM and Mr. W. Cox respectively. Amongst the principal prizewinners in the open classes were Lord BELPER, Sir HAROLD BOWDEN, Bart., Mrs. CORDEAUX, Mr. R. HALLAM, Radcliffe, Mr. C. W. CATT, Duffield, and Mr. R. H. SWAN, East Bridgford. Splendid dwarf plants of Chrysanthemums were exhibited by Mr. T. HANCOCK, Mansfield; they are known as "Midget" Chrysanthemums, and were stated to have been raised from leaves.

In the fruit classes many prizes were won by

Major-General CULLEY, Swindon, whose Apples and Pears were splendid.

Trade exhibits were very fine, especially those of Messrs. SKINNER and ROOK, who showed floral designs; Mr. T. ROBINSON, Porchester Nurseries, who had Roses and other flowers; Mr. W. C. WICKS, floral decorators; and Mr. T. HANCOCK, Mansfield, who showed Chrysanthemums.

In the open class for a floral display the Society's Gold Medal and First-Class Certificate were awarded to Mr. THOMAS HANCOCK, Mansfield, and similar awards were made to Lord BELPER, Kingdon Hall, for a display of fruit or vegetables. Mr. R. HALLAM showed the best Japanese Chrysanthemums, and Mr. J. P. HIGHAM the best incurved Chrysanthemums, and Lord BELPER the best single Chrysanthemums. The best vase of Chrysanthemums decorated with Chrysanthemum foliage was shown by Mr. R. HALLAM, who had also the best basket of Chrysanthemums.

Major-General CULLEY excelled in the class for a collection of fruit.

The finest dessert and the finest culinary Apples in three varieties were shown by W. M. C. HERRICK, Esq., Beau Manor, Loughborough (gr. Mr. J. J. Staward).

MANCHESTER AND NORTH OF ENGLAND ORCHID.

THURSDAY, NOVEMBER 2.—Present: The Rev. J. Crimbleholme (in the chair), Messrs. R. Ashworth, B. J. Beckton, A. Burns, A. Coningsby, D. A. Cowan, J. Cypher, A. G. Ellwood, J. Evans, J. Howes, W. M. Jackson, D. McLeod, F. K. Sander, E. W. Thompson, and H. Arthur (Sec.).

FIRST-CLASS CERTIFICATES.

Odontoglossum crispum Pharo, a fine flower of the Doin type; *Odm. crispum Snodrift*, one of the best forms of the virginal section; *Odm. St. George var. Solum*, a form with curiously marked segments; *Cypripedium Cavalier West Point var. Euryades* (New Hall Hey × Earl of Tankerville), a flower with well spotted dorsal sepal; *C. Madame Fervier var. Mastiff*. All from S. GRATRUX, Esq.

Cyp. Earl of Chester (Lord Roberts × *Choritonii*), a brilliantly coloured flower, almost solid red; *Cyp. West Point Solum* (*Bianca* × *Sanderac*), a fine flower of the Bianca type; *Odontoglossum crispum West Point Triumph*, heavily blotched Plum-purple on a white ground; *Odontioda Colinge var. Gratixiae*, a very bright flower with "Peacock eyes" on each petal. From Mrs. GRATRUX.

Brasso-Laelio-Cattleya Truffautiana var. Distinction (*Leomania* × *Luminosa Rosita*); *Laelia praestans var. Queen Alexandra*, a chaste variety with a flush of colour through the sepals and petals; the lip is slate blue; *Odontioda Ganesa Haddon House var.*, a large flower coloured dark purple-red with rosy white margin and tips; *Odm. crispum Zeno magnificent*. From P. SMITH, Esq.

Cattleya Alcimedea var. Fair Lady; *Laelio-Cattleya Rossendale*, a richly coloured flower with dark lip, and throat golden lined. From R. ASHWORTH, Esq.

Dendrobium Phalaenopsis alba Beckton's var. From B. J. BECKTON, Esq.

AWARDS OF MERIT.

L.-C. Carmencita var. Sunbeam; *Cattleya Annette West Point var.* From S. GRATRUX, Esq. *Brasso-Cattleya Ashworthii* (*B. Dietrichiana* × *C. Fabia*). From R. ASHWORTH, Esq. *Cyp. Chrysostum Coningham var. (Hera Mrs. Mostyn × Christopher)*. From Dr. CRAVEN MOORE.

GROUPS.

S. GRATRUX, Esq., West Point (gr. Mr. J. Howes), was awarded a Gold Medal for a group of *Odontoglossums* in variety.

A. T. CUSSENS, Esq., Prestwich (gr. Mr. F. Cookson), staged a miscellaneous group, for which a Silver Medal was awarded.

NATIONAL POTATO.

THE National Potato Society held its exhibition this year in connection with the Sheffield Chrysanthemum Society's meeting at the Artillery Hall, Sheffield, on November 10 and 11. The entries for all the single-dish classes and for the collections in dishes were very good indeed, nearly a thousand entries being made; but the competition in the classes for bags of ware Potatoes was small. The arrangements were in the hands of the Secretary, Mr. W. H. Morter, and of Mr. A. Griffith, and both for staging and for judging left nothing to be desired. The judges were Messrs. Bryan, Chittenden, Clarke, Cuthbertson, Lasham and Lobjoit. Not only were the classes well filled, but competition was keen, and in many cases the exhibits were practically perfect, although the season made its effect felt in a certain proportion being somewhat coarse, and lacking in the fineness of appearance and clearness of skin that so commends an exhibit to the judge's eye.

Furthermore, the exhibits were drawn from a very wide area in England and Scotland, and the keenness of the competition, both in the open classes and in those reserved for allotment holders and the small-grower, showed that the interest in our premier vegetable is in no way diminished. It was pleasant to see also that the vast majority of the exhibits represented varieties of garden or commercial value; there were far fewer Potatoes "suitable for exhibition"—and of little use for anything else—which were so often seen in exhibitions a few years ago. Some exhibitors have yet to learn that slight greening of the tubers detracts greatly from an exhibit, and a few that mere size does not carry great weight with the judges.

The exhibition was well attended by the public on both days, and the fine trade exhibits, as well as the competitive classes, were a great source of attraction. Several short lectures were given during the afternoon and evening and were well attended. Unfortunately, there was no convenience for them outside the exhibition-room, and that made it rather difficult for the speakers. Mr. F. J. Chittenden dealt with some of the main points in the Cultivation of Potatoes, especially in allotments and gardens; Mr. A. D. Cotton lectured upon Leaf-curl and Mosaic Diseases; and Mr. W. Cuthbertson, who dealt with present-day varieties, illustrated his lecture by specimens. This feature of the exhibition was evidently greatly appreciated by those who attended, and who asked numerous questions of the lecturers. The chair was taken at the lectures by Mr. Lobjoit, Controller of Horticulture, Ministry of Agriculture; and Mr. Taylor, Deputy Controller.

The principal prize winners in the open classes were Mr. R. A. GRIGER, Dumfries. Mr. W. J. GRESSON, Severn Stoke; Mr. W. C. COLEMAN, Buckingham; Mr. W. P. ORWIL, Hinkley; Mr. J. HUDSON, of Leicester; Mr. D. NORMAN, Wolverton; and Mr. W. PERKS, Stourbridge. In the classes for farmers and market gardeners (single dishes) the principal prize winners were THE TODDINGTON ORCHARD CO., Winchcombe; SIR JAMES DOUGLAS, Coupar Angus; and Mr. J. RIMMER, Cadishead.

BRITISH MYCOLOGICAL.

A MEETING of the British Mycological Society was held in the Botany Department, University College, Gower Street, on Saturday, November 18; the president, Mr. F. T. Brooks, presided. The first paper was by Dr. M. C. Rayner, on the Mycorrhizal Fungus in relation to Calluna "Cuttings," illustrated by specimens, preparations and lantern slides. Experimental work was undertaken in order to study the behaviour of the mycorrhizal fungus known to be present in the vegetative tissues of the shoots—when cuttings of Ling are rooted in sterilised sand under controlled conditions. Cuttings strike readily during the summer, although some difficulty was experienced in devising a closed apparatus in which they would root satisfactorily. The adventitious roots produced, not from a callus, but grown from the leafy region of the stem, show early infection by mycelium from the shoot tissues. The results obtained are

completely at variance with those reported by Christoph, whose work on Calluna was criticised by Dr. Rayner at the meeting of the Society in January last.

Miss G. Gilchrist followed with an account of Bark Canker Disease of Apple Trees, caused by *Myxosporium corticolum*, Edgar. This is the first record of the fungus in this country. A characteristic of the disease is the formation of large longitudinal scars on the sides of branches, on the dead tissue of which numerous acervuli are found. The scars increase rapidly at one period of the year only, and that usually towards the end of the summer. The fungus is most abundant in the cortex, but also occurs in the phloem and the wood. In wood infected by the hyphae wound gum is formed in large quantities in the vessels and in the thick-walled wood parenchyma, but not in the medullary rays, the phloem, or the cortex. Wound gum is formed in advance of the hyphae. Conidia are produced in acervuli; they are oval or slightly allantoid in shape and germinate easily. In pure culture hyphae grow very slowly, preferring gelatine to agar. On certain media the hyphae secrete drops of brown liquid which contains oxalic acid. Crystals of calcium oxalate are invariably found in the media in which the fungus has been growing. In pure culture conidia have only been formed on Apple twigs and 2 per cent. malt agar. In the latter case they are formed inside a dark green body, in appearance like a sclerotium. Judging from the inoculation the fungus seems to be a weak parasite, except under certain conditions, when much permanent damage is done to the trees, and they may be killed outright. The fungus in some cases enters through a dead spur; in other cases infection comes from the region of the ground; it may also take place through grafting wounds.

Mr. R. J. Tabor gave a paper on a fungus disease destroying fruits of Cocoa and Coffee cultivated on the Gold Coast, by attacking the pericarp. The fungus responsible is a *Phycomyces* which permeates the intercellular spaces of the host tissue, and enters the cells, which are thereby killed. Conidial fructifications rupture the epidermis and form pustules on the surface of the fruit, coalescing to form a mealy covering. The fungus is considered to be a member of the *Perisporiaceae*, but belonging to a new genus of which a diagnosis will be published shortly. Further investigation in the parasitism of the fungus is being carried out by Mr. R. H. Bunting, by whom the disease was discovered.

In the afternoon Miss E. S. Moore described her work on the Physiology of *Fusarium coeruleum*, well known as the cause of dry-rot disease of Potatoes in storage. The existence of seasonal and varietal differences in susceptibility, reported by previous workers, has been confirmed, but so far only negative conclusions have been reached in the attempt to explain the cause of these differences. The fungus is extremely variable in its cultural characters, and a close study has been made of its behaviour on various synthetic media based on Coon's formula. The amount and type of fungal growth is closely related to the nature and concentration of the carbohydrate and nitrogen supply, to the reaction of the medium and to the temperature of incubation.

The last paper of the meeting was by Professor A. Castellani, on Mycology in Tropical Medicine. The subject of medical mycology is of great importance, but it is only possible to give here a short résumé of Professor Castellani's stimulating lecture, which was illustrated by lantern slides and by cultures of the fungi he mentioned. The study of bacteria is so engrossing and has given results of such magnitude that there has been perhaps a tendency somewhat to overlook the importance from a medical point of view of vegetable organisms higher than bacteria, though fungal diseases were the first to be studied. Lagenbeck, in 1839, discovered the "thrush" fungus in examining the white patches of "thrush" found, at the autopsy of a case of typhoid, in the oral mucosa, the pharynx and the whole of the intestine. He believed at first that the fungus was the cause not only of the white patches, but of the typhoid infection of which the patient had died. Berg, in 1842, gave a good description of the organism which was named *Oidium albicans* the following

year by C. Robin, who made a complete investigation of it. Robin's book, *Histoire Naturelle des Végétaux Parasites qui Croissent sur l'Homme et sur les Animaux Vivants*, a copy of which was exhibited at the meeting, became a classic. In 1839 Schoenlein discovered the fungus causing favus. Gruby, in 1841, described the fungi causing ring-worm—one with small spores and one with large spores. Other fungi were described, the interest continuing until the discoveries of Pasteur and Koch focussed the attention on bacteria. Fungal infections of various human systems were passed in review.

THE WEATHER.

THE WEATHER IN OCTOBER.

This was the most north-easterly, and by far the driest, October of the fifty-two for which local records are available. It was also exceptionally sunny, with still clearer skies at night, and therefore the daily range of temperature was considerable. Barometric pressure was high and steady, wind movement slight, and ozone deficient. After the 5th, there was no sea wind until the 31st, when the weather broke. The persistence of currents from easterly points was remarkable; the duration of those from the north-eastward had not been approached since the year 1880, and then was not equalled. The first six days and part of the middle of the month were warm; but the closing week was very cold. The mean temperature of the entire period was 47° , or 1° below the average. More than 135 hours of bright sunshine were recorded, the normal being exceeded by nearly 42 hours—the best October result since 1899. Rain was restricted to 6 days, or 12 fewer than usual, and three fewer than in any previous October, while the total amount was only 0.58 inch, or no less than 3.18 inches below the average, and 0.55 inch under the smallest previous record for the month (viz., that of 1920); moreover, half this small quantity fell on November 1 (before 9 a.m.). Frost occurred in the screen on 3 nights, and upon the grass on 10 nights. There were no gales. Joseph Bazendell, The Fernley Observatory, Southampton.

NEW HORTICULTURAL INVENTIONS.

LATEST PATENT APPLICATIONS.

- 30855.—Bull, G. F.—Lawn-mowers November 11.
30910.—Carter, E. R.—Water-cans, etc. November 11.
30596.—Jorgensen, P.—Method of manufacturing a nitrogen-assimilating manure. November 8.
30369.—Libbey, H. C.—Appliance for striking plants before severing the stem. November 7.
29835.—Brown, A. M.—Garden seats. November 1.
29619.—May, H.—Hedge-clipping machines. October 30.
30215.—Ritchie, Hart and Co., Ltd.—Means for inserting manures, seeds, etc., in the soil. November 4.

SPECIFICATIONS PUBLISHED LAST MONTH.

- 187,251.—Prase, E. L.—Manufacture of production of material suitable for use as fertilising material.
187,270.—Barbezies, A.—Portable tool for cutting branches, stalks, etc.
187,423.—Sams, E. H.—Fertiliser and process of making same.

ABSTRACT PUBLISHED LAST MONTH.

Dibblers.—Patent No 185,172.—A new pattern of dibbler that can be forced into the ground with the foot has recently been patented by Mr. A. J. Porter, of St. Clair, Hunters Grove, Swindon, Wiltshire. It consists of two hollow conical-shaped portions pivoted by the ears and having tongues of uniform width with straight edges. The handles are riveted to the tongues and to the conical-shaped portions, the upper edges of which are substantially at right-angles to the handle, in order that foot-pressure may be used. The distance between the ears is preferably greater than that between the tongues and the point portion may be elongated parallel to the axis joining the pivots so that a rectangular hole is formed on opening the two parts.

This list is specially compiled for *The Gardeners' Chronicle* by Messrs. Rayner and Co., Registered Patent Agents, of 5, Chancery Lane, London, from whom all information relating to patents, trade marks, and designs, can be obtained gratuitously.

MARKETS.

COVENT GARDEN, Tuesday, November 28th, 1922.

Fruit: Average Wholesale Prices.

Apples, s. d. s. d.	Grapes, s. d. s. d.
British Columbian	—Almeria, barrel 20 0-25 0
—Cox's Orange	—Belgian .. 1 0-1 9
—Pippin .. 14 0-16 0	—Black Muscat 3 0-3 6
—Jonathan .. 8 0-10 0	—Black Ham-
—Delicious .. 9 0-10 6	burgh .. 0 10-1 6
—Others .. 8 0-9 0	—Cannon Hall .. 3 0-8 0
Californian	—Gros Colmar .. 1 3-3 6
—Newtown Pip. 14 0-15 0	—Muscat .. 2 6 0 0
—Oregon .. 13 0-14 0	Grape Fruit .. 25 0-26 0
—York Imperial, bushel .. 22 0-26 0	Lemons
English, per bus.	—Malaga, case .. 14 0-17 0
—Allington Pippin 2 6-3 6	—Messina .. 10 0-14 0
—Blenheim Pippin bushel .. 5 0-8 0	Melons
—Bramley's	—Bronze .. 12 0-1 0
Seedling .. 5 0-7 6	—English and
—Charles Ross .. 4 6-6 0	Guernsey .. 1 6-4 0
—Cox's Orange	Nuts—Brazil .. 45 0-55 0
Pippin best .. 7 0-10 6	—Chestnuts bag 18 0-22 0
—ordinary .. 4 0-6 0	—Cob. .. 0 3-0 3½
—King of the Pippins .. 2 6-3 0	Oranges
—Lord Derby .. 5 0-6 6	—Denia .. 18 0-26 0
—Newton Wonder 6 0-7 6	—Jamaica .. 20 0-21 0
Nova Scotian	—Mandarins .. 1 6-2 0
—Blenheim Pip. 20 0-24 0	—Mure .. 18 0-24 0
—Cox's Orange	—S. African .. 35 0-4 0
Pippin barrel 20 0-25 0	Pears, half bus.
—King of Tomkins	—Doyenné du
County .. 20 0-25 0	Comice, dozen 6 0-12 0
—Ribston Pippin 20 0-25 0	—half .. 3 0-10 0
Tyroler 40 lb box 7 0-14 0	—Californian
Bananas, singles 12 0-25 0	—Doyenné du Comice
—doubles .. 12 0-25 0	½ case .. 16 0-17 0
Grapes	—Winter Nelis
—Alicante .. 1 3-2 6	case .. 24 0-26 0
	—Anjou .. 23 0-25 0
	Pineapples 2 0-4 0
	Tunis Dates, doz.
	cartons .. 5 6-6 6

Vegetables: Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Asparagus, bundle	6 0-7 6	Parsnips, cwt. ..	3 0-4 0
—Sprue	1 6-2 0	Peas, lb.	3 6-5 0
Beans,		Potatoes,	
—Guernsey lb. ..	1 3-2 6	—Guernsey, new lb	1 0-1 3
—Madder basket	3 0-6 0	Dunbars ton. ..	16
Cabbage, tally ..	7 0-10 0	—Edwards £3	10-£4 15
Carrots, cwt. ..	3 0-4 0	—Others	£3 0-3 10
Cauliflowers,		Savoy, tally ..	10 0-15 0
doz.	2 0-4 0	Seakale, lb.	1 3-1 6
Celery, roll ..	1 6-2 0	Sprouts, bushel	4 2-0 2 6
Cucumbers, doz.	10 0-15 0	Tomatoes English	
Lettuce, doz. ..	1 0-2 0	—New crop, pink	5 0-6 0
Mint, dozen ..	6 0-9 0	—P. & W.	4 6-6 0
Mushrooms, lb.	2 0-4 0	—Others	
Onions—		P. & P.W.	3 0-4 0
—Dutch, bag ..	4 0-5 0	—Canary Islands	12 0-16 0
—English, cwt.	5 0-6 0	—Guernsey	2 6-5 0
—Valencia, case	8 6-11 0	Turnips, cwt. ..	3 0-4 0

REMARKS.—A very moderate demand rules all round, and the general conditions of trade are slow. Apples, both imported and home grown, are not moving freely, and their prices are lower. Hothouse Grapes are not quite so plentiful, and quotations remain steady. A few choice vegetables from Guernsey, such as Peas, Beans, and Potatoes, are selling well. In addition to Asparagus from France, the first arrival of forced English Asparagus is recorded. Consignments of Oranges from Denia and Murcia show improvement in condition. A few new crop English Tomatoes are still available, but most of the trade now look to Canary Island Tomatoes for their requirements. Tunis Dates have been selling well. There has been a slightly better inquiry for Pines. Beans from Madeira have not been arriving in very good condition, and their prices have, in some instances, been low. Trade in green vegetables shows a slight improvement. The Potato trade has also a slightly better tendency.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated.)

Adiantum, s. d. s. d.	Erica gracilis, s. d. s. d.
—cuneatum, per doz. .. 10 0-18 0	—48 per doz. 24 0-36 0
—elegans .. 10 0-12 0	—60 .. 12 0-15 0
Aralia Sieboldii .. 10 0-12 0	—Thumbs .. 6 0-8 0
Araucarias .. 30 0-48 0	Erica nivalls
Asparagus plu-	—48 .. 24 0-30 0
mosus .. 12 0-15 0	—60 .. 10 0-15 0
—Sprangeri .. 12 0-18 0	—Thumbs .. 6 0-8 0
Aspidistra, green	—Gonistas 48's
Asplenium, per	per doz. 48's .. 15 0-18 0
doz. .. 12 0-18 0	Marguerites, per
—32's .. 24 0-30 0	doz. .. 15 0-18 0
—nidus .. 12 0-15 0	Nephrolepis, in
Cacti, per tray,	variety .. 12 0-18 0
12's, 15's .. 5 0-8 0	—32's .. 24 0-36 0
Chrysanthemum	Palm, Kentia .. 24 0-30 0
—white per doz. 10 0-18 0	—60's .. 15 0-18 0
—coloured .. 9 0-15 0	—Cocos .. 24 0-36 0
Cinerarias	Pteris, in variety 12 0-21 0
per doz. .. 12 0-18 0	—large 60's .. 5 0-6 0
Crotons, per doz. 30 0-42 0	—small .. 4 0-4 6
Cyclamens	—72's, per tray
per doz. .. 18 0-24 0	of 15's .. 3 6-4 0
Cyrtomium .. 10 0-15 0	Solanums, per doz. 10 0-12 0

Out Flowers, etc.: Average Wholesale Prices.

Adiantum, s. d. s. d.	French Flowers, s. d. s. d.
—decum, doz. bun. 10 0-12 0	—Roses Saitrano
—cuneatum, per doz. bun. 6 0-8 0	per pkt 24's .. 2 6-3 0
Asparagus plu-	—Violets, Parma,
mosus, per bun.	per bun. .. 6 6-7 0
long trails, 6's	Single per doz. 3 0-4 6
med. sprays .. 2 6-3 6	Gardenias, per
short .. 1 0-1 6	box .. 6 0-9 0
—Sprangeri, per bun.	Heather, white,
long sprays .. 2 6-3 0	per doz. bun. 4 0-10 0
med. .. 1 3-1 6	Lilium longiflorum 5 6-6 0
short .. 0 9-1 0	—speciosum long
Camellias, white	per doz. .. 3 0-4 6
per box .. 4 0-5 0	short .. 6 0-7 0
Carnations, per	Lapageria per
doz. blooms .. 3 6-5 0	doz. .. 4 0-4 6
Croton leaves,	Lily of the Valley,
var., per bun. 2 6-4 0	per doz. bun. 24 0-42 0
Chrysanthemum	Orchids, per doz.
pink, per doz.	—Cattleyas .. 12 0-18 0
bun. .. 18 0-24 0	—Cypripediums 6 0-9 0
—bronze .. 18 0-24 0	Pelargonium,
—white .. 18 0-24 0	per doz. bunch,
—yellow .. 18 0-24 0	double scarlet 10 0-12 0
—per doz. blooms	Poinsettia, per
—white .. 3 6-8 0	doz. blooms 18 0-24 0
—yellow .. 3 6-8 0	Richardias (Arums)
—pink .. 4 0-8 0	per doz. .. 7 0-10 0
—bronze .. 4 0-8 0	Roses, per doz.
single varieties	blooms—
disbudded	—Frau Karl
blooms, per doz. 3 0-5 0	Druschki
—Spray coloured	—Madame A. .. 1 6-2 6
per doz. bun. 18 0-30 0	—Melody .. 4 0-6 0
—Spray white .. 24 0-30 0	—Niphetos .. 2 0-3 0
Fern, French per	—Ophele .. 4 6-8 0
doz. bun. .. 1 0-1 8	—Liberty .. 5 0-8 0
Forget-me-not per	—Richmond .. 5 0-8 0
doz. bun. .. 12 0-15 0	—Sunburst .. 4 0-6 0
French Flowers	—White Crawford 3 0-4 0
—Acacia (Mimosas)	Smilax, per doz
per bunch .. 1 6-2 0	trails .. 3 0-5 0
—Lilac, white, per	Violets, single .. 3 6-6 0
doz. sprays .. 6 0-7 0	
—Narcissus, paper	
white, pr. doz. bun 3 6-4 0	

REMARKS.—There appeared to be a shortening up of supplies from home growers this morning, especially amongst Chrysanthemums, and prices were firmer for disbudded white blooms, and spray white. Coloured bunch flowers are a very limited supply, especially pink. Bronze Wilcox is one of the best selling varieties at the present time; Market Red also finds a ready sale. The best yellow varieties are Romance and Phoebe. There is also a fine selection amongst the single varieties just now, in spray and disbudded blooms. The present weather conditions will reduce the supply of Roses, but further supplies of these blooms are now arriving from the South of France, consisting of such varieties as Ulrich Brunner, Frau Karl Druschki, and Saitrano. Similar remarks apply to Carnations, baskets of which are arriving from the south almost daily. Other flowers arriving from France are Acacia (Mimosas), Marguerites, Narcissus Paper White, Narcissus Soleil d'Or, Ranunculus, armine, Scarlet, Orange and White; single Violets, and large bunches of Parma Violets, the last are rather high in price at the present time. There are also increased supplies of Solanum berries, pink Heather, Eucalyptus and Ruscus. The supply of white Lilac from Holland is more plentiful.

GARDENING APPOINTMENTS.

Mr. Payne, for the past six years Gardener to Sir Wm. Cory, Bart., at Norbury Park, Dorking, Surrey, as Gardener to the same gentleman at Claremont, Esher, Surrey.

Mr. H. Wenman, for the past 11 years Gardener to Hon. F. L. Wood, M.P., Temple Newsam, Leeds, as Gardener to Viscount Halifax, Huckleton Hall, Doncaster. (Thanks for 2s. for R.G.O.F. Box.—Eds.)

Mr. L. D. Edgar, for the past three years and six months in the Royal Botanic Garden, Edinburgh, as Gardener to G. CRAIG SULLIVAN, Esq., at Ardornish, Morvern, Argyll. (Thanks for 2s. 6d. for R.G.O.F. Box.—Eds.)

Mr. W. Greentree, as Head Gardener to J. RAILTON, Esq., St. Leonard's, near Windsor. (Thanks for 2s. 6d. for R.G.O.F. Box.—Eds.)

Mr. Wm. Tizzard, for nearly three years Foreman at Thorsley Park Gardens, as Gardener to G. H. CROFT, Esq., Southwick Hall Gardens, Oundle, Northampton. (Thanks for 2s. 6d. for R.G.O.F. Box.—Eds.)

Mr. R. Ward, previously Foreman at Layer Marney Hall, Kelvedon, Essex, as Gardener to WM. ANGUS, Esq., The Manor, Tendring, Essex. (Thanks for 1s. 6d. for R.G.O.F. Box.—Eds.)

CATALOGUES RECEIVED.

CLIBRANS, Altrincham.—Ornamental trees, Shrubs and Climbers, Herbaceous and Alpine plants.
SALE and SON, Wokingham.—Bulb Nursery stock.
H. J. JONES, Ryecroft Nurseries, Lewisham, S.E.—Chrysanthemums, Michaelmas Daisies, Hardy Phlox, etc.

ANSWERS TO CORRESPONDENTS.

CLEARING A LAKE: T. C., D. Seeing that you are troubled with *Eloaea canadensis*, which you call American Water Weed, it would indicate that the water is rather shallow. Lakes and ponds tend to fill up with sand and mud brought down by the stream or ditch that feeds them. Leaves also blow into them if there are trees about; and water weeds themselves add to the accumulation of mud. If much rubbish is brought down by the stream, a deal of it could be stopped by making a barrier of wooden or iron rods across the inlet and clearing the rubbish away occasionally. An effort might also be made to rake up leaves to prevent them blowing into the lake. The stems and leaves of the water weed itself could be destroyed by a good dressing of salt, as suggested; but it is doubtful if this would kill the roots in the mud, because the salt quickly gets diluted. Many weeds can live in water that is stagnant and quite brackish, so that this remedy would only be temporary. It could be tried once a year in winter, if you like. Water birds of many kinds devour large quantities of water weeds, grass, and other vegetation, which constitute an important part of their food. We would suggest that you keep some of the larger waterfowl on the lake, such as swans or geese, which forage in deep water for food with their long necks. Geese might be made a useful asset by breeding and keeping a good number in summer when the weeds make their tender young growth. The excess number could be penned in early autumn and fed for the Christmas market. The rest would not do much harm in surrounding grass, even if closely mown, and would require little feeding, except when the lake is frozen over.

CYCLAMEN UNHEALTHY: T. G. The petioles of the leaves have damped off, due, doubtless, to a check to growth, either through growing the plants in a low temperature or an excess of moisture in the soil. Keep the plants drier both at the roots and in the atmosphere, and admit plenty of fresh air to the house. Planting the corms at too great a depth would be likely to set up decay in the petioles.

NAMES OF FRUIT: Bzao. Mithelson's Seedling.—W. C. 1, Bietheimer; 2, Yorkshire Beauty; 3, Yellow Ingestre; 4, Fondante d'Automne; 5, Williams' Victoria; 6, decayed; 7, Dartmouth Crab.—J. R. A. 1, Beurre Sterckmans; 2, Sandringham; 3, Verulam.—T. T. 1, Marie Louise; 2, Bramley's Seedling; 3, Herefordshire Pearmain; 4, Winter Strawberry.—R. D. 1, Napoleon; 2, Thompsons; 3, Beurre Superfin.—G. W. 1, Warner's King; 2, King of the Pippins; 3 and 7, Claygate Pearmain; 4, Annie Elizabeth; 5, Cellini; 6, Winter Hawthornden; 8, St. Edmunds Pippin; 9, Dutch Mignonne; 10, Worcester Pearmain; 11, Marie Louise.

NAMES OF PLANTS.—A. P.: Liriope spicata; Kleina repens. W. W.: Cobaea scandens (Cup and Saucer plant). J. G.: A fine form of the common Spindle tree, Eonymus europaeus.

PEAR TREES SHADING A SMALL GARDEN: R. E. M.—You will not be likely to kill the trees if you cut them down severely. They will, of course, send out vigorous branches again, and these can easily be kept in bounds by subsequent pruning.

WAGES FOR FOREMAN GARDENERS: B. M. Gardeners' wages vary greatly, especially in different parts of the country, and there is no fixed standard of wages to which we can refer you except those recommended by the National Union of Horticultural and Agricultural Workers, 72, Acton Street, W.C. Average wages at the present time would be: inside and outside foreman with bothy accommodation, 39s. weekly; outside journeyman with bothy accommodation, 36s; without bothy, 38s.; inside journeyman 36s. with bothy accommodation.

Communications Received.—E. T.—C. S.—G. F.—J. C.—H. B.—D. H.—D. G.—H. D.—H. L.—F. H. C.—H. H.—J. R.—A. K.—J. S. D.—W. B.—Tanglin—H. G. R.



NEW DESSERT APPLE, GUELPH
(R.H.S. First-Class Certificate, October 7, 1913).

THE

Gardeners' Chronicle

No. 1876.—SATURDAY, DEC. 9, 1922.

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 41.1°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, December 6, 10 a.m. Bar. 30.4; temp. 48°. Weather—Fine.

Weather and Crops.

It is a manifest commonplace of agriculture and horticulture that weather plays a great part in determining the yield of crops. It is also only too well known to cultivators that in certain seasons an individual grower or, indeed, a large group of growers, in a district may lose the whole of certain crops, or, what amounts to the same thing, may have so poor a yield as to find it not worth the while of harvesting. Yet in spite of such experiences it is probable that very few among those who cultivate the land could give an estimate of the average amount of loss of crop caused by adverse weather conditions. In order to fill this gap in general knowledge, inquiry has been made into the weather effects on the chief crops grown in the United States. According to this inquiry, an account of which is published by Mr. Warden Smith*, the average injurious effect of weather on crops ranges from about 21 per cent. to about 28 per cent. in the case of cereals. Of these crops Oats escape with an average penalty of 20.8 per cent. Wheat suffers on the average a weather loss of about 23 per cent.; Barley on the average has to forego about 25 per cent. of its crop because of adverse meteorological conditions; and Maize, the most susceptible of all, loses on the average about

28 per cent. The average toll which adverse weather takes of the Potato crop is, curiously enough, rather less than that exacted from any cereal, namely, a little less than 21 per cent. Apples, on the other hand, lose on the average about a quarter of their crop—25 per cent.—as a result of bad weather. The crop which suffers least is Rice, 14.1 per cent., and next to it stands Tobacco with an average loss of nearly 16 per cent. Thus, with occasional exceptions, adverse weather is a very impartial enemy of cultivators, though some plants get off rather more lightly than others, and some, for example, Flax, seem to be particularly prone to weather trouble, its average loss being nearly 32 per cent.; so that in any year the grower has no reason to expect more than two-thirds of a full crop. Perhaps the most interesting point of this statistical inquiry is that which estimates the average losses incurred as the result of insect and fungous attack. Insect pests and parasitic fungi combined only succeed in doing on the average less than a quarter of the damage which bad weather may do. In the case of the Wheat crop the average destruction is estimated at—by weather, 22.9 per cent., by fungous diseases 2.7, and by insect pests 2.1 per cent. In the case of the Potato, adverse weather reduces the crop on the average by 20.7 per cent.; fungous pests only decrease it by 4.4 per cent., and insect pests by 3.2. The loss from these latter causes is greatest in the Apple crop, for beside the average loss of about 25 per cent. from weather, fungous pests reduce it by 3.7 and insect pests by 3.6; so that the average loss from all causes of the Apple crop is nearly 40 per cent. Needless to say, the losses from weather and from pests have to be viewed differently, the one from the other; for whereas weather loss is in large measure beyond the control of the grower, loss caused by pests is also in large measure within his control. Perhaps the most satisfactory aspect of the statistics on this subject is that relating to loss due to defective seed. In the chief cereals it is almost negligible, ranging from one-tenth to two-tenths of one per cent., and even in the Potato the average loss from this cause only reduces a ten-ton crop by about five stones. As is to be expected, the chief factor in the weather as a limiter of crop production is deficient moisture. Lack of sufficient water is, indeed, the limiting factor of crop production, and the loss from this cause is greater on the average than that wrought by the combined maleficent action of all other adverse meteorological conditions. Thus in the case of Wheat deficient moisture accounts for a loss of from 12.4 per cent., and all these other conditions combined for only some ten per cent. With the Potato, to an even greater degree, if only the soil be adequately supplied with water, the crop will on the average be a good one, but if the supply be defective, although other conditions are favourable, there is a loss on the average of 14.4 per cent.—that is, an eight-ton crop would be reduced to one of less than seven tons. Wherefore, the chief conclusion to be reached from these statistical investigations is the one which all good gardeners have reached as the result of their experience, namely, that a thorough cultivation of the soil is the best system of insurance for large crop-production.

Our Almanac for 1923.—We propose to publish in an early issue of the New Year a *Gardeners' Chronicle* Almanac for the year 1923. In order to make it as useful as possible for reference,

we shall be obliged if secretaries of horticultural, botanical and allied societies, or any of our correspondents, will send us immediate information of all fixtures for the coming year.

Imperial Fruit Show, 1923.—The proprietors of the *Daily Mail* having announced that they will not organise an Empire Fruit Show in 1923, a meeting of fruit growers and brokers, convened by the Ministry of Agriculture, was held at 10, Whitehall Place, on the 2nd inst., to consider the holding of an exhibition of this nature by the growers, and others interested themselves. Mr. W. G. Lobjoit, who presided, stated the Ministry thought that the proper thing to do was to establish an organisation which should carry on the movement. The meeting was in favour of this, and resolved to hold a show next year in Manchester. The exhibition will be of an Imperial nature, as heretofore. The executive organisation will consist of a joint committee consisting of three members of each of the various federations of growers and brokers and allied bodies; and members will be co-opted representing the Dominions, the Manchester Corporation, the railway companies, and the Royal Horticultural Society; two representatives of the Ministry (the chairman and Mr. H. V. Taylor) will act as conveners of the committee. The question of raising the necessary financial resources was left to this joint committee.

Gift of a Public Park.—At a recent meeting of the town council of Dalbeattie, a letter was read from W. J. Herries Maxwell, Esq., of Munches, Dalbeattie, offering as a gift to the burgh the ground known as Rounnell Wood, extending to about five acres, for a public park. The gift was unanimously accepted, and the best thanks of the council given to Mr. Maxwell for his generosity. The land, formerly occupied as woodland, has been cleared of the timber, and will only require a comparatively small outlay to make it suitable for a public park. It is admirably suited for the purpose, being on an elevation overlooking the town and in every way an ideal position. Dalbeattie already possesses two public parks, one the gift of Mr. Maxwell, of Munches, the other given by Miss Copland, of Colliston.

Food Production in War-time and After.—At the next meeting of the Surveyors' Institution, to be held in the lecture hall of the institution, George Street, Westminster, on Monday, December 11, a paper will be read by Major E. Meacher entitled "Food Production During the War," and another by Mr. Harry German entitled "The Agricultural Position and the Possibility of Stimulating Economic Production in the Future."

Horticultural Club.—The members of the Horticultural Club will meet at dinner on Tuesday, December 12, at 6.45 p.m., at the Connaught Rooms, Great Queen Street, W.C. After dinner Mr. R. A. Malby will exhibit a series of lantern slides showing scenes in beautiful gardens, in their natural colours, and following the pictures there will be a musical programme.

The Botanical Society and Exchange Club of the British Isles.—The report of this society for the year 1921, together with the balance sheet for 1920, has just been issued as Part III of Vol. VI. of the society's transactions. It is a most interesting issue, especially to students of British botany, as it includes a large number of plant notes dealing mostly with plants new to the British Isles, and there are several references to notes which have appeared in the *Gardeners' Chronicle*. These are followed by notices of books and other publications of botanical or horticultural interest, while numerous pages are devoted to appreciative notices of men who, after contributing materially to our knowledge of plants, have passed away. The County and other Records of British Plants fill about thirty-six pages, and are followed by a critical review of the Nigra group of British Centaureas by Mr. C. E. Britton. Notes on Vivipary in *Festuca ovina*, by Mr. T. J. Jenkin, of the Welsh Plant Breeding Station, Aberystwyth, are of peculiar interest and scarcely less interesting are the

* Monthly Weather Review, 47, No. 8, Washington, August, 1922.

Notes on the Seeds of the British Dactylorhizids, by Mr. T. A. Dymes. The "Flora Zetlandica," by Mr. G. Claridge Druce, the Secretary of the Society, occupies ninety pages, and forms a valuable supplement to this publication, the price of which is 10s.

Gifts of Land to Crief.—Provost Mungall has presented the town of Crief with a portion of land along the west bank of the River Turret as an additional pleasure ground and adjunct to the MacRosty Park. Sir William Keith Murray has also offered the town a strip of woodland and a wood adjoining the public park for use as a public ornamental and pleasure ground.

Time of Tuber Formation in Potatoes.—Experiments conducted at the Colorado Experiment Station, Greeley, U.S.A., and also subsequent observations, made at Maine, give valuable data as to the time of the beginning of tuber formation in the Potato. It was shown that the greater part of the tubers which grow to exceed half an inch in diameter are formed at the start of tuber development. The maximum rate of growth of the tubers was found to occur at approximately eighty days after planting. At this time nearly one-third of the total period of tuber development has been completed. The tubers on the upper stolons show, generally, a tendency to a decrease in size, although individual plants exhibited considerable diversity in this respect. The greatest average weight of crop was produced by the lower stolons. Bearing on the debatable question of planting cut "seed" and whole "seed," with one exception a larger weight of tubers per stem was obtained when whole sets were used. The experiments brought out a valuable point in cultivation, for the application of water before tuber formation had begun increased the numbers of tubers, although increasing the numbers of waterings afterwards appeared to have little effect in this respect.

R.H.S. Rose Trials at Wisley.—The Director of Wisley, informs us that the land set aside for the Rose-trial grounds in the Gardens of the Royal Horticultural Society is now ready for planting. He would be glad if those desiring to send Roses for trial this season would let him know as soon as possible, and he will be pleased to send the necessary entry forms. All types of Roses will be included in the trials.

"Trees of Great Britain and Ireland." A copy of this classical work by the late Mr. H. J. Elwes and Prof. A. Henry was sold at Messrs. Sotheby's on Tuesday, the 28th ult., for £45, the purchasers being Messrs. Quaritch. The book was from the Leighton collection.

Swanley Horticultural College.—The annual general meeting of the members of the Horticultural College, Swanley, will be held at 31, Curzon Street, W.1, on Tuesday, December 12, at 4 p.m., when the principal business will be the consideration of the annual report and balance-sheet, the election of governors and auditors, and the confirmation of the nomination to the governing body of Mr. E. A. Bunyard, Maidstone; Mr. W. G. Lobjoit, Controller of Horticulture; and Miss MacQueen. The retiring governors are Viscountess Northcliffe, Dr. Barratt, and Miss Cracknell. The new Principal of Swanley College is Miss Barratt, D.Sc., lecturer at the Imperial College of Science. Dr. Barratt was formerly a student of the College and for three years a member of the staff. Since then she has been in close touch with the work of the College, and has served on the governing body for the last five years.

Pear Wood.—Mr. Dallimore draws attention in the *Kew Bulletin** to the value of Pear wood for the making of draughtsmen's apparatus, and especially for T squares and set squares. The wood is also in demand for the making of camera shutters, it being stained black for this purpose. The timber of the Pear is also suitable for use in carving and turnery on account of its very smooth surface, whichever way it is worked. The supply is small, as most old Pear trees are used as firewood when felled.

Those who have only a few trees for disposal are recommended to offer them to makers of cameras or scientific instruments.

Appointment of Assistant-Director of the R.H.S. Gardens, Wisley.—The Council of the Royal Horticultural Society has appointed Mr. A. Simmonds to be Assistant-Director of their gardens at Wisley. Mr. Simmonds was trained at the Wisley School of Horticulture, and in 1915, when the National Diploma was instituted, he was one of the first batch of candidates to sit for the examination, and so well did he please the examiners that he was placed at the head of the pass list. Later, he was appointed as demonstrator at Wisley, and left the service of the Royal Horticultural Society to take up the appointment of Assistant Horticultural Instructor under the Surrey County Council. Subsequently he became Horticultural Instructor under the Hertfordshire County Council, and in 1919 became Assistant Horticultural Superintendent in Kent. Mr. Simmonds has always taken a keen interest in the educational side of horticultural activities, and is now the Hon. Secretary of the Horticultural Education As-



MR. A. SIMMONDS.

THE NEWLY APPOINTED ASSISTANT-DIRECTOR OF THE R.H.S. GARDENS, WISLEY.

sociation. His practical training at Wisley fits him particularly well for the position to which he has now been appointed, while his success at the R.H.S. examinations shows that he is well acquainted with the theoretical and scientific aspects of horticulture. It will interest our readers to know that Mr. Simmonds served with the Army in France during the war period. He enlisted as a private and was given a commission after six months' service. He was mentioned in dispatches on two occasions and received the Military Cross; he rose to the rank of Major, and on the cessation of hostilities retired with that honorary rank. We congratulate Mr. Simmonds upon his war record, his horticultural successes, and upon his appointment at Wisley.

Diatomaceous Earth.—This material is used in the United States of America, amongst other purposes, for filtering unfermented Apple juice in the making of Cider. The following account of this organic earth is given in *Farmers' Bulletin*, No. 1264, of the United States Department of Agriculture in an article on the "Farm Making of Unfermented Apple Juice." Diatomaceous or siliceous earth consists of the cell walls of microscopic 1-celled plants, diatoms, which exist in a great variety of forms in both fresh and salt water and in damp soils. Exten-

sive deposits of this earth are found in various parts of the United States. A number of these deposits are being worked, as the earth has many industrial uses, the principal ones being as an abrasive and metal polisher, as an insulating and sound-deadening material, as an absorbent for nitroglycerine in the manufacture of dynamite, and as a clarifying agent in the manufacture of cane sugar. The earth is marketed under various names after it has been subjected to grinding and screening; among these may be mentioned kieselguhr, infusorial earth, infusorial silica, fossil flour, diatomite, tripolite, and tripoli powder. Some of the earths on the market instead of consisting of silica contain varying quantities of calcium carbonate. As obtained from manufacturers and dealers, diatomaceous earths contain some organic matter which will give a disagreeable foreign or "earthy" flavour to the juices unless it is removed. The most satisfactory method of purifying the earth is by heating it to redness for a short time. Diatomaceous earth can be used repeatedly merely by heating it after each use for the same time and in the same way as at first.

Certified Stocks of Immune Varieties of Potatoes.—During the past season, inspectors of the Ministry of Agriculture have examined many fields of growing Potatoes of varieties immune from Wart Disease, with a view to certification of the crop as true to type and free from "rogues." A list of the growers of these certified stocks is available at the Ministry, who will supply on application the names and addresses of growers of certified stocks of any particular variety, together with the numbers of the relative certificates issued to them. Growers are reminded that only "seed" from crops which have been so certified may be planted on land which is infected with Wart Disease.

New Coffee and Cocoa Disease.—Mr. J. Ramsbottom draws our attention to an error on p. 331 in the résumé of Mr. R. J. Tabor's paper, which places the new Cocoa and Coffee disease both in Phycomyces and Ascomycetes! The fungus is one with sexual organs much resembling those of certain species of Phytophthora, with amphigynous antheridia; the oogonia are, however, thick-walled, with a number of blunt processes. The conidial stage is very unlike that of Phytophthora, or, indeed, of any known Oomycete, being more suggestive of Zygomycetes, such as Choanephora. The fungus is, therefore, considered to be a member of the Peronosporiaceae.

The Late Mr. Henry J. Elwes.—The following is a list of plants figured in the *Bot. Mag.* and introduced or grown by the late Mr. H. J. Elwes: In 1875: t. 6166, *Galanthus Elwesii*, from Asia Minor; t. 6168, *Crocus Crewei*, Island of Syria; t. 6176, *Crocus Fleischeri*, Asia Minor; t. 6187, *Crocus Boryi*, Asia Minor; t. 6191, *Tulipa Eichleri*, and t. 6220, *Calochortus citrinus*, California; the first five of these plants were collected by Mr. Elwes. In 1876: t. 6242, *Tulipa Hageri*, Greece; t. 6244, *Bongardia Rauwolfii*, Asia Minor (collected by Mr. Elwes); t. 6255, *Serapias papilionaceo-lingua*, S. France; and t. 6269, *Muscari aestivale*. In 1877: t. 6281, *Dracocephalum speciosum*, Sikkim; t. 6295, *Tigridia lutea*, Peru and Chili; t. 6308, *Tulipa undulatifolia*, Asia Minor; t. 6321, *Fritillaria acmopetala* and *F. dasphylla*, Asia Minor; and t. 6335, *Gladiolus Eckloni*, South Africa. Colesborne was a museum of his collections of butterflies, big-game trophies from all countries, and has remarkable collection of timbers, and what he could tell about them, rendered a visit to Colesborne an experience none of his friends will forget. In recent years he devoted much time to the bringing together at Colesborne and the hybridising of sheep of primitive breeds from all parts of these islands, and published an interesting paper about them. He sent pens of these sheep to the Royal Agricultural Show at Bristol in 1913. The qualities of various wools induced him to take up this subject, and from what they learned at Colesborne many have started flocks of their own, and go clad, as he did, in cloth of "Moorit" Shetland, or Black Welsh of their own raising.

* *Bulletin of Miscellaneous Information*, No. 9, 1922.

Cornwall Flower Show.—The Cornwall Daffodil and Spring Flower Society has decided to revive the society's annual flower show, and an exhibition will be held on May 1 and 2, 1923. Several of the members were in favour of the dates being April 17 and 18, and it was only by the casting vote of the chairman that the May dates were selected. These flower shows in the past have been especially noted for fine exhibits of Daffodils, but it is hoped that flowering shrubs, and especially Rhododendrons, will be the main features of the exhibition next year. It was stated that the society has a balance at the bank of some £130, and subscriptions promised for the show amount to £64 4s. 6d.; some seventy growers have consented to support the exhibition. We understand that since the meeting further subscriptions have been received, and there is every prospect of the society being able to hold a first-class exhibition.

The Hop Crop.—The total production of Hops during the present year is estimated at 301,000 cwt.; 77,000 more than last year and 26,000 cwt. above the average of the ten years 1912-21. Except in East Kent, the yields per acre were above the average for the south-eastern counties, especially in Sussex, where a heavy crop of 14.2 cwt. per acre was obtained. In the western counties yields were not so satisfactory, being half a hundredweight below the average in Herefordshire and just average in Worcestershire. Results this year were, therefore, the reverse of those of last year, when the western counties had good crops and the south-eastern counties lighter crops than usual. The Kent crop totalled 206,000 cwt., as compared with 143,000 cwt. in 1921. The next largest yield was in Sussex, where 33,500 cwt. was produced, closely followed by Hereford with 30,000 cwt.

Appointments for the Ensuing Week.—Monday, December 11: National Chrysanthemum Society's Floral and Executive Committees meet; United Horticultural Benefit and Provident Society's meeting; Bath Gardeners' Society's meeting; Purley Horticultural Society's meeting.—Tuesday, December 12: Royal Horticultural Society's Committees meet; Horticultural Club Dinner, Connaught Rooms.—Wednesday, December 13: East Anglian Horticultural Society's meeting; Sheffield Chrysanthemum Society's meeting.—Thursday, December 14: Bristol and District Gardeners' Association's meeting.—Friday, December 15: Paisley Florists' Society's meeting; Eastbourne Horticultural Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Chrysanthemum Show at Newcastle.*—The first exhibition of the above much-admired flower was held on the 24th ult., at Jesmond Gardens. The collections were splendid, and amongst them were several specimens as large and as brilliant as Dahlias; indeed, the exhibition had much the appearance of a Dahlia show. The following is a list of the winning flowers in the principal stands:—First, eighteen flowers, Mr. J. Deans, Empress, Golden Yellow, Maria, Queen, Venus, Vesta, Duc de Canigiano, Madam Pompadour, Arabella, Annie Salter, Superb White, Tasselled Yellow, Paper White, Elegans, and four others; second, ditto. Mr. W. Kelley, Magnet, Victory, Adventure, Ranunculiflora, Tasselled Yellow, Minerva, Elveria, Cleopatra, Annie Salter, Madam Pompadour, Princess Maria, Maiden's Blush, Bicolor, Wheeleriana, General O'Donnell, Marshal de Craque, Queen, and Demosthenes. First twelve, Mr. Deans, Tasselled Yellow, Duc de Canigiano, Queen, Annie Salter, Arabella, Empress, Elegans, Golden Yellow, Cleopatra, Madam Pompadour, Maria, and Paper White; second ditto, Mr. Clay. Best blooms of any colour, Mr. Deans, with Annie Salter. *Gard. Chron.*, December 11, 1847.

Publications Received.—*Pests of the Garden and Orchard, Farm and Forest*, by Messrs. Ray Palmer and W. Percival Westell. Illustrated. Henry J. Drane, Danegeld House, Farlington Street, E.C.4. Price 25s. net.—*Our Birds: their Haunts and Nests*. First and Second Series. Illustrated. T. N. Foulis, Ltd., 91, Great Russell Street, London.

CHRYSANTHEMUMS IN THE GLASGOW PARKS.

In several of the Glasgow City parks there are displays of Chrysanthemums each season, and these flowers are so popular with the public that on Sundays the approaches leading to the greenhouses are thronged with visitors.

QUEEN'S PARK.

Here the collection, numbering fifteen hundred plants, is arranged on the floor, around the sides of a span-roofed greenhouse, in undulating banks from four to eight feet deep. Opposite the entrance they are massed to a much greater depth. There are also groups in the centre of the house, and sufficient plants of each variety are grouped together to enable one to

Suspended from the roof in one of the houses are pans of *Columnea gloriosa*; the large, hooded, scarlet flowers are of a size out of all proportion to the light trails of foliage. The supports of the gallery around the Winter Garden are covered with a variety of climbing plants.

BOTANIC GARDENS.

At the Botanic Gardens the Chrysanthemums are displayed in the two wings of the Kibble Palace, the large conservatory so called, originally erected by Mr. Kibble at Coupar, in the West Highlands. "The Kibble" is now well furnished with Palms, Bamboos, Tree Ferns, and semi-hardy shrubs, all planted out.

In the succulent houses also the plants are all planted out, the larger and more vigorous, such as *Cereus speciosissimus*, *Aloe Bainesii*, *Opuntia vulgaris*, *Doryanthes Palmeri*, and other



FIG. 134.—SINGLE CHRYSANTHEMUM ROBERT COLLINS. N.C.S. FIRST CLASS CERTIFICATE, NOVEMBER 27; R.H.S. AWARD OF MERIT, NOVEMBER 28; SEE PP. 329, 330. SHOWN BY MR. G. CARPENTER.

form a good idea of the characteristics of each. In addition, large quantities of decorative and single varieties are grown.

Of other plants in flower a batch of an unnamed *Pelargonium* is a glowing mass of scarlet. SPRINGBURN PARK.

At Springburn there is an imposing three-sided group, occupying the central position in a house, the side stages being filled with dwarf, late-struck plants in six-inch pots, each carrying one bloom of exhibition size. The collection is up to date, the blooms massive and of fine colour. The most noticeable varieties are *Majestic*, *Daily Mail*, *Mrs. Sargeant*, *Mrs. R. C. Pulling*, *Princess Mary*, *Mrs. A. Davis*, *Edith Cavell*, *William Rigby*, *Queen Mary*, *Keith Luxford*, *Louisa Pockett* and *William Turner*.

A feature at Springburn is the large and healthy collection of perpetual flowering Carnations, and the batch, filling one side of a long house and well furnished with bloom, has flowered continuously during the past six months. Other flowering plants in this house are *Salvia splendens*, *Cineraria Moorei*, and a late batch of *Schizanthus*.

giants, being planted on the ground level, with the dwarfier and less robust species on raised benches. Strewn about the borders are boulders of various sizes, simulating desert conditions. On the roof there are growths of the curious *Testudinaria Elephantipes*.

Uncommon flowering plants noted here were *Abelia chinensis*, a very floriferous shrub covering a pillar, for which purpose it is well suited; the flowers are small, pink, tubular, and borne at the tip of the current year's growth. *Candollea cuneiformis*, an evergreen of neat habit, with conspicuous yellow flowers one inch across; *Hibbertia dentata*, flowers dark yellow, trained on a trellis under the roof; *Caillandra haematocephala*, a Leguminous shrub of striking aspect, the flowers borne in a small head and concealed by the filaments, which form a ball of scarlet threads.

TOLL-CROSS PARK.

In the conservatories here there is also a display of Chrysanthemums, details of which would be a repetition of much already noted. *Fred W. Jeffery, District, A.B.*

The Week's Work.

HARDY FRUIT GARDEN.

By H. MARKHAM, Gardener to the EARL OF STRAFFORD, Wrotham Park, Barnet.

Peaches and Nectarines.—Although in many gardens the pruning and training of these trees are usually deferred until late in the winter, I have for several years commenced and carried out these operations before Christmas, with good results. In fact, as soon as the leaves have fallen we commence the work and hasten its completion as fast as time and labour will admit, and so far I have never experienced failure. Large fruiting trees that were carefully disbudded last summer, and divested of surplus shoots to prevent crowding, will need but very little pruning at the present time. The branches should be well apart to obtain good crops of large, clean, highly-flavoured and richly-coloured fruits. Remove shoots that can be spared, and train in young or fruitful growths all over the trees, both for fruiting and for filling the places of older wood that is cut out. It is not necessary to remove all the branches from the walls annually if they are well balanced, but the fastenings should be carefully examined and renewed if necessary. In training the young shoots use only sufficient ties and nails to keep them in position.

Spraying.—The old method of treating fruit trees with lime is not so much practised now that there are several good proprietary washes on the market. Those who have not used alkali spray need not be timid in its application, as there is nothing to fear if the spraying is carried out according to the directions given by the makers. In spraying see that every part of the trunk, branches, etc., is thoroughly treated, and use gloves to prevent the mixture from touching the hands. If lime is used dust every part of the tree when the bark is damp, or mix the lime into a wash and apply it by means of a syringe. In old orchards lime not only cleanses the trees of lichen, etc., but when washed off the branches by rain it benefits the roots and sweetens the soil, and is especially valuable where poultry is allowed to run under the trees.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

The Resting of Orchids.—All Orchids possessing pseudo-bulbs require a rest at some period of the year, in order to bring about the maturation of their growths, and also that they may recuperate after flowering. By rest is not implied absolute drought for long or short periods at the roots, but the application of little or no water, a lowering of the temperature, less moisture in the atmosphere, and last, but not least, an increased amount of light, if this can be obtained. It is easy to give either too much or too little water during the winter, but very difficult to say when or how often to water, for the conditions of the weather and circumstances of each plant differ greatly. Even individual plants of the same species or hybrid of the same sort vary in this respect to a considerable extent. The grower should give the plant sufficient moisture to keep it in a plump and sound condition: shrivelling of the pseudo-bulbs must be prevented, and provided no shrivelling of the pseudo-bulbs takes place it is much the best practice to err on the side of giving too little water during the winter months than too much. In varied and mixed collections it is often a difficult matter to give each individual plant an ideal position, but this may often be overcome by placing the various species, or hybrids, in batches by themselves, thus giving each section a position suitable for its requirements in respect to light, moisture and warmth. In order to facilitate the winter-

ing of Orchids it is advisable to place them into three groups.

Deciduous Orchids.—Firstly, we will consider the deciduous ones, amongst which will be found the following: *Thunia*, *Mormodes*, *Cynoches*, *Catasetum*, *Chysis*, *Anguloa*, *Cyrtopodium*, and deciduous *Calanthes*. These are all more or less capable of withstanding drought from now onwards until new growth appears in the spring; they may therefore occupy the driest and lightest positions in their respective compartments, and receive only sufficient water to prevent excessive shrivelling. Secondly may be included the other pseudo-bulbous genera, for instance, *Cattleya*, *Laelia*, *Coelogyne*, *Oncidium*, *Epidendrum*, *Lycaste*, *Maxillaria*, *Stanhopea*, some *Odontoglossums*, and many others. These will not withstand so much drought as the former genera, but should be given a fairly dry treatment, yet not be allowed to suffer for the want of water at the roots at any time of the year.

Orchids that are Never Dormant.—Thirdly, we have those species and hybrids which are growing more or less all the year round, and have no season of inactivity: some of these have pseudo-bulbs, such as *Zygopetalum*, *Miltonia*, *Cymbidium*, *Cochlidium*, and various species from other genera, such as *Laelia purpurata* and *Odontoglossum crispum*, together with a number of those having no pseudo-bulbs, such as *Cypripedium*, *Saccolabium*, *Vanda*, *Sobralia*, *Phalaenopsis*, *Phaius*, *Masdevallia*, *Angraecum* and *Aerides*. These should not be allowed to become too dry at the root, but, on the contrary, should not be watered too freely. The knowledge of giving water at the right time to any particular plant in order to keep it healthy, and in a sound condition, depends so much on the house in which it is grown, and is only acquired by practical experience; but to the careful observer each plant will soon tell its own requirements.

THE KITCHEN GARDEN.

By JAMES E. HATHAWAY, Gardener to JOHN BRENNAND, Esq., Baldersby Park, Thirsk, Yorkshire.

Potatoes.—The earliest sprouted sets intended for forcing should be planted in large pots or in heated pits to obtain early tubers. Use old potting soil; that which has been used for *Chrysanthemums* is suitable, mixed with a few wood ashes and horse droppings. The soil should be in a moist condition and warm, so that no watering will be required for some time to come.

Spring Cabbage.—If these plants are long in the stem soil should be drawn up to them to protect them from severe weather.

Celery.—If the latest batch of Celery has not been earthed up finally, it should be attended to at once, and a supply of bracken or litter kept in readiness to apply as protection in the event of very severe frosts.

Broccoli.—These plants have formed good heads during the recent open weather, but they should be examined every afternoon, and protected by turning the outside leaves over the curds. Where a deep frame is available it is a good plan to lift Broccoli with good balls of soil and place them in it, where they will receive protection during severe weather.

Tomatoes.—Make a sowing of Tomato seed in well-drained 6-inch pots. As soon as the seedlings appear place them well in the light. Prince of Wales and Ailsa Craig are two of the best varieties for present sowing. A temperature of 60° to 65° is sufficient for germinating the seed. During bad weather seed that was harvested this year should be picked over, cleaned, and carefully labelled, and a few seeds of each variety sown to test them for germination.

Next Year's Cropping.—A plan of the kitchen garden should be made, and the different plots marked for the various crops and treated accordingly. Certain crops do best in particular parts of the garden, and this should be considered in drawing up the cropping scheme.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir C. NALL-CAIN, Bart., The Node, Codicote, Welwyn, Hertfordshire.

Adiantum.—*Adiantums* that have been used for the decoration of the dwelling house, and are in consequence somewhat shabby in appearance, may be rested preparatory to restarting them into growth early next year. Provided most of the fronds are ripe no harm will be done if the whole of them are cut off. Water supplies to the roots should be reduced gradually, but not to such an extent as would cause the soil to dry completely, for at no time should Ferns be subjected to what is termed drying off, although a partial rest is necessary. By resting a certain number of plants now, in about a month's time they will be in a suitable condition for repotting in rich, friable soil, and will soon produce plenty of fresh green fronds. Other batches may be treated in the same manner later to ensure a succession of fronds.

Specimen Ferns.—Large specimens of most kinds of Ferns should be kept slightly on the dry side for the next few weeks by reducing the amount of water at the roots and in the atmosphere of the house. Many species and varieties are evergreen, and the fronds should not be cut off as advised for *Adiantums*; only the decaying fronds need to be cut away. Neither should they be kept so dry as advised for the deciduous kinds. Should thrip be present on the plants a light fumigation with XL All fumigant three times in succession will help considerably to check this pest, but great care in fumigating is necessary owing to the extreme tenderness of Fern fronds. It is always essential with Ferns to prevent insect pests from spreading. Owing to it not being safe to use strong specifics to destroy pests the winter is a good time to thoroughly cleanse both plants and the structure in which they are grown.

Nephrolepis.—During the past few years several beautiful crested varieties of *Nephrolepis* have been raised, and they are all useful for decorative effect or for supplying cut fronds for decorations, as they retain their freshness for a long time when cut and placed in water. Most of these varieties may be readily increased either by division or by the stolons. The latter should be carefully removed from the parent plant and inserted in very small pots; afterwards placing them in a propagating frame until they become established in the new soil, when they should be removed to a warm house and grown in a light position.

THE FLOWER GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

Plants in Frames.—Plants growing in pots in cold frames should be carefully examined. Water should be afforded the roots sparingly; but whereas an excess of moisture would be injurious, so also would it be harmful to allow the soil to become dried out completely. The potting on of seedlings and cuttings should be done before very severe weather sets in, so that the young plants may not be likely to receive a sudden severe check. Opportunity should be taken to re-surface the pots with soil to leave them in good condition through the winter. See that each plant is labelled, as the possibility of the names being lost will be much increased when the frames are shut up close during spells of very cold weather. Have all the necessary covering material ready to hand to apply when frosts threaten, or some of the more tender subjects may be injured unexpectedly.

Work in Wet Weather.—It is sometimes a difficult matter to find work for the staff at times when the weather is too severe for outside operations. Pot washing, the preparation of crocks, stoppers, etc.; mat tying; the preparation of sticks, stakes, and labels; the checking of name lists; clearing out sheds, and sorting the lumber that invariably accumulates in them during the busy period of summer and autumn.

and many other similar jobs will give useful employment when operations in the open are temporarily checked by untoward weather.

General Remarks.—Where the plants in herbaceous borders do not need replanting, opportunity should be taken of fine, open weather to clear away all dead growth, and stakes, and reduce rampantly growing clumps of plants. After this is completed, the surface of the borders should be carefully forked over, first applying a suitable top dressing, such as fine leaf-mould, and leaving the surface on the rough side for the weather to act upon. Beds required to provide room for surplus plants for cutting purposes should also be got ready by trenching the soil. A little extra care in preparing these in a good and effective way will be well repaid by the better results attained from the plants. Lawns should receive attention by brushing and rolling them at this season, a care that will bring the turf into good condition for the coming year. Bad patches on lawns should be repaired by taking out the faulty parts and furnishing them with fresh turf. This is often necessary where portions have become shabby by much walking on, or where the drip of trees has caused the grass to die, and to replace this, good, strong meadow turf will be found the best material. Before placing the turves in position, prepare the ground for their reception, by applying a shallow layer of fine soil, and raking it level for the roots of the new turf to grow into. Make the new turf firm, and, early next season, sow it with good grass seed, protecting the latter from the birds. Wherever new turf is laid, employ some device to defend it from being walked on or knocked out of position until such time as it has settled and become firmly established. Lawns should be lightly top-dressed now with a slow-acting, stimulating manure such as a light sprinkling of horse-manure, or old potting soil with a little bone-meal added.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

Starting Early Vines.—The very early forcing of permanent vines has been discontinued or greatly modified by many gardeners. Late Grapes have done good service to the gardener whose vineries are none too plentiful, as they have enabled him to postpone the starting of his early houses until Christmas, with the prospect greatly in favour of better crops than could be obtained from the same vines started early in November. There are still a few growers who are obliged to start their vines of Black Hamburgh and other thin-skinned varieties as early as they did before bottling was practised. Success in forcing depends more on the preparation of the vines than on the detailed operations of forcing, as very strong vines may be a complete failure, while weaker, but thoroughly ripe canes will furnish good bunches in profusion. The vines having been shortened to a suitable length some weeks ago, there will be but little danger of them bleeding; a touch of styptic will do no harm, but scarcely anything will stop the sap after it is active. If the vines are young and strong clear water warmed to a temperature of 75° to 80° will be best to use, especially if the border was well watered previous to applying the top dressing. A temperature of 50° is safe to commence with, with a little warmth, more or less, according to the outside atmosphere. The syringe should, as a matter of course, be used and the moisture should be applied to the old stems, especially near the pipes in dry corners, to the walls, floors, and other surfaces. When well started and all the buds are on the move young canes which have been bent down should be tied to the wires without delay, otherwise the shoots will grow backwards to the light, and later will give unnecessary trouble in training. The temperature of the vinery at this stage may range from 50° to 55° by night, and from 60° to 65° by day, rising a few degrees higher with bright sunshine; but no advance in the night temperature should be made for the present.

HARDY FLOWER BORDER.

PINK AND ROSE-COLOURED MICHAELMAS DAISIES.

It surprised nearly everyone who visited my collection of Michaelmas Daisies this autumn to see the number of rose and pink varieties. Probably in no other direction have any more important improvements in the race been accomplished. Independently of either Chrysanthemums or Dahlias, the English autumn garden may now have its fair share of colour. In the sunlight the effect of a goodly muster of the more rosy Michaelmas Daisies is very fine. The bright light does for them what the dull days of November and December do for our clothes. It hides defects. The rose tone of Brightest and Best seems as pure as that of Dainty, and Mons appears as the

Among the pinks my choice would certainly be Louvain. It is a rare combination of tall, majestic bearing with a sweet and beautiful flower. When it first began to bloom I thought I had a deeper-toned counterpart in Mrs. Wheeler Bennett, but after it had been out some time I hardly knew it, the flower had gone so mauve. Excluding this, after Louvain I place Lady Lloyd, Ethel Ballard (although it has the spidery type of petal which as yet I have not got used to), Thelma Perry (a little on the "spidery" side, but a lovely shade), and, if a St. Egwin bush is not anathema, Namur. It is a pale, true pink. Of the variety Rose de la Toussaint, which came from Messrs. Barr and Sons, I reserve my opinion. In its general appearance it reminds me very much of that useful variety Esther, but it is of taller growth. It did not come into flower until October 20, but my second



FIG. 135.—*ODONTOGLOSSUM ARMSTRONGII* VAR. *AUREOLE*. R.H.S. FIRST CLASS CERTIFICATE AND CERTIFICATE OF APPRECIATION, NOVEMBER 28 (SEE P. 329).

equal in purity of General Leman or Harold Reuthe. Just as in the hybrid Tea Roses, there is much still to be done before the disagreeable blue tint is entirely eliminated, so is it with regard to the rose-coloured Asters. So far as I have been able to judge, the variety which remains purest in colour to the end is Mr. Beckett's Sunset, but this can only be called a soft or pale rose. In the deeper shades I place General Leman, Dainty, Hilda, Sirius, Perry's Pink (why not Perry's Rose?), and, especially when it is seen from a distance, Walloon. It was not in my collection, but, if "eye deceive me not," from my observation at exhibitions this autumn, I consider that Harold Reuthe might be included in this select list of *Novi-Belgii* varieties. My present selections are entirely confined to this section, for the simple reason that I have had none of the *Novae-Angliae* type. Somehow they do not appeal to me in the same way, and, I take it, I am not singular in this, or we would not have eighty-five varieties of *Novi-Belgii* in Mr. H. J. Jones's 1922-23 list to only eight of *Novae-Angliae*. When we come to the pink sorts, extended observation confirms my first-sight opinion that there is nothing to equal Louvain.

plant, which made a far better show, was not at its best until November was well in.

If the beauty of the individual bloom was the only factor to be taken into consideration, I hesitate to say where I might not have placed Roddy. It has pretty, rosy pink, Daisy-like flowers, with a small, pronounced halo of white round their centres, and they are so exquisitely arranged on the numerous side stems that if I only wanted it for cutting to place in small vases I would ignore its unfortunate, weak, main stem. It will be tried by me next year, and special care taken to see that it is tied up every few inches, when I hope for better results. I had what I believe to be the same variety from another source under the name of R. E. Hay. No Hay appears in this firm's list for 1923.

Mention must be made of Milky Way, raised by Messrs. Barr and Sons at their Taplow nurseries. It is very light-looking and dainty with its wealth of small, rosy pink flowers. Cattleya, the last I shall mention, is a pretty semi-double rose variety, with rather more than a suspicion of mauve in its composition. It has a good habit, and, whenever I have seen this variety it has appealed to me. *Joseph Jacob.*

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EMILE BURNAT, 1828-1920.

AMONG the numerous bygone botanists connected with Geneva from the time of de Saussure to that of the late Augustin de Candolle, whose death occurred so recently as 1920, not two years after his father Casimir died, the name of Emile Burnat, born at Vevey, of an old Valdois family, will never be forgotten. Apart from his earlier associations with the town and several of its famous botanists, it is largely through Burnat that even before the great de Candollean herbaria were presented to Geneva, the municipal Conservatoire Botanique had the largest collection of dried European plants in the world.

Educated at Geneva and Paris, Burnat became engineer to a firm of manufacturers, in which his uncle was a partner, at Dornach, near Mulhouse, in Alsace. Emile remained there from 1852, when he married his cousin, until 1870. In 1870, he returned with his wife to Vevey, in Switzerland, built a house, and devoted to botany most of the time not occupied with his public duties. He had begun to collect plants in 1842, and for years made numerous botanical excursions in Switzerland and France.

When at Cannes with his family, in 1871, he met Thuret and Bornet, and was induced by them to take up the study of the flora of the Maritime Alps, including the whole Department of les Alpes Maritimes, with a view to publication. Right up to June, 1914, he made very numerous visits to those intensely interesting districts, and he frequently camped out among the mountains. He was often in the company of other botanists, such as Boissier, Wm. Barbey, Reynier, Grelli, Micheli, and more recently the two writers of the so-called *Autobiographie*. Dr. John Briquet, Director of the Conservatoire Botanique at Genève, and François Cavillier, now the first Assistant at that place, and formerly the Keeper of Burnat's herbarium. From 1874-1899 the herbarium was in charge of Grelli, of Swiss *Flora* fame. Frequently Burnat's coachman was his travelling companion; and in that respect Burnat resembled his friend and mine, the late Clarence Bicknell,

of Bordighera, whose constant companion and helper was his faithful Italian man.

But the Maritime Alps and adjoining seaboard did not absorb the whole attention of this active botanist. To better comprehend the flora of those southern mountains he saw that a critical work, such as his *Flore des Alpes Maritimes* was destined to become, should be aided by visits to the Alps of Styria and Carinthia, to Spain, the Balearic Isles, Algeria and Corsica. He travelled over Italy, Greece and Turkey, as far as the Bosphorus. Readers who have visited both the Maritime Alps and some of the foot hills of that department or of the Var, will have noticed something of the wonderful way in which the Mediterranean influence is seen intermingling with that of the Alps, in those southern lands. I made some reference to such characteristics in this journal (1915, p. 49 *et seq.*) in a descriptive article on "The Chain of Saint-Baume," that picturesque limestone range in the neighbourhood of Marseilles and Toulon. Few things are more interesting in the realm of geographical botany, and not least because the Alpine and Mediterranean floras have so many elements of beauty.

There is a good mezzotint portrait as frontispiece to this well drawn up memoir; and on p. 83 the authors tell us: "Without any doubt whatever the material in an herbarium gives generally all that is necessary for the morphological and anatomical study of plants (*vegetaux*); their comparison warrants interesting conclusions from the point of view of geo-botany. But when he who uses these materials has had opportunity to study living plants in their natural habitats and not from gardens where conditions of existence are more often artificial, and to repeat his observations not once, but a great number of times, what authority does not that give to the author! *Pour bien herboriser il faut beaucoup observer.* Well, Burnat had herborised much and well, and from that point of view it is his friend Edmond Boissier with whom he can be best compared."

The above paragraph could with advantage be read and re-read; not only by those who see nothing useful in herbaria; but by nurserymen and gardeners who are sometimes deceived into thinking certain hardy plants of their rock-gardens and "moraines" are necessarily typical of the plants in their natural haunts; or they may be too hastily tempted to coin some new varietal name for a mere unstable form due to altered conditions. Again, the mere collector of dried plants with limited opportunity of travel and with access to but few books and no great herbarium, can only be excused if sometimes he jumps to a wrong conclusion, owing to his lack of knowledge of a plant growing under a diversity of natural conditions.

In this volume the autobiography occupies only 39 of the 185 pages; and in part II, we find far more about Burnat's extensive botanical work. There is a list of his numerous publications; a full, tabulated account of his travels from 1834 to 1917; a list of the two genera and all the species and varieties dedicated to him; the botanists who visited or worked at his great herbarium; an alphabetical list of some 370 botanical correspondents from 1871 to 1920, of whom only a dozen are British! and an enumeration of the principal collections which constitute l'herbier Burnat. This totals 219,384 numbers, of which Bicknell, J. W. White, of Bristol, and the late Prof. Babington are the largest and almost the only English contributors. And as few of Bicknell's specimens would be English, we see once more how sparsely represented is the British and Irish flora in most of the great herbaria of the Continent.

Of the six published volumes of the *Flora des Alpes Maritimes*, Burnat said he received such eulogy on the appearance of the last two, by his collaborators, Briquet and Cavillier, that it was a proof to him that the completion of his great work is in good hands.

Many of Emile Burnat's botanical books which were duplicates when presented to the Conservatoire Botanique at Geneva, recently came into the British market and were gladly secured by various botanists. H. S. T.

GARDENING IN THE INDIAN HIMALAYAS.

RAIN has been more or less incessant here for the past four weeks; the river in the valley is a raging torrent, and vegetation does not linger, but jumps. It is nothing unusual to get 4 inches of rain here during twenty-four hours, consequently atmospheric moisture is abundant. Ferns are growing everywhere, on the roadsides, clinging to rocks, and even on the branches of forest trees, which are often clothed with them; sometimes it is possible to count eight different kinds of Ferns on one branch of a single tree.

Rhododendrons grow wild here, 30, 40 and even 50 feet high, with trunks 15 inches in diameter. Their flowers are small, the buds being of a deep crimson colour. At the moment the mountain forests are ablaze with wild Geraniums, many Anemones, including *Anemone japonica*, which covers acres of ground; *Spiraea Aruncus*, with flower stems 3 feet and 4 feet long; wild Delphiniums; *Helianthus*; a very lovely *Salvia*, unknown to me; *Epimediums*, *Potentillas*, *Thalictrums*, *Achilleas*, *Hedichiums*, and others.

The rocky sides of the mountains are particularly interesting just now; masses of *Saxifraga Megasea*, and many other smaller species; *Sedums*, *Arenarias*, *Sempervivums*, *Lysimachias*, *Thymes*, *Herniarias*, *Geums*, *Panicums*, *Agaves*, many *Primulas* not yet in flower, and *Ramondias* are all to be seen in thousands.

I am writing these notes at an altitude of 8,400 feet, 18 miles from the nearest railway station, Kandajhat, and 40 miles by road east of Simla, which is visible in clear weather. There are many State gardens in the neighbourhood at various altitudes, from 10,000 down to 4,000 feet, which enable us to grow almost every kind of fruit and forest tree. At 4,000 feet altitude we are able to produce most Indian vegetables, Mangos, Pomegranates, and very good Grapes; while those gardens higher up give us splendid crops of Apples, Pears, Plums, Peaches, Apricots, and most English vegetables.

At 8,000 feet altitude *Cedrus Deodara* reigns supreme. I cannot imagine anything more peaceful than to rest for a few minutes in one of these Cedar forests; but, unfortunately, they abound with panthers and snakes of a very dangerous kind. At 10,000 feet elevation we have our forest and fruit tree nurseries; these are very necessary, as I have some 54 gardens to maintain and many square miles of forests under my charge, but most of the gardens are on the plains, where, at the time of writing, the temperature is well over 100°, while here in the mountains, 150 miles away, we are glad of a good fire and thick woollen clothes. Although I have between five and six hundred under-gardeners under my care, their pay only averages 12 rupees per month; some of them are very clever men. Sundays are not observed as at home; work goes on just the same as on any other day, but every State employee is allowed a month's holiday each year, in addition to the 48 religious holidays. Vegetables are brought here every morning from the three nearest vegetable gardens, 2 miles, 10 miles, and 18 miles away respectively, along mountain tracks, by the gardeners, or Malis, as we call them.

Travelling from one garden to another is done on ponies, or by rickshaw, and is sometimes very dangerous, the roads being in places only 3 feet to 4 feet wide, and cut out of the mountain sides with, sometimes, a perpendicular drop on one side of 2,000 feet; and on the other, overhanging rocks which might fall at any minute.

We have an excellent cricket ground close to my house, which is the highest in the world, made some five years ago by blasting the top of the mountains and levelling it down. The turf, which is of excellent quality, was carried by coolies from the valleys below, several thousand feet down. *GEORGE BURROWS, Superintendent of State Gardens, Patiala, India, August 15.*

* Emile Burnat: *Autobiographie publiée avec une étude sur le botaniste et son œuvre.* Par John Briquet et F. Cavillier. Genève: Conservatoire botanique, 1922.

NOTES FROM GLASNEVIN.

AUTUMN COLOUR.

DURING the end of October and early November we had a remarkable display of Autumn colouring. The beautiful clear yellow of the Birches and various species of *Rhamnus* made a rare picture, while nothing could be finer than the rich scarlet of the leaves of *Acer griseum*. The foliage of *Euonymus alatus* becomes distinctly pink, and persists for two or three weeks standing out conspicuously among other shrubs.

Fruits, too, are abundant and of good colour. Barberries and *Cotoneasters* are aglow with their berries; of the former *B. aggregata* is conspicuous, but *B. Prattii*, *B. Wilsoni* and *B. Stapfiana* are all attractive. *Cotoneasters* are exceptionally fine in fruit this year, and the heavily laden branches of *C. applanata* are conspicuous from afar. *C. frigida*, *C. Franchetii*, and the older species such as *C. horizontalis*, *C. luxifolia*, and *C. rotundifolia* are all strikingly good in fruit at the present time. *Pyruses* have carried large crops, and

have been planted while the rockwork has been made to crop out next the walk as seen in the illustration (Fig. 136). Alpine plants in variety will fill the spaces between the rocks, and in time it is hoped this will form an interesting and instructive feature of the garden.

NERINE BOWDENI.

In the middle of November N. Bowdeni was in full flower in a narrow border adjacent to the plant houses. This charming plant has proved a great success in the open, and although only planted a few years the groups have increased enormously. This year the leaves remained green unusually late, and only began to decay as the flower spikes were pushing up. The same species cultivated in pots is nothing like so fine as it is where left to itself in the open, and I am inclined to think that most bulbous plants grown in pots are too quickly and too thoroughly "dried off." The typical N. Bowdeni has pale pink flowers of large size, while the variety *Exonia* is much deeper in colour.

Here these *Nerines* flourish under the same conditions as *Crinum*s, and I think it is quite

INDOOR PLANTS.

At this season of the year indoor plants claim rather more attention than they do in summer when outdoor flowers are plentiful.

One of the most beautiful plants flowering here recently and for many weeks past is *Passiflora racemosa*, with pendulous racemes of deep, coral-pink flowers, produced from both young and old wood. A Brazilian species, it is grown planted out in a border in a warm corridor.

The handsome *Bromeliad*, *Tillandsia Lindenii*, attracts attention on account of its large blue petals. Requiring a stove temperature, this plant is not common in private gardens nowadays, yet it has much beauty, and the *Bromeliads* are so interesting, it is to be hoped that their cultivation will not be discarded entirely.

Aphelandra tetragona, a Colombian plant, is a useful stove subject producing handsome orange-red flowers in a terminal four-angled spike: the leaves are elliptic oblong, tapering to the apex. Requiring stove treatment, at least in the growing season, this, like other species of the same genus, may be grown to a



FIG. 136.—COLLECTION OF DWARF CONIFERS AT GLASNEVIN.

the many varieties of *P. Aria* were magnificent until lately, but the thrushes have almost finished them now. Certainly there has been no lack of interest for gardener and botanist alike during the late autumn and early winter period.

Lithospermum rosmarinifolium, profiting by the genial weather of the last few weeks, is flowering freely. The charming Gentian blue flowers attract considerable attention at this season. A sunny position in rather poor, dry soil suits this species, although during summer it will grow to a larger size in a richer medium, only to be killed in winter. Hard, well ripened shoots give the best results in all but the mildest locations.

DWARF CONIFERS.

A very fine collection of dwarf Conifers is now grown here, due largely to the generosity of Mr. Murray Hornibrook, who has made a special study of them for some years. In order to accommodate his latest large contribution and to keep the collection contiguous to the general collection of Conifers a considerable extension has just been made to the rock garden. This is formed on a slope planted for the most part with *Thuyas*, *Cupressus* and *Juniper*. In front of these the dwarf forms

possible some of the more vigorous hybrids commonly grown under glass would also thrive in sheltered borders in the open.

IRIS UNGUICULARIS ALBA.

The white variety of the Algerian Iris is an easy first this year, and has been flowering freely since October 14. The coloured varieties are only beginning to show signs of flower. At the time of writing none is actually open. A collection of these *Iris*es, of which there are some seven or eight varieties of geographical forms, is a most useful possession, providing flowers throughout the winter and early spring. All they require is a well drained soil in a hot, sunny position.

PARROTIA PERSICA.

Already the red stamens are showing on this interesting cousin of the *Wych Hazels*. Although never giving enough colour to be conspicuous the shrub is interesting, and one comes to look for the flowers every year, and finds pleasure in noting the bursting scales and the appearance of the stamens which are the only conspicuous part of the flower. In some gardens the leaves take on a wonderful colour in autumn, but here they never do more than turn to a pleasing golden yellow.

single stem or cut back to form several stems, thus forming a more floriferous specimen. Under the name *A. cristata* this species was figured in the *Bot. Mag.* t. 1578.

Impatiens Hawkeri, figured in *The Gardeners' Chronicle* so long ago as June 12, 1886, is a handsome, strong-growing species. It flowers continuously throughout summer and late into the autumn, bearing abundance of deep carmine flowers. A native of the South Sea Islands, it requires a warm house, and rejoices in generous treatment.

ORCHIDS.

Interesting species at present flowering are *Cirrhopetalum Micholitzii*, *C. longissimum*—attractive in its long petalled pale pink flowers—and *Cypripedium Fairieanum*, *Coslogyne barbata*, *C. Mooreana* and *C. ocellata* make an interesting trio. *Cattleya labiata*, *C. Ariel-coerulea*, *C. gigas* × *C. Mossiae*, *Laelio-Cattleya Canhamiana* and *L. C. Serbia* are showy and attractive. *Epidendrum vitellinum* gives a lively note of colour, while *Bulbophyllum cupreum* and *Stenoglottis longifolia* alba add to the interest of the collection. *Cypripedium*s, or as they should now be called, *Paphopedilums*, are numerous, and include most of the best known hybrids. W. J. Besant, Glasnevin.

GARDEN NOTES FROM S.W. SCOTLAND.

In the *Gard. Chron.* of November 25 I expressed doubt whether I should be able to fulfil the undertaking given in a previous number to supply seed of *Dierama pulcherrimum* to those readers who might wish for it. I am glad to say that the drought and extraordinary warmth of November have so far compensated for an ungenial summer and early autumn, and a good crop of *Dierama* seed has ripened, enabling me to meet all the numerous applications, including those from India and Australia.

The aforesaid spell of November warmth has lured some Antipodean plants into precocious and precarious bloom. The majority of shrubs and herbs from the southern hemisphere manage to conform seasonally to the change of calendar. Thus *Chionodoxa pumila* flowers in its native North Island of New Zealand from September to November, a period corresponding to our spring months of March and May. As a rule, the chill of a British autumn is enough to hold back its myriad racemes of flower-buds until, if they escape destruction by severe frost, they burst into bloom in March. But this year there has been no autumn chill, and a large plant here on a west wall is already, at the end of November, thickly hung with clusters of scarlet lobster-claws. These are bound to perish during the first real sharp frost; but there is good store of undeveloped flower buds to renew the display when winter shall be past. There is no shrub known to me more profuse in bloom than this magnificent Pea-flower. The exuberance of one year has no reactionary effect on the following year's bloom. It is not grown nearly so often as it deserves to be in mild districts near the sea; the brilliant scarlet flowers and graceful, grass-green foliage contrast in a manner as beautiful as it is unusual. There is a white-flowered variety which would rank high as an attractive wall-shrub, were it not quite eclipsed by the royal scarlet splendour of the type. Cheeseman reports that in New Zealand this *Chionodoxa* is "exceedingly rare and local in a wild state, and fast becoming extinct"; but he adds that it is commonly cultivated in gardens throughout the colony. Luckily it is very easily propagated by seeds and cuttings, and grows very fast. *Herbert Maxwell, Monroith.*

EXHIBITING DAHLIAS.*

The love of flowers is inbred in the British people, but while certain people grow flowers for their natural beauty, others cultivate them chiefly for exhibition purposes. This desire to excel in the exhibition of flowers has resulted in our country standing out more prominently than any other in the production of what are known as florists' flowers of the highest quality. The Dahlia is an illustration of this fact.

Dahlias have been grown for exhibition purposes for scores of years, and present-day Dahlia growers owe a great debt to those who grew and exhibited their favourites long years since. It was by the weavers and spinners of Spitalfields and Lea bridge and the workers in Midland towns, and in the north of England that the Dahlia was evolved into a grand show flower, marvellous in its construction, and to the raisers of those days very difficult to obtain. Many seedlings must have been grown before one was produced that nearly satisfied the florists of those days. I say nearly, for the reason that raisers are never quite satisfied. Had there been no exhibitions of flowers there would have been no special societies like the National Dahlia Society, and that would have been a national loss. When we think of these things and realise what the special societies have done for their flowers, one wonders why it is the National Dahlia Society receives so little support.

The Dahlia is a flower for everyone: it will grow in any soil and in nearly any place. As an instance, Dahlias may be seen growing on a

balcony not far from the Royal Horticultural Hall. It is in the small growers that more interest should be taken, for if these grew a plant or two, and the plants did well, it would not be long before more were grown, either in the back garden, or the allotment.

Modern Dahlias bloom earlier, more freely, and take up less room than those of years ago. Whatever section of the Dahlia family a grower takes in hand, the desire after a time will be to exhibit, and endeavour to beat one's neighbour—a friendly rivalry which has often been an introduction to more lasting friendships, some of them lifelong. When a grower makes up his mind to exhibit it is always advisable to go slowly at first. It is a mistake to grow too many varieties or attempt big things straight away. It is much better to grow two or three plants of a good variety rather than one each of several sorts just to make up a collection.

Not every variety is suitable for exhibition purposes any more than every variety is suitable for garden decoration. This has been the trouble for some years with those glorious Cactus varieties; blooms have been set up on the exhibition tables, amateurs have fallen in love with them and made purchases, expecting the next season they would have in their gardens blooms as good or better than those they saw. Alas, they have often been disappointed, and the cult of the Dahlia has suffered as a consequence. If the amateur grower and "hoped to be" exhibitor does not know which are the best varieties to grow for exhibition, let him ask a friend who has had experience with Dahlias. Personal experience is worth very much more than notes made at an exhibition.

If an amateur hopes to grow and exhibit, say, twelve blooms or twelve bunches, as the case may be, it will be necessary for him to grow eighteen varieties, as one cannot be sure that all the plants will be in flower at one time, or will all behave as one would like. Seasons vary greatly, no two being alike; certain Dahlias are best in a hot and dry season, others in a cool and moist one. Therefore a good margin must be allowed. Dahlias should be grown in as open a space as possible, as they need plenty of air and sun, and an abundance of moisture at the roots. Allow the plants as much room as can be spared—the more the better; but even where growers cannot afford much space they need not be discouraged, as some of the more moderate growing varieties may be selected.

The popular idea that the Dahlia delights in strong manure is a harmful one. Good ground is necessary to promote good growth and flowers; beyond that nothing is gained, as plants may always be assisted as necessary by a good mulch, liquid manures, soot, or by a small application of artificial manure. Deeply digging the ground in autumn is far more important than the addition of manures, especially if a good dressing of small bones is dug in at the time. Bones are slow acting, but by the time the Dahlia plants need help the bones will have decayed sufficiently to provide manurial assistance. The bad effect of over-manuring is seen in coarse and strong growth, that produces rough and coarse blooms, which, if put on the exhibition table, have no chance whatever of winning a prize, provided a competent judge is adjudicating.

In all sections of the Dahlia family quality and refinement should be the chief qualities of exhibition blooms.

A Show or Fancy flower should be deep, two-thirds of a ball in shape, and the eye or centre well up (not sunk as though someone had pushed a thumb in it). Each floret should be shell shaped, smooth, not ridged or reflexed, and without a point. These florets should be in circles, one within the other, until the centre is reached, to form an "outline."

The Pompon blooms should be exact miniatures of the Show flowers, but as small as possible consistent with quality. The Cactus varieties, which are, perhaps, the most beautiful of all, should have long, tapering florets radiating from the eye or centre; the latter should be filbert-shaped and full, with good depth, but not flat and dumpy. The florets should incurve towards the centre, more or less according to the variety. Certain varieties incurve almost as

much as an incurved Chrysanthemum, whilst other grand varieties hardly incurve at all, but both sorts are equally useful on the exhibition table, displayed either on boards or in bunches. Both methods of exhibiting—boards and bunches—have their adherents, and both are good; that which will give the greatest pleasure to the grower should be adopted.

An exhibitor should always aim at getting flowers "up" so that each shows its individual beauty. Good flowers badly staged cause much disappointment to the grower, and cause severe criticisms to be passed on them by visitors at the exhibitions, especially when good flowers fail to receive awards simply through carelessness and want of taste on the part of the exhibitor.

The other sections of the Dahlia do not come so much within the scope of this paper. These flowers are exhibited generally as grown, with little or no thinning. Both Collerettes and Singles are very beautiful exhibited in bunches with long stems—or in wire frames. Paecy-flowered, Decorative and Miniature varieties are only in the early stages of their exhibition career, and exhibitors of these modern sections should devise some new method of displaying the flowers. There is plenty of scope for new ideas. The stems of the modern Dahlia are long and strong enough to allow the blooms to be exhibited without any artificial support. But when a grower has to travel some considerable distance to an exhibition wires are sometimes necessary as supports for the blooms until they reach the exhibition, then they should be removed. Whether brought by road or rail, unless supported, the flowers get shaken about until the "necks" of the blooms become strained, and the flowers cannot be made to stand up again. Of course, flowers of these classes may be cut and laid in boxes without water, and especially if the exhibition is near where they are grown. In hot and dry weather, try how one may, the blooms and stems will become soft and droop on the way to the exhibition. Cutting the flowers early in the morning or very late in the evening is necessary for exhibition purposes. The blooms should be as young as one can cut them with safety, as they will grow in water after being cut, as well or better than on the plant. Where blooms are left too long on the plant wild bees will often injure the centres of Collerettes and the semi-single varieties, whether Paecy-flowered or others; in their search for pollen they will force the centre open and cause it to become discoloured, thus making the blooms unfit for exhibition.

I am often asked how many flowers for exhibition a show or Cactus Dahlia plant will produce. This depends upon the variety; an easy-growing and large-flowering variety will carry more good flowers than a smaller-growing and perhaps more beautiful and refined variety. Assuming a plant to have four basal growths, each of these should produce two good blooms, while the main stem, after breaking at the top into four growths, should produce four flowers. This gives twelve blooms for an average strong grower; a weaker-growing sort should only be allowed to carry eight flowers. Arrange so that the flowers do not all open at one time. Seasons are very capricious; the weather in one year may be so hot that a bud taken for a show a month hence is over long before that date arrives. In another season, as in the present, a bud of similar size will take six or seven weeks to open. An endeavour to secure two or three sizes of buds on the same plant is the wiser and better plan to adopt. "Taking a bud" means selecting the terminal bud on the stem or branch, and removing all other growths as they appear in the axils of the leaves; the stem leaves should not be removed, as they are the source of strength for the coming flower. Choose buds that are perfect in shape. These, if double flowered, should have a small hole in the centre, like a pin hole; if of a Cactus variety the bud should be high. Buds that do not answer to these descriptions rarely make good flowers. Buds taken in the early stages of growth do not show these characteristics, but a grower has to take some chance when selecting buds, and hope for the best.

(To be concluded.)

* A paper read by Mr J. T. West, Brentwood, at the Dahlia Conference, held at the Royal Horticultural Hall, Westminster, on October 17.

TREES AND SHRUBS.

PYRUS TRILOBATA.

As the illustration (Fig. 137) indicates, the rare and uncommon *Pyrus trilobata* might be very well named the Maple-leaved *Pyrus*. So distinct is it that botanists at various times have placed it under the generic names of *Cornus*, *Crataegus*, *Eriolobus* and *Sorbus*, but always with the specific name *trilobata*.

A native of Mount Lebanon and other parts of Syria, *P. trilobata* is by no means a common tree in a wild state. Upright in habit, the trees are comparatively slow in growth, useful as lawn specimens, and in the shrubbery border, and said to be ultimately about 20 feet in height. The leaves are divided into three main lobes, these being again partially divided, so that in the main they are generally seven-lobed. In autumn the leaves turn a rich crimson, forming a delightful contrast to the pale yellow fruits. The white flowers are borne in terminal corymbs, only two or three of which develop small, pear-shaped fruits, each $\frac{3}{4}$ inch in diameter. A. O.

VIBURNUM PHLEBOTRICUM.

BERRIED branches of *Viburnum phlebotricum* have been a very pleasing feature in these gardens for the past six weeks. Our plant, which was obtained from the Donard Nursery Co., is about 6 feet high, and is one of the brightest and most interesting Chinese berried shrubs I know. The deep bronze foliage forms a striking contrast to the unusually bright-coloured and shapely berries. The plant forms a deciduous shrub of erect habit, attaining a height of 12 feet. It has smooth, grey stems, ovate lanceolate leaves that are rounded at the base, long taper pointed, widely and sharply toothed, 6 inches long, $1\frac{1}{2}$ inch to $2\frac{1}{2}$ inches wide, dark green above and turning to bronze by the time the berries have attained their bright glittering scarlet colouring in the autumn. The foliage is smooth on both surfaces, with the exception of long hairs on the midrib and on the parallel veins beneath, and these hairs mostly drop by the end of the season. The leaf stalk is $\frac{1}{2}$ inch to 1 inch long and hairy like the midrib. The cymes are $1\frac{1}{2}$ inch to 2 inches across, branched, terminal, on short, lateral two-leaved twigs. The flowers are white and $\frac{1}{4}$ inch wide. The fruit is scarlet, egg-shaped, and nearly $\frac{1}{2}$ inch long. The plant was introduced by Mr. E. H. Wilson in 1901, and is a native of Central China. W. H. Honess, Walthamton Gardens, Lyminster.

ERICA CILIARIS.

ERICA CILIARIS, the Dorset Heath, as it is familiarly called, is a shrub of outstanding merit, for not only are the rich, rose-purple blossoms the largest of any native Heath, but they are borne in bold, upright racemes which stand well above foliage of singular beauty. In habit *E. ciliaris* is semi-prostrate, the long, thin branches making a dense mat of pale green foliage, which is suffused and softened with the delicate greyish hue of the pubescence which covers the young leaves and shoots. Though a native of Dorset and Cornwall this Heath appears to be tolerably hardy, for it has never been injured in our severest winters. It grows to perfection in ordinary woodland loam in which most other *Ericas* do so well. There is a fine white variety of *E. ciliaris*. N. Wales.

SELF-SOWN CUPRESSUS.

In a note on "Acclimatisation" in *The Gardeners' Chronicle* for November 4, J. P. writes:—"I have yet to see the *Cupressus* or the *Araucaria* from self-sown seed in this climate." It is not clear to what species of *Cupressus* he refers. It may be of interest to record the case of two self-sown seedlings of the Nootka Cypress, *Cupressus nootkatensis*, which I found in the grounds of a country house in Cumberland. Strange to say, both these, when discovered, were growing out of stone walls a few feet from the ground, and were then three years old. There is just one tree of this Cypress at this place, and no other, to my knowledge, within at least three or four miles. Consequently there can be little doubt but that these young plants have arisen from

seed from this tree, which produces cones freely every year. No other seedling has been seen. One might have expected some springing up from the ground in the vicinity of the tree; but gardening operations, such as the raking up of leaves, the mowing of grass, and the digging over of the ground below the tree would militate against seedlings advancing beyond the diminutive stage. Then, again, the percentage of fertile seed is probably very low, though this point has not been thoroughly tested. From a casual examination, many of the seeds seem sterile, and from a quantity sown, though left in the soil two years (the

or being on the west, it is on the east side of the wall; consequently the seed could hardly have been carried directly there by the wind. An explanation occurs to me. It has been customary to make temporary heaps of fallen leaves on the east side of this wall, and a seed occurring in such a heap may have become lodged in a mortar joint of this wall and there germinated. Of course, it is possible, but not so likely, that the seed was first carried by a west wind beyond the wall, and later blown back by an east wind into a crevice in the wall. This seedling is still growing *in situ*. J. Parkin, The Gill, Brayton, Cumberland.



FIG. 137.—FRUITING BRANCH OF PYRUS TRILOBATA.

seed of the Cypress, I believe, usually taking two years to germinate), only very few seedlings were raised. The low percentage of good seed may, of course, be due to self-pollination, as there is very little chance of cross-pollination, owing to the isolated position of the tree.

As regards the above two discovered seedlings, one was found in the wall of a summer-house about 100 yards north-east of the tree. Its position can readily be accounted for by assuming that the seed, which is winged and so wind-distributed, was blown into a crevice in the wall by the prevailing wind. This seedling was removed and planted elsewhere, and is growing well.

The position occupied by the other seedling is contrary to what might have been expected. It is growing out of a garden wall about 50 yards nearly due east of the tree; but, instead

DIPELTA FLORIBUNDA.

This is perhaps the best-known of a small group of shrubs, allied to the Honeysuckles, recently introduced from China. It is a deciduous species, said to attain a height of 6 ft. or more, with broad, sharply-pointed leaves, somewhat like those of *Philadelphus*, and red stems. The tubular, fragrant blossoms, produced from the leaf axils in May, are about $1\frac{1}{2}$ inch long, 1 inch wide at the lip, and of a pale, pinky white, with a conspicuous orange-yellow throat. In a fairly good, but rather dry, loam, *D. floribunda* here made rather slow progress at first. But the addition of some lime appeared to give what is needed, for after this it not only flowered, but made fresh growth from the base. Since it is apparently quite hardy and by no means difficult to grow, *D. floribunda* should become one of the most popular of flowering shrubs. A. T. J.

INDOOR PLANTS.

SHOW PELARGONIUMS.

PELARGONIUMS are more generally known in gardens as Geraniums, but whereas the Geranium has, as a rule, ten stamens, the Pelargonium has only seven. Pelargoniums are classed under tricolor, gold and silver variegated, Ivy-leaved, sweet scented and zonal sections, with flowers of various shades of scarlet, crimson, white and pink. They are largely used for bedding purposes, for furnishing window-boxes, and for cultivation under glass, both for summer and winter decoration.

The rough-leaved Pelargoniums are valuable for conservatory decoration throughout the spring and early summer; also for all kinds of indoor decoration, or use in miscellaneous groups of plants, and they are classed as show, French and English spotted, and fancy varieties. The French and English spotted varieties are particularly to be recommended as being exceedingly vigorous and free flowering. They are extensively grown for market purposes.

About a century ago hybridists commenced to improve Pelargoniums, and it is marvellous what has been accomplished, when we compare the original species with the beautiful flowers of the present-day varieties. Unfortunately, there does not seem to be any record as to the original species that were used for the purpose; we only know they are the product of careful hybridising, and crossing, and represent the perseverance of the hybridist.

Pelargoniums are not so popular as they were thirty or forty years ago, when they were to be found in almost every collection of plants, and when fine specimens were exhibited at flower shows. If a collection of specimen show and fancy varieties were to be exhibited at the R.H.S., Chelsea, or other important show they would cause quite a sensation amongst the present generation, and add to the brightness of the exhibition. With many people there is an inherent disposition to throw aside old friends in the plant world for something fresh. Change is the fashion of the day, and regret it as we may, we no longer see in the greenhouses and conservatories, or at exhibitions, the beautiful specimens of Pelargoniums, Ericas, and New Holland plants which we were accustomed to see a generation or more since. Many of them are almost unknown, and ungrown nowadays, and where they are grown they are in many gardens, both large and small, very much neglected, particularly as regards their requirements for growing and flowering successfully. Doubtless many gardeners of the present day have neither the time nor the space wherein to grow large specimen plants on account of the demand for cut flowers and foliage plants for indoor and other decoration. One advantage with this class of plants is that they do not require much fire heat, and consequently do not involve a large expenditure in fuel.

They are increased readily by cuttings; the general and best time to insert them is when the plants have done flowering, and require cutting down to make bushy specimens for the next season. After the plants are cut down place them in a frame or house, and syringe them once or twice daily, according to the weather, until they break into growth. At that stage they should be repotted. Shake all the old, loose soil from the roots, and when re-established, place them on a stage or shelf as near the roof-glass as possible. Admit plenty of air, but keep the plants from draughts.

Where special houses cannot be devoted to them they may be grown on shelves in a Peach house. It is not advisable to retain all the old plants; it is much better to grow on a fair quantity of young stock, when one is in a position to judge whether the young plants are likely to realise one's expectations. If they are all that could be wished the best of them may be potted. The soil should consist of rich, turfy loam, mixed with sand, and one-sixth of its bulk well decayed cow manure. The compost should be pressed firmly in the pots; firmness of soil is essential, yet there is no need to resort to ramming it. Let the pots be well drained, and be careful not to over-pot the

plants. Water the roots with care; too much water will ruin them during the winter. In the spring, when they are well rooted in the pots, and just when they begin to show their flower buds, a little liquid manure applied once a week will be beneficial.

A good plan in rooting the cuttings is to place them singly in a small thumb pot; it has this advantage, that the cuttings, after they are rooted, may be transferred to larger receptacles without disturbing the roots. Another plan is to insert several cuttings around the edge of a 4 inch or 5 inch pot. The pots should be well drained with broken potsherds. Place the cuttings in a propagating house or in a frame set on a spent hot-bed. Admit a little fresh air when the temperature exceeds 55° to 60°. During hot weather they may be rooted out of doors in a partially shaded position.

The fancy varieties are more difficult to increase, as the cuttings are not so strong or so numerous, and are generally very short, requiring more care to root them. Cuttings made from shoots that have not flowered make the best plants. Pelargoniums are often increased from root cuttings; the roots are cut into pieces about 1½ inch to 2 inches long, inserted in sandy soil, leaving the top just showing, and placed in slight heat. They will soon make fresh roots, and top growth will soon appear. When the cuttings are rooted shift them into small 60-sized pots, place them in a warm house, and give them a gentle watering. When they commence to grow the top should be pinched off to ensure bushy specimens; they will throw out side shoots, which again should be stopped when they have made two or three more leaves. Admit more air to make them sturdy and strong. The cuttings should be strong enough to receive their final shift before winter sets in. Keep them as near the roof-glass as possible, and admit air on every fine day, but guard against cold draughts. The temperature at night during the winter should be about 40° to 45°.

Specimen plants require a house to themselves; a span roofed house, with side lights, is the best type of house, as the plants may be developed on all sides alike, with a free circulation of air.

A good selection of named show varieties includes Monarch, Achievement, Trumpeter, Maid of Honour, Rayon d'Or, Niarnod, Magnate, Triumph, Outlaw, and Dauntless. French and English spotted: Prince of Novelties, Portia, Black Prince, Florian, Olivette, Decorator, Rob Roy, Masterpiece, and Jubilee. Fancy varieties: Fanny Gair, Indian Chief, Juliet, Lady Carrington, Rosy Morn, and Cherry Ripe. Pelargoniums need at all times an abundance of air, and frequent fumigation to keep them free from green and white aphids. *John Heal, V.M.H.*

BIENNIALS IN POTS.

It often happens that after the beds and borders are furnished with biennials a surplus is left in the nursery ground, and it would not be a very difficult matter to grow these in pots if a conservatory or greenhouse is available, and they will serve to keep these houses gay with flowers.

Canterbury Bells, for instance, lend themselves especially to this mode of culture. Lift them with a ball of soil, and pot them carefully in a 7-inch or 9-inch receptacle, using a fairly rich soil. Place the plants in a cold vinery or Peach house for the present, and when growth shows signs of commencing they may be introduced into gentle warmth, in a position as near the roof glass as possible.

Aquilegias, Antirrhinums, Geums, Coreopsis and seedling Delphiniums may all be treated in the same manner, and for all these a rather good loam should be used. A sharp watch must be kept for aphids, and periodical syringing of the plants with a weak insecticide is advised, especially during early spring.

Liberal feeding with manure water will be necessary when the pots are full of roots; but success will depend on slow, sturdy growth, which can only be obtained by using very little fire heat, and admitting air on all favourable occasions. *J.*

THE ALPINE GARDEN.

COTYLEDON SIMPLICIFOLIA.

COTYLEDON SIMPLICIFOLIA is a rock garden plant which will be appreciated by lovers of Alpines when it becomes better known. It is a charming plant, with pretty, succulent foliage, resembling that of some of the Stonecrops, to which it is allied. In summer it produces drooping racemes of yellow flowers, likened by some to those of a Laburnum. With me the whole plant grows about 6 inches or 9 inches high. It is planted in a low terrace of a rockery facing almost due west.

A light, well-drained, porous soil suits it, but a little fresh compost should be well worked about the plant in spring and autumn. It may be a trifle tender, although I feel inclined to consider it quite hardy. It is in commerce, and its comparative inexpensiveness points to its ease of culture in nurseries in the British Isles. *S. Arnott.*

ERYTHRAEA MASSONII.

This is an elegantly formed, slender plant about a quarter-of-an-inch high, that bears numerous small, beautiful flowers, and is exquisite for a long time in summer. It is increased by division when large enough, but I found seeds the best way of securing a clump in a short time. Seeds germinate well in pots under glass. *S. Arnott.*

FOREIGN CORRESPONDENCE.

ROSA ROULETTII.

A FEW years ago, a friend of mine, Dr. Roulet, found in a little village near Grandson, a very minute Rose grown in pots in the windows. It was a minuscule shrub, five centimetres high, bushy, and covered with small Roses not exceeding one and a half centimetre broad (just like a sixpenny piece). He told me about the plants and I went to see them; but, just at that time the whole village of Mauborget had been burned, so we could not find a single plant. Local people stated that a woman in another village, Onnens, five miles away, had a similar plant. So we went there, and my friend obtained a little growth of the Rose, which he gave me. We increased it, and soon had hundreds of plants which I named Rosa Roulettii, after my friend. This is the most liliputian of all Roses, but where these good people got it from nobody can say. "It has been grown here for centuries, but only in windows and never out in the garden, as it is too delicate a plant,"—so say the peasants. After studying the subject I found in de Candolle's *Prodromus*, Vol. 2, p. 600, that there was in the beginning of the nineteenth century a form of Rosa indica called humilis by Seringe, and pumila by Redouté, which is said to be minutis. But mine is minutissima.

In her classical Rose book, Miss Willmott mentions a Rose chinensis var. minima, Rehder (The Fairy Rose), but she means the Lawrence Rose we grow at Floraire, which is not the same as my plant. Who can tell me anything about it? The village of Mauborget, where this tiny Rosa has grown "for centuries," is not far from Champagne, above Grandson, where de Candolle had his garden. Did M. de Candolle grow the plant in his house, and has it been thus distributed in the neighbourhood? I could not find any trace of this Rose elsewhere in the country, and nobody, not even old people, could give me any further explanations. They all seem to believe that the minute Rose is an old kind grown from a time immemorial in Mauborget. Of course, it is better for pot culture in windows than in the open ground. We planted some in a bed in order to get material for cuttings, and there it lost something of its character of a dwarf, compressed shrub, and grew higher (ten centimetres high). But the flowers and the leaves are never larger than in the case of window plants, and it remains the smallest of all shrubs. It flowers perpetually, and I have just been out to gather little buds from under the snow covering my garden at Floraire, which I send you herewith. *Henry Corrodon, Geneva.*

FRUIT REGISTER.

APPLE ORLEANS REINETTE.

SEEING in your issue of November 4 Mr. W. J. Farmer's commendations of this Apple. I venture to mention my own experience and to ask for advice. I have young bush trees in a private garden, healthy and good croppers. The fruit is sound when gathered, but, once in the fruit-house, it shrivels rapidly, so that by the first week in November it is quite unfit for the table, though the catalogues give its season as December to February. The fruits were gathered in the third week of October, and then only because they were dropping. Last year my experience was similar. The fault can hardly rest with the fruit-house, as other sorts do not suffer there. *East Kent.*

A VERY LATE APPLE.

I AM forwarding you a few Apples of a variety unknown to me. As a long keeper this variety is of exceptional merit, and will keep until many months after the next year's crop has been gathered. The green ones are of the 1922 crop, and the mellow ones of the 1921 crop. They were grown by Mr. A. Brown, The Laurels, Acton, who merely stores the fruits in a large barrel.

If this variety is in commerce, the grower would be pleased to know the name. We believe it to be a local variety, and I know of no other tree. *Charles Hodgson, Acton Place, Acton, Suffolk.*

[Our correspondent enclosed fruits of the Gooseberry Apple, an old and well-known variety remarkable for its late keeping qualities. It is extensively cultivated in Kent and Sussex, and especially around the neighbourhood of Faversham and Sittingbourne, in Kent. Hogg, in the *Fruit Manual*, describes it as a very valuable late-keeping culinary Apple, which comes into use in November and continues "until Apples come again."—Eds.]

SEEDLING APPLES AT GODALMING.

THIS autumn we were invited by Mr. Tayler, who will be remembered by most of our readers as a successful trade grower of fruit trees, to inspect a number of seedling Apples, which he has under cultivation in his new garden at Peace, Godalming. While at Osborne Nursery, Hampton, Mr. Tayler enjoyed a high reputation as an exhibitor of hardy fruits, and his collections at exhibitions always merited high praise. Since relinquishing the nursery, he has in his new home made a hobby of fruit growing, and has some three or four acres of garden almost entirely devoted to fruit trees. The latter are now well established and the majority of the trees cropped splendidly this season. Mr. Tayler has built long walls on the south and west aspects of his garden for the express purpose of growing Peaches, Nectarines, Apricots, Cherries and Plums, and the excellent condition of all these trees shows the master hand of the owner. Beside Peach trees on walls, he has a number of splendid Peaches in the open, and many of the varieties are similar to those trained against the walls. The behaviour of the standard trees, and especially in the matter of fruiting, was very interesting, and seemed to prove that standard Peach cultivation in an exposed situation was scarcely profitable. For instance, the fruits of Dymond Peach on the wall trees were splendid specimens, of large size, very highly coloured, and the quality and flavour were all that could be desired, yet fruits of the same variety on the exposed trees were quite pale and almost insipid in flavour. It was evident that Mr. Tayler had made a rigid selection of the varieties of fruits grown in his new garden, for the following list of Apples which were noted include some of the best varieties in cultivation: Pine's Golden Pippin, one of the most attractive varieties of Apples, for it has a beautiful appearance, and is an abundant bearer; Ellison's Orange, one of the newest dessert varieties, with Cox's Orange Pippin parentage, and very much like Cellini in shape; St. Edmunds Pippin, with skin of rich golden-apricot colour; Holland-bury, a large irregular fruit of bright red

colour; Beauty of Kent, a long, conical fruit, flushed and streaked with red; Michael Jaegar, which has a superficial resemblance to Cox's Pomona; Carter's Pearmain, a very free-cropping variety, which may be classed as a late Claygate Pearmain, although in general appearance it suggests a pale coloured Allington Pippin; Braddick's Nonpareil, Reinette du Canada, Emperor Alexander, Cox's Orange Pippin, King of Tompkins County, Warner's King, and Bedfordshire Foundling, all of which are well-known and popular varieties.

The most interesting of the Apples, however, was Joy Bells (see Fig. 138), which received the R.H.S. Award of Merit on November 14. Mr. Tayler was not able to tell us the parentage of this new late dessert variety: in shape it somewhat resembles Emperor Alexander, but there are five distinct knobs around the eye, which is partly closed and set in a shallow, pleated basin. The skin is dark red on the side next to the sun, the shaded portion being mellow yellow with a faint suspicion of the red colouring, and there is a bluish bloom on the basal portion. The stalk is short, so



FIG. 138.—APPLE JOY BELLS. R.H.S. AWARD OF MERIT, NOVEMBER 14, 1922.

that the fruits set well on the branches, and are not so liable to drop during storms, as are some varieties. The tree is of vigorous growth and has very short jointed shoots and dark foliage. The quality is excellent, the only defect that can be urged is that the fruit is on the large size for a dessert variety, but as there are at present only young trees, it is expected that when older they will produce smaller fruits more suitable for the table.

In addition to Joy Bells, Mr. Tayler has several other seedlings of merit, but so far he has only named two. These are Springtime and Connoisseur. These two Apples exhibit some interesting characters, for, while both are so much alike that they could not be told apart when gathered, yet the trees are entirely different. Both fruits resemble Cox's Pomona, but without the high colour of that variety. Springtime is named from the season in which it is available, for it keeps good until April. The tree of this variety is of spreading habit and has downy stems and leaves; Connoisseur is, in habit, totally different, the growths being upright, and there is no down on any part of the tree or foliage. We understood from Mr. Tayler that both these varieties were raised from pips out of the same fruit and form another interesting example of two excellent varieties being raised in this way, others being Red and Yellow Ingestre, Laxton's Pearmain and Laxton's Superb.

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Squirrels.—Have squirrels been more numerous generally this year than usual? They are much more so here, and I recently saw a grey squirrel by the garden, the first I have seen so far from their home in Regent's Park. I had heard of them being in the woods a year or two ago, but have not seen one until now. As we all know, they are very destructive to the young branches of Comifers, and here they often cut off the large cones of Pine trees, I suppose in the hope of being able to get the large seeds when they fall, although I cannot remember finding seed in any of the cones of the Stone Pine. But the hard nut may deceive them and raise their hopes of getting a nice, fat kernel. You will be interested to hear that the squirrels here have developed a carnivorous habit. On one occasion a keeper, sitting up a fairly high tree waiting for the deer to pass near-by, was amused by a squirrel in the same tree objecting to his pre-

sence, and showing its objection by a lively chattering, and as he, in the avocation of his duty, had to sit quite still, the squirrel ceased to bother about him, and made his way to a fieldfare's nest, and, taking out a fully fledged bird, proceeded to devour it—all but feathers. The keeper was horrified, having in mind his young pheasants and other game, and vowed he would shoot squirrels after this. The other day one of the young men in the garden was astonished to see a squirrel on the grass with a mouse in its mouth. On seeing him it ran towards a wall, and when it reached the top, gave the poor mouse a good shaking. *J. D. Colledge, Cobham Hall Gardens, Kent.*

Geum Borisii. My inquiry in *The Gardeners' Chronicle* of November 11 as to the origin of this plant has brought me a note from a correspondent who refers me to Mr. C. F. Bell's paper on "Botanizing in Bulgaria" in the *Journal of the Royal Horticultural Society*, xxxix (part 1, 1915), where it is stated that Geum Borisii, named after Prince Boris, is a natural hybrid between *G. bulgaricum* and *G. reptans*. *Herbert Maxwell, Monroth.*

Potato Synonyms.—In your leader dealing with my paper on "Seedsmen's Catalogues," in your issue of November 25, you throw out the suggestion that a good deal of the confusion introduced into the naming of varieties of Potato has arisen from a cause which I ignore, namely,

"the great differences which exist between different strains of the same kind of Potato." It is true that one batch of seed tubers of any given variety may produce a weak plant, and another batch a good. The difference, however, is not one of strain, but is dependent on whether the particular stock is or is not infected with one of the virus diseases, viz., Leaf Roll or Mosaic. The term "strain" suggests an innate heritable distinction within the stock of a given variety, which certainly does not exist. If really healthy stocks of the same variety be compared under like conditions they will invariably be found to be identical. *Redcliffe N. Salaman, Royston.*

Lack of Encouragement for Scottish Chrysanthemum Growers.—It is encouraging and interesting to read the reports of the various Chrysanthemum shows held throughout England, and to learn of the increasing popularity of the large specimen blooms. At present in Scotland growers find little encouragement, and there are many who would be delighted to show their produce in a good centre. The Royal Caladonian and Scottish Horticultural Societies have been amalgamated, but it appears as though the expense of those fine Scottish Horticultural Society's shows of the past is too great. Some of the successful exhibitors of the past have ceased exhibiting, but there are many keen young growers awaiting their chance. I am sure the executive of the united societies would receive every support in a venture to revive the Edinburgh Chrysanthemum show. *N. B.*

Moles in the Garden (see p. 284).—Last spring I was much troubled with moles in my Cabbage plot. The following experiment proved successful, and may help others to get rid of these troublesome animals. I dug a hole into the burrow at one end of the bed, and in it I placed a few pieces of carbide. This operation was followed by pouring into the hole a few gallons of water. The gas arising from the diluted carbide, being forced through the burrow by the pressure of the water, compels the mole to make hurriedly to the surface, when it can easily be destroyed with the garden spade or other implement. It is remarkable how wary they sometimes are of the trapper. A friend informed me that he has noticed, after fixing his traps, some of the moles, more wary than others, fill the traps with soil and make another burrow alongside the trap. After fixing his trap several times, with the same result, he tried the following experiment. Having obtained an empty 7-lb. jam-jar with a fairly wide opening at the top, he dug into the burrow and placed the top of the jar on a level with the bottom of the burrow. He next placed a piece of paper on the top of the jar and lightly covered it with the soil. The experiment proved successful, the mole being made a prisoner in the jar and was easily killed. *S. W. J.*

Wasps.—On page 286, Mr. Johnson gives an additional factor to Mr. Nicholson's three, on page 257, on the wasp supply for the year. Mr. Nicholson's three factors are feasible, but I cannot comprehend Mr. Johnson's fourth factor. Does Mr. Johnson mean by parthenogenesis that a queen wasp is hermaphrodite? There are three kinds in a colony—queen, drones, and workers. Workers are undeveloped females, and are not capable of breeding, only in cases where the queen has ceased to exist and there is no egg, or grubs young enough to raise another queen. Once a grub is sealed over, its sex is determined, although an egg can be hatched to be either a queen, drone, or worker. If an egg is intended to hatch a queen, it is laid in a special cell and fed on special food. Queens that hibernate through the winter are fertilised before doing so. If a queen is not fertilised before hibernating, and no drone survives the winter, the eggs are not fertile. This may be the reason why wasps were scarce in Market Growers' district. No doubt, the reason why wasps were a plague in parts of Wales is that the queens were very late in coming out, and the flowers they usually found expanded were over, and they found others elsewhere. *D. H. Dunn, Hafod, Devil's Bridge, Cardiganshire.*

SOCIETIES.

SMITHFIELD CLUB.

THERE are one or two occasions during the year when the country invades the metropolis and seems to hold the Londoner spellbound. Perhaps the two outstanding events of this nature are the Chelsea exhibition of the Royal Horticultural Society and the Cattle Show at Islington, both of which provide red-letter days for townsmen as well as countrymen. The Cattle Show is to the farmer what the Chelsea Exhibition is to the gardener, and, in their respective spheres the gardener and the farmer seem to be pre-eminent on these occasions. The town dweller is so in the habit of regarding the country folk as being slow and inferior in intelligence and smartness that it is well there should be occasions when the country should set the town folk marvelling, and who is there amongst them that would not marvel at the results of a Chelsea Exhibition or a Smithfield Cattle Show. We were reminded what stupid persons townsmen appear when one of the largest bulls at the Cattle Show became excited last Monday and threatened destruction to those near him, and yet how patiently and easily its owner was able to compose the beast, and cause quiet to reign again, for, however slow and broad of speech these farmer men appear, they are wonderful fellows in their way and are as keenly alive to the smallest detail as the sharpest citizen of any town. As *The Times* aptly expressed it in its issue for Tuesday last, "Here man and beast seem to belong to one another much more closely than exhibitor and exhibit commonly belong to one another when the latter is a piece of inanimate machinery." Who can look on what farmers have accomplished in their cattle, sheep and pigs without being impressed with their cleverness and skill, or but admire their fine sense of judgment in the way they are able to pick out the qualities which decide superiority in animals. What a revelation this show is for the townsmen, too, in the variation of size, colour and shape of the various breeds which the skill of the farmer has evolved in his animals. This is as striking amongst the sheep and pigs as amongst the cattle, and a visit to the Smithfield Show makes one realise why the British farmer's pedigree stock is sought by breeders in all parts of the world. The champion beast, a steer, Blue Bill, won also the highest honours at Norwich and Birmingham, a feat that no beast has accomplished since 1897. Taking the collection of live stock, it was the largest and best since the war, and amongst the large attendance on the opening day was His Majesty the King, who was received by the Prime of Wales in his capacity as President of the Show.

These monster beasts and prize pigs and sheep represented not only skill in breeding, but also care in feeding, and the seedsmen have been no whit less clever in evolving from primitive types feeding stuffs of a vastly superior quality. The seedsmen's displays were mostly accommodated in the gallery, and some of them were amongst the most interesting in the show. For instance, Messrs. SUTTON AND SONS had an exhibit of great interest to gardeners, as well as farmers, for in the front of their display, show cases bordered with very artistic metal work contained magnificent garden vegetables, including the Sutton Globe and Ailsa Craig Onions, White Queen Broccoli, Dwarf Gem Brussels Sprouts, Tomato Winter Beauty, Scarlet Horn and Inimitable Forcing Carrots, Celeriac and numerous other kinds. The exhibit was mainly built up with farm roots, there being exceptionally large Up-to-Date Swedes, which won the first prize at the recent Birmingham show; Perfection Aberdeen Turnips, equally as large as the Swedes, a selection of Mangolds, White Belgian Carrots, larger than the biggest Parsnips; New Red Intermediate Carrots of similar proportions; Sugar Beet, and a cross between Kohl Rabi and Thousand Headed Kale, a vegetable that forms a valuable green food for stock. There was also much more of interest, including pans with growing grasses, Clovers and other fodder crops. Messrs. JAMES CARTER AND SONS had a very similar

exhibit, their Swedes, Turnips and Mangolds being of exceptionally large size. Roots of all these from a competition were displayed, the most notable being one of Turnip Golden Globe, weighing some twenty lb., for which a prize of £25 was won by Mr. J. GARNER, Carlisle; another of Lord Warden Mangold, for which a prize of £50 was won by Mr. A. T. STRONG, Ockham, Surrey; Carter's Invicta Elephant Swede, for which a similar prize to the last was won by Capt. LIPSCOMBE, Denham, and a thirty-two lb. root of Purple Top Mammoth Turnip, the biggest root in the show. This firm also exhibited garden vegetables of the best exhibition quality, and they also staged, in a very attractive manner, their specialities in cereals.

MESSRS. E. WEBB AND SONS, Stourbridge, also showed an exhibit of this nature, in which we noticed some fine roots of their new Southfield Yellow Globe Mangold, which was awarded the first prize at the Birmingham show. Other roots of exceptional merit were New Empire Swede, and Webb's Red Globe Turnip, but we were most impressed with the Carrots, Leeks, Onions and Potatoes, their Prize Winner and Long Red Surrey Carrots, and Champion Prize Leeks being exceptionally good.

MESSRS. E. W. KING, Coggeshall, in a general collection of farm and garden vegetables, made a feature of their Perfection Brussels Sprouts, which were the finest in the show. Prize-winner Onions and Scarlet Model Carrots were also exceptionally good. Other exhibits of this nature were shown by Messrs. H. J. SPEED, Evesham; Messrs. LITTLE AND BALLANTYNE, LTD., Carlisle; Messrs. GARTONS, Warrington; Messrs. KENT AND BRYDON, Darlington; Messrs. TOOGOOD AND SONS, Southampton; and Messrs. J. K. KING, Coggeshall. Seed Potato merchants were represented in large numbers; in some cases they displayed seed tubers, and in others first-class samples of "ware."

MANCHESTER AND NORTH OF ENGLAND.

THURSDAY, NOVEMBER 16.—Present: A. T. Cussons, Esq. (in the chair), Messrs. R. Ashworth, B. J. Beckett, J. Birchenall, A. Burns, A. Coningsby, D. A. Cowan, A. G. Ellwood, T. Evans, W. Giles, J. Hawes, J. Jackson, D. McLeod, E. W. Thompson, and H. Arthur (Secretary).

FIRST-CLASS CERTIFICATES.

Odontoglossum crispum Beta, a fine, blotched variety of a very deep colour; *Odm. Challenger*, a flower with broad sepals and petals heavily blotched with reddish-brown; the large lip is also heavily blotched; *Cypripedium Cavalier Perfection*, a bold flower; the lower part of the broad dorsal sepal is heavily marked with rosy-pink and has a broad, white margin; *C. Linda* (Bianca × Moonbeam), a fine flower with a broad, white dorsal segment and a green base; the sepals and pouch are of a bright greenish-yellow colour; *C. Godefroyae* West Point var. From S. GRATRUX, Esq.

Odontoglossum crinum Agincourt, a large, beautifully blotched flower; *Odm. Dorothea rubrum* (Doris × *crispum*), a rich, reddish-brown flower with rose margins; *Odm. Beryl Haddon House* var.; *Odm. Elvasea*. From P. SMITH, Esq.

Odontodia Lerna var. Joyce Hammer (Odm. Joan × *Odm. Dusky Monarch*), a variety of rich Chestnut-red colour with a narrow white margin; *Odm. Jasper Edgemoor* var. From A. HAMMER, Esq.

Cypripedium Olympia var. Oriel, a flower having an exceptionally large white dorsal sepal with a green base. From Mrs. GRATRUX.

Lycaste cruenta Beckett var. From B. J. BECKETT, Esq.

AWARD OF MERIT.

Cattleya weedonae (Dowiana aurea × *weedoniensis*); *Brasso-Laelio-Cattleya King Emperor* West Point var.; *Laelio-Cattleya The Baroness* West Point var.; *Odm. crispum* West Point Radiance; *Cypripedium Alcibiades* westpointense. From S. GRATRUX.

C. Christopher var. St. Andre. From B. J. BECKETT, Esq.

GROUPS.

S. GRATRIX, Esq., staged a group of Orchids for which a Gold Medal was awarded.

Mrs. BRUCE and Miss WRIGLEY, Bury (gr. Mr. A. Burns), were awarded a Silver Medal for a group.

A. HAMMER, Esq., Buxton (gr. Mr. G. Giles), staged a group in variety, for which a Silver Medal was awarded.

Mr. McLEOD, Chorlton-cum-Hardy, received a Silver Medal for a group.

NATIONAL DAHLIA.

ANNUAL MEETING.

The annual meeting of this floricultural Society was held on Tuesday, the 28th ult., in the Horticultural Hall, Vincent Square, Westminster. Mr. J. Cheal presided over a company numbering about twenty. The minutes of the previous annual meeting were read and a paragraph referring to a resolution passed last year, limiting the number of vice-presidents to six, was the subject of discussion, with the result that the resolution was rescinded.

At this stage Mr. Stevens drew attention to the absence in the rules and by-laws of any reference to the aims and objects of the Society, and it was decided to insert a paragraph before the by-laws, the secretary being left to draft it.

The secretary then read the statement of accounts and report of the committee for 1922. The latter referred to the exceptionally favourable season for Dahlias in 1922; the success of the Society's exhibition; the outing to Messrs. J. Cheal and Son's nursery, and the need for increased membership.

Mr. John Green moved the adoption of the report and balance-sheet and, as treasurer, took the occasion to refer in detail to some of the financial items. He was glad to know that the Society was in a position to pay all its liabilities and have a small balance of £13 17s. in hand. The total receipts amounted to £108 17s. 9d., of which £48 14s. 6d. represented subscriptions. The principal items on the expenditure side were £36 5s. for prizes and £26 2s. 4d. for printing and stationery.

The adoption of the report and balance-sheet was seconded by Mr. West and carried unanimously.

The chairman stated that there was every prospect of the Society becoming more popular and having an increased membership. The work of the committee had been very difficult in the past few years, but they had gone steadily forward, and he was glad they were able to resume the holding of a conference in 1922, for the papers did an immense amount of good and were of especial interest to foreign members. The paper by Mr. T. Hay, which was published in full in *The Gardeners' Chronicle*, was especially valuable, for the growing of Dahlias in public parks and gardens was one of the best means of popularising the flower with the general public.

Mr. Stevens supported the chairman's remarks and made an appeal for increased membership. He offered to obtain six new members if five others present would do the same, and his offer was at once accepted, five promising to obtain six members each.

The election of officers was the next business. Mr. Reginald Cory was reappointed president; the vice-presidents were also re-elected, and the name of Mr. Arthur Turner added to the list. Mr. Cheal was reappointed chairman. Mr. J. Green treasurer, Mr. Emberton show superintendent, Mr. D. B. Crane auditor, and Mr. A. C. Bartlett hon. secretary. The committee was also appointed, Messrs. T. Hay, C. Goldring, H. J. Jones, and F. G. Tresider being nominated to fill vacancies.

The hon. secretary was especially thanked for his services and on the proposition of the chairman, the sum of £8 8s. was given him as an honorarium.

Yorkshire Gala, 1923.—We are informed that the next Grand Yorkshire Flower Show and Gala will be held on June 13, 14 and 15, 1923, at Bootham Park, York.

MARKETS.

COVENT GARDEN, Tuesday, December 5th, 1922

Fruit: Average Wholesale Prices.

Apples,—	s. d. s. d.	Grapes,—	s. d. s. d.
British Columbian		—Alicante	1 0-2 3
—Cox's Orange		—Almeria, barrel	20 0-25 0
Pippin ..	14 0-16 0	—Belgian	1 0-2 0
—Jonathan ..	8 6-10 0	—Gros Colmar	1 3-3 6
—Delicious ..	9 6-10 6	—Muscat	3 0-6 0
—Orera ..	8 0-9 0	—Grape Fruit	23 0-25 0
Californian			
—Newtown Pip.	12 6-13 0	Lemons	
—Oregon	16 0-17 0	—Malaga, case	14 0-17 0
—York Imperial		—Messina	10 0-14 0
bushel ..	22 0-26 0	—Murca	12 0-16 0
English, per bus		Nuts—Brazil	45 0-55 0
—Allington Pippin	2 3-3 0	—Chestnuts bag	18 0-22 0
—Blenheim Pippin		—Cob.	— 0-3
bushel ..	5 0-7 0	Oranges,	
—Bramley's		—Denia	15 0-25 0
Seedling ..	5 0-7 0	—Jamaica	16 0-20 0
—Charles Ross	3 6-5 0	—Mandarin	1 2-1 9
—Cox's Orange		—Murca	15 0-25 0
Pippin best		Pears,	
½ bushel ..	7 0-10 6	—Doyenné du	
—Ordinary ..	4 0-6 0	Comice, dozen	6 0-12 0
—Newtown Wonder	5 0-7 0	—California	
Nova Scotian		—Doyenné du Comice	
—Blenheim Pip.	20 0-24 0	½ case ..	16 0-17 0
—Cox's Orange		—Winter Nelis	
Pippin, case ..	12 10-15 0	case ..	24 0-26 0
—King of Tomkins		—Anjou ..	23 0-25 0
County ..	22 0-25 0	Pineapples	1 6-4 0
—Ribston Pippin	20 0-25 0	Tunis Dates, doz.	
—Tyrolan 40 lb box	7 0-14 0	cartons ..	5 6-6 6
Bananas, singles	12 0-25 0		
—doubles ..	12 0-25 0		

Vegetables: Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Asparagus,		Parsnips, cwt.	3 0-3 6
—bunch ..	6 0-7 6	Peas, lb. ..	3 6-5 0
—Spruce ..	1 6-2 0	Peas, lb. ..	3 6-5 0
Beans		—Guernsey, new 1 lb	0-1 6
—Guernsey lb.	2 0-3 0	—Dumars ..	45-46
—Madeira basket	3 0-6 0	—King Edward	12 15-14 15
Cabbage, tally ..	2 6-3 0	—Others ..	13 0-3 10
Carrots, cwt. ..	3 0-3 6	Savoy, tally ..	3 0-5 0
Cauliflowers,		Scalake, lb. ..	1 2-1 3
—doz. ..	2 0-4 0	Sprouts, bushel	1 9-2 3
Celery, roll ..	1 6-2 0	Tomatoes English	
Cucumbers, doz.	18 0-30 0	—New crop, pink	5 0-6 0
Lettuce, doz. ..	1 0-2 0	—P. & W. ..	4 6-6 0
Mint, dozen ..	6 0-9 0	—Others ..	
Mushrooms, lb.	2 0-3 0	P. & P.W.	2 0-3 0
Onions—		—Canary Islands	12 0-20 0
—Dutch, bag ..	4 0-4 6	—Guernsey ..	2 0-4 0
—English, cwt.	5 0-6 0	Turnips, cwt. ..	3 0-3 6
—Valencia, case	8 6-10 6		

REMARKS.—Business should, in many lines, show signs of improvement, but at the moment the tone of the market generally is dull. Ample stocks of Apples from the United States and Canada are on offer at lower rates. The demand for English Apples has, for the past week, been very poor, a feature being the large quantities of medium and small Cox's Orange Pippins that have been available. A rather better inquiry has existed for both-house Grapes, supplies of which are not very plentiful. Doyenné du Comice Pears are in demand at firmer prices. Better supplies of Oranges from Spain have brought about rather lower quotations. A fairly satisfactory demand rules for choice vegetables, such as Peas, Beans, new Potatoes, and Asparagus. Mushrooms are more plentiful owing to milder weather, and values are lower. The new crop of Cucumbers is selling well at improved prices. Except for a few fruits of the new crop, English Tomatoes are finished for the season. Canary Island Tomatoes are in variable condition. No arrivals of Madeira Beans are reported yet. Green vegetables remain abundant and cheap. The Potato trade is steady, with a slightly better tendency.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d. s. d.		s. d. s. d.
Adiantum		Erica gracilis	
—cuneatum,		48 per doz	24 0-36 0
—per doz. ..	10 0-18 0	—60 ..	12 0-15 0
—elegans ..	10 0-12 0	—Thumbs ..	6 0-8 0
Aralia Sieboldii	10 0-12 0	Erica nivalis	
Araucarias ..	30 0-48 0	48 ..	21 0-30 0
Asparagus plu-		—60 ..	10 0-15 0
—mosus ..	12 0-15 0	—Thumbs ..	6 0-8 0
—Sprengeri ..	12 0-18 0	—Genistas 48'	
Aspidistra, green	48 0-72 0	per doz. ..	15 0-18 0
Asplenium, per		—Marguerites, per	
—doz. ..	12 0-18 0	doz. ..	15 0-18 0
—32's ..	24 0-30 0	Nephrolepis, in	
—nidus ..	12 0-15 0	—variety ..	12 0-18 0
Cacti, per tray,		—32's ..	24 0-36 0
—12's, 15's ..	5 0-6 0	Palm, Kentia ..	24 0-30 0
Chrysanthemum,		—60's ..	15 0-18 0
—white per doz	15 0-18 0	—Cocos ..	24 0-36 0
—coloured ..	9 0-15 0	Pteris, in variety	12 0-21 0
Cinerarias,		—large 60's ..	5 0-6 0
—per doz. ..	12 0-—	—small ..	4 0-4 6
Crotons, per doz.	30 0-42 0	—72's, per tray	
Cyclamens,		—of 15's ..	3 6-4 0
—per doz. ..	18 0-30 0	Solanums, per doz	10 0-12 0
Cyrtolium ..	10 0-15 0		

REMARKS.—Business is more brisk in this department, and large consignments are being dispatched to the provinces. The newest subjects are Azaleas, Genistas, which are in first-class condition, and Roman

Hyacinths on bulbs. Ericas are selling freely, in addition to E. nivalis and E. gracilis. E. hyemalis is now available. Cyclamens are another good selling line just now. Pot Chrysanthemums are getting over for the season. Ferns in various sizes are also in good demand, as also are Palms.

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Adiantum deco-		French flowers	
—rum, doz. bun.	10 0-12 0	—Rosa's Natio	
—cuneatum,		per pkt 24's ..	2 6-3 0
—per doz. bun ..	6 0-8 0	—Ranunculus	
Asparagus plu-		—Scarlet, per doz.	
—mosus, per bun.		bun. ..	9 0-10 0
—long trails, 6's	4 0-5 0	—Carmine	
—med. sprays ..	2 6-3 6	doz. bun. ..	9 0-10 0
—short ..	1 0-1 6	—Orange, per doz.	
—Sprengeri, per bun.		bun. ..	18 0-24 0
—long sprays ..	2 6-3 0	—Scarlet, Romano	
—med. ..	1 3-1 6	large, per doz.	
—short ..	0 9-1 0	bun. ..	15 0-18 0
Camellias, white		—Violet, Parma	
—per box ..	4 0-—	per bun. ..	7 0-8 4
Carnations, per		—Single per doz.	3 0-4 6
—doz. blooms ..	3 6-5 0	Gardenias, per	
—Croton leaves ..	2 6-4 0	box ..	6 0-9 0
Chrysanthemum		Heather, white,	
—pink, per doz.		per doz. bun.	4 0-10 0
—bun. ..	18 0-27 0	Lilium longiflorum	
—bronze ..	18 0-24 0	—speciosum long	
—white ..	18 0-30 0	—per doz. ..	3 0-4 6
—yellow ..	18 0-24 0	—short ..	7 0-8 0
—per doz. blooms		Lapageria per	
—white ..	3 6-8 0	doz. ..	4 0-4 6
—yellow ..	3 6-8 0	Lily of the Valley,	
—pink ..	4 0-8 0	per doz. bun	24 0-42 0
—bronze ..	4 0-8 0	Orchids, per doz.	
—single varieties		—Cattleyas ..	18 0-30 0
—disbudded		—Cypripedium	6 0-9 0
—bunch, per doz.	3 0-5 0	Pelargonium,	
—spray coloured		—per doz. bunch,	
—per doz. bun. ..	18 0-30 0	double scarlet	10 0-12 0
—Spray white ..	24 0-30 0	Poinsettia, per	
Fern, French per		doz. blooms	18 0-24 0
—doz. bun. ..	1 0-1 3	Richardias (Arums)	
Forget-me-not per		—per doz. ..	8 0-10 0
—doz. bun. ..	12 0-15 0	Roman Hyacinth	
French flowers		—per doz. bun.	24 0-40 0
—Acacia (Mimosa)		Roses, per doz.	
—per bunch ..	1 6-2 0	—bunch ..	
—Anemone, mid		—Erau Karl	
—per doz. bun. ..	21 0-24 0	—Druschki ..	1 6-2 6
—Lilac, white, p.		—Madame A.	
—doz. sprays ..	6 0-7 0	—Quenay ..	5 0-7 0
—Marguerite,		—Meadow ..	5 0-7 0
—yellow, per dz.		—Niphetos ..	2 0-3 0
—bun. ..	3 6-4 0	—Opheia ..	4 6-8 0
—Marigolds, per		—Liberty ..	6 0-8 0
—doz. bun. ..	3 0-3 6	—Richmond ..	5 0-8 0
—Narcissus, paper		—Sunburst ..	6 0-8 0
—white, pr. doz. bun.	3 6-4 0	—White Crawford	3 0-4 0
Narcissus, Sicil		Smilax, per doz	
—Or, per doz.		—trails ..	3 0-5 0
—bun. ..	4 6-5 0	Violets, single	3 6-6 0

REMARKS.—Trade in home grown flowers is similar to that of last week. Chrysanthemums constitute the chief supply, and some of the late varieties are now on sale, including Heston White, Winter Cheer and Framfield Pink. White disbudded blooms are a more limited supply, but coloured varieties are more numerous. The best white blooms offered are of Cheshunt White, Western King, and Mr. Turner. The best coloured varieties are Ada Brook, Ivy Gals, Mrs. Duckham, W. H. Lincoln, Liverpool Yellow, December Bronze, Edith Cavell, Mr. T. Page and Rosalind. Single varieties are finishing; disbudded blooms are the best in quality. Other important subjects are Roman Hyacinths, Camellias and Poinsettias. The first consignment of Freesia reached the market last week. Supplies of Lilies are again on the short side, especially Lilium longiflorum, which is again dearer. Similar remarks apply to Lily-of-the-Valley. French flowers are arriving in large quantities, the newest arrivals being Narcissus Sicil Or, pink Anemones and single mixed, scarlet yellow and red Ranunculuses. The last are arriving in good condition. Prices for French flowers are easier, owing to larger supplies. Violets are coming to hand in good condition.

GARDENING APPointments.

Mr. F. C. Tribble, previously Gardener at Stanwell Park, Foss Bridge, Gloucestershire, as Gardener to Mrs. Walker M.C.N.O. Rhinfield House, near Bournemouth, Hampshire. Thanks for 2s. 6d. for R.G.O.F. Box. E.D.S.

Mr. Wm. Hatherall, for the past six and a half years Gardener to Sir Anthony Thornehill, Bart., Morton Lodge, Mauds Marston, Bucks, as Gardener to Sir Frederick Buxton, M.P., Wainwright Place, Highworth, Wiltshire. Thanks for 2s. for R.G.O.F. Box. E.D.S.

CATALOGUES RECEIVED.

HILLIER AND SONS, Winchester. Trees and shrubs, etc.
W. WELLS AND CO., Merstham, Surrey.—Chrysanthemums.
DOBIE AND CO., LTD., Edinburgh.—Seed Potatoes.
W. DRUMMOND & SONS, LTD., Stirling.—Forest, Ornamental and Fruit Trees.

Obituary.

Sir Isaac Bayley-Balfour.—The death of Sir Isaac Bayley-Balfour, F.R.S., which occurred from heart failure on Thursday, November 30, at Haslemere, will affect all horticulturists who know and appreciate his worth with a sense of irreparable loss. It was but recently that reviews of Bayley-Balfour's life and work appeared in these columns—on the occasion of his retirement from the offices of Professor of Botany at Edinburgh, King's Botanist for Scotland, and Regius Keeper of the Royal Botanic Gardens, Edinburgh. These posts he held with great and increasing distinction for 34 years, and in them he succeeded Professor Dickson, who in turn was the successor of Sir Isaac's father, John Hutton Balfour, whose tenure of office lasted also for thirty-four years. From the sketch of Bayley-Balfour's life and work and from the account of the Edinburgh Botanic Gardens (see *Gard. Chron.*, April 8 and April 29, 1922), those who knew him only by repute may form some impression of his outstanding personality; but only those who knew and worked with him can have an adequate understanding of his great worth and influence. For them words are vain to express the admiration and affection in which they held him and now hold his memory. Throughout his long career he was strenuous in the pursuit of knowledge; generous in imparting it, and imbued with a jealous love for science. In the service of science he wore himself out and counted himself happy in the sacrifice. Yet there was nothing extreme or unbalanced in Bayley-Balfour's nature. A suave wisdom was one of the chief of his many gifts, and he possessed powers of resolution and conciliation so nicely balanced that he was able to win victories without imposing defeats. Those whom he persuaded were glad to be persuaded and pleased that he should have his way. No man who devotes his life to special studies can fail to amass a large body of knowledge; but no one of our acquaintance was such a fine connoisseur of knowledge: that which he had was the best—matured by time and ripened by wisdom. In spite of his readiness to impart it, much of that great store of learning and experience is now lost to us; for, though he wrote much, much remained unwritten, and his death impoverishes horticultural knowledge. Born on March 31, 1853, he studied at the Edinburgh Academy and at the Universities of Edinburgh, Strassburg, and Würzburg. In 1879, at the age of twenty-six, he became Regius Professor of Botany in the University of Glasgow. In 1884 he was elected to the Sherardian Professorship of Botany at Oxford, and to a Fellowship of Magdalen. Four years later, in 1888, he proceeded to the Professorship and garden at Edinburgh, which post Bayley-Balfour held until the present year. The funeral service was held at Woking, on Saturday, December 2. It was Sir Isaac Bayley-Balfour's wish that the service should be attended only by relatives, and hence it was that the universal sorrow and regret which his death has caused among scientific friends and colleagues could find no expression on that occasion: a few among them had, however, the sad privilege of testifying by their presence to their affection and admiration for a great botanist and a great man.

TRADE NOTE.

MESSRS. KELWAY AND SON have sent us the following communication: "In view of a statement in the *Times* newspaper a few months ago referring to the new race of Gladioli, the result of crossing *Gladiolus primulinus* with existing varieties, we would like—in justice to ourselves—to say that Mr. James Kelway was the first to commence this work, and that our firm was the first to produce and distribute results.

"It is necessary to put this on record, owing to the *Times* having stated that the Dutch and American nurserymen were responsible for the production of this beautiful new race of Gladioli, and because we wrote to the *Times* a letter on

the subject, which they refused to insert. We then wrote to Sir Francis Fox—who sent us the first bulbs of *G. primulinus*—and in reply he stated that Mr. Townsend was in charge of the Zambesi Bridge in 1903, and that he (Sir Francis Fox) sent us the corms of *Gladiolus primulinus* in 1905. Our corms flowered in 1906—when we began crossing—and by 1912 we were exhibiting several named crosses before the Royal Horticultural Society and the National Gladiolus Society in London. In that year the former gave us an Award of Merit and their Silver Floral Medal for the strain, and the latter an Award of Merit to the variety Golden Girl.

"The first varieties we listed were Ella Kelway, Golden Girl, Josephine Kelway, Wraith, Friendship, Banshee and Elf. They were offered to the public in 1913. Certainly no hybrids of *primulinus* were ever listed in any other catalogue so early as this.

LAW NOTE

A NURSERYMAN'S FAILURE.

AT the offices of the Official Receiver, Russell Square, W.C., on Friday last, the first meeting of creditors was held of John Ponsford Taverner and John Homan Taverner, trading as J. P. Taverner and Son, both of Finchley Farm, Farnborough, Kent, nurserymen, against whom a Receiving Order was made on debtors' own petition on November 3, 1922.

A joint statement of affairs, submitted by the debtor J. H. Taverner, showed liabilities expected to rank £1,223, and assets estimated to produce £732, thus showing a deficiency of £491.

Mr. T. Gourlay, Official Receiver, presided, and having dealt with the proofs of debt lodged, said the assets included cash £11, stock £75, growing crops £600, book debts £3, surplus from securities £115, making a total of £804, from which £71 had to be deducted for preferential claims.

Mr. F. W. Davis, who had been appointed Special Manager, reported that he had kept the business going. As blooms grew to the right size they were sent to the market, but up to the present he had been obliged to pay out more than he had received, although during the next three weeks the income from the business would considerably increase.

A resolution was passed for the appointment of Mr. F. W. Davis, chartered accountant, 28, Theobald's Road, W.C., as trustee, assisted by a committee of inspection. The trustee's bond was fixed at £600.

ANSWERS TO CORRESPONDENTS.

ABNORMAL GROWTH OF CABBAGE: *Miss E. F.* The "extraordinary" growth which you send is merely a large bud, of a similar nature to the Brussel Sprout. If the plant has not been destroyed you should allow it to flower and seed, and see if the abnormality can be perpetuated.

APPLES ROTTING ON THE TREE: *M. L. R.* We cannot state what is the cause of the trouble from the shoots you sent. Next season, send specimens of the decaying fruits.

APPLE STOCKS: *Constant Reader.* The Paradise is a form which possesses a very fibrous root system, and there are others of this type such as Doucin. The free stock has a much stronger and deeper growing root system, and is usually employed in the grafting of standard and other large forms of trees. Paradise stocks are propagated from suckers and layers, while the free stocks are usually raised from seeds.

CHRYSANTHEMUM SPORT: *Sport.* Your Chrysanthemum having produced a branch carrying different flowers has, what is termed, sported, a fairly common occurrence in Chrysanthemums, and one which has given rise to many new varieties of merit. You should perpetuate the sport and submit it to some Chrysanthemum expert for opinion as to whether it is worth retaining.

DISCONNECTING FOUR-INCH GREENHOUSE PIPES: *R. J. H.* From your description we suspect

the pipes are fitted with rubber rings, for these are used with coupling joints. If this is so, you could use a blow-lamp to heat the bolts and then unscrew them. Rusted filings are used for filling in the joints of plain socket pipes, and where these filings are used it is a most difficult matter to detach the pipes, and there is a danger, in using the hammer or anything to force them apart, that they may be broken. The difficulty can be solved by cutting the pipes through with a file close up to the joint and utilising them again with collars packed with yarn and cement.

NAMES OF FRUIT: *C. P. 1.* Round Winter Nonsuch; 2, Bismarck; 3, Le Lectier; 4, Sturmer Pippin; 5, Norfolk Beefing; 6, Beurre Diel. *R. I. H. 1.* Lady Sudeley; 2, Worcester Pearmain; 3, Dutch Mignonne; 4, Norfolk Stone Pippin. *G. R. N. 1.* decayed; 2, Peasgood's Nonsuch; 3, Fern's Pippin; 4, Baumann's Red Winter Reinette; 5, Margil; 6, Melrose. *J. R. M.* Hambling Seedling, raised by Col. Hambling. *H. E.* Old Crasanne. *G. T. T.* Pears: 1, Pitmaston Duchess; 2, Buerré Hardy; Apples: 1, Roi d'Angleterre; 2, Orange Goff; 3, Newton Wonder; 4, Malster. *C. H.* Gooseberry Apple; (see p. 343). *H. C. P. 1.* Lord Suffield; 3, Warner's King; 4, White Westling; 5, Radford Beauty; 6, Doyenné Boussoch.—*T. Sutton.* Apple: Newton Wonder. Pear: Catillac. *G. A. 1.* Beauty of Kent; 2, King of Tompkins County; 3, Queen Caroline; 4, Golden Noble; 5, Flower of Herts; 6, Lord Derby; 7, Twenty Ounce; 8, Ross Nonpareil.—*W. M.* Emperor Alexander.

NAMES OF PLANTS: *E. J. Coates.* 1, *Picea excelsa*; 2, *Pseudotsuga Douglasii* var. *glauca*; 3, *Abies nobilis*; 4 and 5, *Cupressus Lawsoniana*; 6, *Pseudotsuga Douglasii*.—*Tanglin.* *Eucalyptus globulus*. *F. H. K.* The specimen was too withered when it reached us for correct determination, but it is probably *Senecio Jacobaea*. *J. T., Otley.* *Leycesteria formosa*; *Senecio laxifolius* (yellow flower).

NICHOLSON'S DICTIONARY OF GARDENING: *J. C.* This work is out of print, and can only be obtained from the second-hand booksellers. Second-hand copies are sometimes offered for sale in our advertisement columns.

PARENTAGE OF HEMEROCALLIS: *F. V. Norway.* *Hemerocallis Aureole* was received from Japan by Messrs. R. Wallace and Co., and we believe its parentage is unknown; *H. Gold Dust*, *H. Orangeman*, and *H. Sovereign* are all derived from *H. flava* × *H. Sieboldii* (syn. *Dumortierianthus*; *H. Luteola* is from *H. Thunbergii* × *H. aurantiaca* major. *H. Dr. Regel* is very like *H. Middendorfi*, except that it flowers very regularly during August and probably it is a seedling from *H. Middendorfi*. The parentage of *H. Ajax* is not known to us.

PRUNING FRUIT TREES: *C. S.* The question of pruning fruit trees at the time of planting or deferring the operation until later is debatable one. In the case of small fruits and Roses it is certainly advisable to leave the pruning until the spring, as in the case of Currants and Gooseberries birds sometimes destroy the buds, and if the pruning of the branches is left until the spring the birds will not be able to enter the bushes so readily, and there will be more buds left should they destroy a few. Roses, again, are best pruned in the spring, because the plants often start into growth after the turn of the year, and this young growth gets cut back by frost later. The end of March or April is soon enough to prune Roses.

SEEDLING APPLE: *A. K.* When your seedling Apple is at its best condition, send specimens to the Fruit and Vegetable Committee of the Royal Horticultural Society, Vincent Square, Westminster, and if of sufficient merit it would probably obtain an Award.

Communications Received. *H. H.—E. B. K. N.—G. H. B. J. C. F.—A. S. F. D. T.* Constant Reader—*I. H. Dingley—R. B.—M. & Co.—S. L. H.—G. T.—W. E. F.*

THE

Gardeners' Chronicle

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 40.5°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, December 13, 10 a.m. Bar. 30.4, temp., 51°. Weather—Dull.

The Council and Fellows of the National Institute of Agricultural Botany are to be congratulated on the work accomplished by the Institute in the first year after its establishment in its permanent quarters at Cambridge. The confidence of agriculturists and horticulturists in the power of the Institute to fulfil its ambition to assist in the supply of better seeds and in the raising of better crops is indicated by the fact that among the Fellows of the Institute, who now number over 400, are many of the leading men in these professions. His Royal Highness the Prince of Wales and H.R.H. the Duke of York have graciously consented to become Honorary Fellows, and the example thus set will doubtless lead to a large augmentation of the Fellowship of the Institute. As everyone knows, the work of crop improvement is arduous and costly. New varieties of possible merit have to be put to prolonged and searching test before a guarantee of their superiority over older varieties can be obtained. Such tests require land, labour and no small expenditure of money. It is, therefore, to be hoped that everyone interested in the progress of agriculture will associate themselves with the work of the Institute by becoming Fellows thereof. The Council

are to be congratulated particularly on the valuable and generous assistance which they have received from many quarters. Mr. Fred Hiam, who placed the Hiam Farm at the disposal of the Council, has undertaken to manage the Hiam Farm on their behalf for four years, has guaranteed the Institute from any losses on the farm during this period, and has volunteered to provide any additional capital required, and has expressed his intention to pay over to the Institute any net profit that the farm may make without deduction for his personal services—truly one of the most generous gifts which it is possible for any man to make. The work of the seed-testing department of the Institute during the period under review has been heavier than in any previous year. In the period 1921-22, 25,822 samples of seed were tested—an increase of nearly ten per cent. over the number tested in any previous year. The Crop Improvement Branch has got well under weigh with the all-important work of testing promising new varieties. Four new Barleys, tried first in 1921, all proved worthy of being put to full trial in the present year, when they were tested at four different stations. The results of the final trial in 1923 will be awaited with interest. Of new Wheats offered, one has been judged as of sufficient promise for further tests, and the Crop Improvement Branch has also, as the result of preliminary trials, arranged to sow some eighty acres with a new Wheat raised by Prof. Biffin, so that if the final trial confirms the earlier praise, a sufficient bulk of seed will be available for distribution in the course of the next two years. Of great value is the living museum of varieties of Cereals, Grasses and Clovers, etc. It includes some four hundred varieties of Cereals and about sixty varieties of Grasses and Clovers, and it is intended to grow these and any other new varieties year by year in order to ensure that none shall drop out of cultivation and so become unavailable for breeding or other scientific purposes. The work of the Potato Testing Station, Ormskirk, owes much to the time and attention given to it both by the Superintendent, Mr. Bryan, and by Dr. Salaman, the Chairman of the Potato Committee. The immunity trials included three hundred and fifty entries, and beside the usual tests of established varieties, the Station also undertook to assist Potato breeders by testing new seedlings for their immunity from or susceptibility to Wart Disease. That this work is of great benefit to the community is indicated by the fact that no fewer than two thousand entries were received. Beside the work on immunity and on the recently-discussed subject of Potato synonyms, the Station has been engaged in carrying out a very important series of maturity trials with the object of determining the times of ripening of second early varieties, and has also undertaken no less important yield trials. Needless to say trials such as these are only useful if thorough, and for them to be thorough they must be continued over a series of years. Hence it is as yet too soon to look for the results. There can be no doubt, however, that when in the course of time they are forthcoming they will prove of great and permanent value to all growers of the Potato. We are glad to learn from the Report that a special medal has been struck in memory of the late John Snell (see Fig. 139) whose services at Ormskirk on behalf of the Potato industry will ever be held in grateful memory. This medal will be awarded annually, and the first recipient is Mr. Ezra Miles, of Leicester, who has rendered national service in the raising of new varieties of Potatoes.

Our Almanac for 1923.—We propose to publish in an early issue of the New Year a *Gardeners' Chronicle* Almanac for the year 1923. In order to make it as useful as possible for reference, we shall be obliged if secretaries of horticultural, botanical and allied societies, or any of our correspondents, will send us immediate information of all fixtures for the coming year.

R.H.S. Gardeners' Diary, 1923.—We have received a copy of this excellent diary* for 1923, this being the twelfth year in succession in which it has been published. It is a most useful diary for gardeners, and is especially valuable for those who attend the R.H.S. exhibitions, for every meeting of the Society is recorded. There is much useful material on matters of gardening interest covering a wide scope. Recipes of common sprays and washes for combating various pests and diseases, planting tables, garden weights and measures, a vegetable grower's calendar, income and wages table, plants worth growing, plans of tennis courts and croquet lawns, and a list of composts for various purposes, are a few of the many subjects included.

Flower Shows and the Entertainment Tax.—In reply to a question by Lieut.-Col. Howard-Bury, the Chancellor of the Exchequer stated in the House of Commons on the 5th inst., that the Commissioner had power to remit the tax in the case of flower shows organised for the encouragement of horticulture and where the profits were devoted to the encouragement of horticulture and not for individual profit. In reply to a further question as to bands at flower shows, he said that the presence of a band meant the imposition of the tax. The effect of the entertainment tax on horticultural exhibitions was shown at a meeting of the Durham County Flower Show Secretaries' Union, when it was stated that every show represented at the meeting reported heavy losses, mainly, and entirely in some cases, due to the entertainment tax. Several secretaries stated that their societies were entirely without funds owing to the money paid away for this tax, and it was doubtful whether they would be able to hold exhibitions in the coming year. The secretary of the Thornley Society reported a loss of £205 on their last show, notwithstanding a sum of £925 was taken at the gate. The secretary of the Shildon show, who reported a loss of £157, stated that his Society had paid £1,688 11s. in entertainment tax in four years. The solution seems to be to dispense with bands and other side shows entirely, and to run floral exhibitions entirely with horticultural produce.

National Carnation and Picotee Society.—The annual general meeting of the members of this society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, on Saturday, December 16, at 3 p.m. The secretary is Mr. J. J. Keen, 54, The Avenue, Southampton.

Presentation to Mr. Hugh M. Mackie.—On the occasion of his retirement from the offices of secretary and treasurer to the Glasgow and West of Scotland Horticultural Society, Mr. Hugh M. Mackie was presented by the members of the society with a handsome writing bureau and two easy chairs, in recognition of the services he had rendered during twenty-three years of office. Sir J. Reid, president, who made the presentation on December 6, observed that the society was not in a very flourishing condition when Mr. Mackie entered upon his duties. There was considerable debt, and the membership had dwindled to a comparatively small number. Mr. Mackie, with characteristic energy, soon began to improve matters, and with the assistance of the directors and other friends the debt was wiped off, and the society put upon a sound basis. Sir John said he felt sure it must be a source of much satisfaction to Mr. Mackie that upon his retiral the finances of the society were in a very satisfactory state, and that now the roll contained over 700 names. The credit for that was largely due to Mr. Mackie. Mr. Mackie, in thanking the members for their gifts, said that for a time the society had many ups and downs, but recently they had experienced a considerable amount of prosperity. While he much appreciated Sir John

* R.H.S. Gardeners' Diary. Obtainable from our Publishing Department, price 2s. 3d., post free.

Reid's very flattering remarks about his work, he thought the credit was really due to the presidents, chairmen and directors with whom he had been associated during his term of office. He was greatly gratified when he thought of what the society had done for allotment-holders, and he thought the fact that they had so many allotment-holders among their members was evidence that these men felt their interests were being well looked after by the Glasgow society. He was also proud of the fact that during the war, the society, by its shows and sales, had been able to raise about £3,000 in aid of Red Cross funds.

Pictures made with Leaves and Flowers.—A correspondent to the *Glasgow Herald*, states that Mr. W. J. King, an official of the Ministry of Health, has a hobby which is shared by very few. "It is the making of pictures from the leaves of trees, and even vegetables and the petals of flowers. For 20 years he has been bringing his idea to perfection, and now, with nature's pigments alone, he has produced pictures which at a few feet distance will pass for oil paintings. The leaves and petals are used in their natural state, and no colouring matter is added. The range of colours and the distinctiveness of tones gathered from wood and garden are almost bewildering, but more remarkable

F. D. Acland, George Nicholls, Esq. and Walter West, Esq., representing the Agricultural Organisation Society; and Robert Norman, Esq., Alderman H. Berry and J. Forbes Esq., representing the National Union of Allotment Holders. The Secretary of the Committee is Mr. E. Lawrence Mitchell, Ministry of Agriculture, 10, Whitehall Place, London, S.W.1.

Old and Rare Books on Gardening and Botany.—The lover of rare and old books, and the student of botanical and horticultural literature, cannot fail to find interest and delight in the illustrated *Catalogue of Rare Books*, which Messrs. Wheldon and Wesley have commenced to publish. Part I. is now before us, and the publishers state that the catalogue will be completed in about six parts and a title page and index will be issued in due course. A perusal of this catalogue will arouse in many readers the desire to purchase some of the valuable books described therein, but the fulfilment of such a desire will depend entirely upon the financial resources of individual purses, as in many instances the works are necessarily expensive, because of their rarity and interest. The works listed are not wholly confined to those dealing with horticultural and botanical subjects, but among these latter we find Andrew's *Coloured Engravings of Heaths*; Bateman's *Orchidaceae*

favourable conditions. The tubers generally are large and of good quality. They have mostly been stored in clean and dry condition, and so far are keeping well, though occasionally they are reported to be unsatisfactory in this respect owing to the wet weather during the period of growth. There are few reports of disease. The yield per acre over the whole country is estimated at 7.1 tons, or $1\frac{1}{4}$ tons per acre more than last year and rather more than 1 ton per acre above the average of the ten years 1912-21. This year's yield is the highest recorded since these returns were first collected in 1885, the previous best being 6.9 tons per acre in 1908. The total production on agricultural holdings in England and Wales is estimated at 3,986,000 tons, or more than a million tons greater than in 1921 and 50 per cent. above the pre-war average.

The "Botanical Magazine," 1845-1920.—In order to meet the demands of those who wish to purchase a complete set of Curtis's *Botanical Magazine* from 1845 to 1920, the Royal Horticultural Society is making arrangements to have a few complete sets made up. These sets, each consisting of 76 volumes bound in cloth, will be available at the price of £175 net. The price of single volumes of the *Bot. Mag.* is 5 guineas per volume, but special terms have been arranged for sets of ten or more consecutive volumes, as follows:—10 to 20 volumes, £2 15s. net per volume; 20 volumes and over, £2 10s. net per volume. All orders for single volumes, sets of volumes or single parts, from 1845 to 1920 should be sent direct to the Secretary, Royal Horticultural Society.

British Empire Exhibition.—On the 12th inst., in the House of Commons, Capt. Berkeley asked whether a number of Crown Colonies had expressed their inability to take part in the British Empire Exhibition owing to financial difficulties. In reply, the Under-Secretary for the Colonies regretted that Fiji, Barbados, Ceylon, Gibraltar, St. Helena, Somaliland, and Nyassaland had decided not to take part, while Trinidad was withholding decision in the hope of improvement in financial matters. In his view the benefits likely to accrue were doubtful, considering the limited economic resources of the Colonies and Protectorates mentioned, and he thought it would not be justifiable to ask the House to vote moneys for the purpose of assisting these Colonies to take part in the exhibition.

Ginkgo biloba as a Town Tree.—The attention drawn by Lord Plymouth to the suitability of *Ginkgo biloba* as a town tree has induced Mr. A. D. Webster to contribute a letter to the *Times*, in which he refers to a healthy tree growing in very unfavourable conditions, close to Commercial Road, while other specimens are to be found in Chelsea, Lambeth, St. Paul's Churchyard, the grounds of Bedford College, and Regent's Park. We would remind readers of the old and somewhat injured specimen that still exists in High Street, Brentford, close to the gasworks and other factories; this is a wonderful example of the vitality of the *Ginkgo* as a town tree.

Horticultural Club.—A very pleasant evening was spent by members of the Horticultural Club on Tuesday last, on the occasion of a dinner at the Connaught Rooms, Great Queen Street; after the dinner there was a display of lantern slides, followed by a musical programme. Mr. J. F. McLeod presided, and the company included several ladies. The pictures, in natural colours, of beautiful garden features, were displayed by Mr. R. A. Malby, and included scenes in such famous gardens as Gravetye, Aldenham, Warley Place, Kew Gardens, Earlsam Hall, Paddock House, Abbots Wood, and Mounton House, Chepstow. The entrancing beauty of these floral pictures was a revelation to many, and they offered valuable hints and suggestions in the grouping and disposition of plants to obtain the best effects. The accuracy of the colours of the various flowers was the subject of general comment, and Mr. Malby was heartily congratulated on obtaining such splendid results in colour reproduction.

of Mexico and Guatemala; *Biologia Centrali-Americana*, edited by F. Ducane Godman, a work in fifty-two volumes; *A boke of the properties of Herbes called an herball*, 1555-1561, variously ascribed to William Copland and Walter Cary; Boyceau's *Traité du Jardinage* (1638); Brookshaw's *Pomona Britannica*; Castelli's *Hortus Messanensis*; Wilton Garden, by I. de Caus, 1650-55, a rare book, of which only two perfect copies are known; Decaisne's *Le Jardin Fruiter du Muséum*; Duhamel du Monceau's *Traité des Arbres et Arbustes*, and *Traité des Arbres Fruitières*; *L'histoire des Plantes*, by A. du Pinet; *A Monograph of the Genus Lilium*, by H. J. Elwes; Robert Furber's folio works on flowers and fruits (1732), with engravings after Peter Casteels' drawings; a first edition copy of John Gerarde's *Herbal*; Hill's *Art of Gardening* (1572); Jacquin's *Hortus botanicus Vindobonensis*, and the same author's four volume folio work entitled *Plantarum rariorum Horti Caesaris Schoenbrunnensis*; Mollet's *Le Jardin de Plaisir*, and his *Théâtre de Plans et Jardinages*; Oeder's *Flora Danica*, a complete set; Parkinson's *Paradisi in Sole Paradisus terrestris*; Redouté's *Les Liliacées*, and his *Jardin de la Malmaison*; Repton's *Sketches and Hints on Landscape Gardening*; Sibthorp's *Flora Graeca*, in ten volumes; Sweet's *Geraniaceae*, and the same author's *British Flower Garden*; and Weinmann's *Phytanthozaiconographia*, 1737-45, in four volumes.

The Potato Crop.—According to the "Monthly Agricultural Report" of the Ministry of Agriculture, the lifting of Potatoes was completed under



FIG. 139.—THE JOHN SNELL MEMORIAL MEDAL (SEE PAGE 347).

still is the manner in which they have been utilised. He has produced the picture of a jug entirely from cabbage leaves. There are in a collection I saw to-day pictures of a dog and a cat, the former of the Yorkshire terrier type, shaggy and long-haired, in which even thistle down has been included. Snow, for instance, white sky, and waterfalls are created from pith. Mr. King's theory is that the vegetable kingdom—which is his palette—provides all the tints and tones required, and that if properly dried and tested the colours are permanent." We should like to see some of Mr. King's pictures exhibited at one of the fortnightly meetings of the Royal Horticultural Society.

Allotments Advisory Committee.—In accordance with the recommendation of the Departmental Committee on Allotments, the Minister of Agriculture has appointed a Committee to advise the Ministry on matters affecting allotments in England and Wales. The constitution of the Committee is as follows:—The Rt. Hon. the Earl of Ancaster, Parliamentary Secretary to the Ministry (chairman); the Rt. Hon. the Earl Stanhope, representing the Central Landowners' Association; Sir Kingsley Wood, M.P., representing the Parliamentary Allotments Committee; Francis Dent, Esq., representing the County Councils' Association; H. A. Learoyd, Esq., Town Clerk of Hull, representing the Association of Municipal Corporations; Reginald C. Graves, Esq., LL.B., Clerk and Solicitor to the Tottenham Urban District Council, representing the Urban District Councils' Association; C. Crofton Black Esq., barrister-at-law, representing the Land Union; the Rt. Hon.

Proposed Flower Show in Glasgow, in 1923.—

The success which attended the great flower show held in Glasgow this year under the auspices of the Glasgow and West of Scotland Horticultural Society and the Glasgow Corporation was so encouraging that the Executive Committee of the Corporation and the Directors of the Horticultural Society have been requested to confer on the proposal to hold a flower show in the autumn of 1923 in Kelvin Hall. A dairy show is also proposed.

Begonia socotrana hybrids at Kew.—In the conservatory (No. 4 greenhouse) at Kew a most interesting group of Begonia species and hybrids illustrates the valuable work of the hybridist in raising a useful race of winter-flowering greenhouse plants. From typewritten particulars on a card placed above the group visitors may read the "family history" of the plants in flower. Begonia Dregei was first introduced from South Africa in 1836. This species, and B. socotrana, introduced from Socotra in 1880 by the late Sir Isaac Bayley-Balfour, are the parents of B. Gloire de Lorraine. The latter was raised by Messrs. Lemoine, of Nancy, in 1892. There are plants, from the same cross, of the Turnford Hall and Mrs. Leopold de Rothschild varieties, and also the American raised Mrs. Peterson and Glory of Cincinnati, the last named showing very distinctly the influence of B. socotrana. About 1883, Messrs. James Veitch and Sons first crossed B. socotrana with pollen from the tuberous-rooted Begonias, and a group of the variety Mrs. Heal, represents one of the best of the earlier hybrids. The later hybrids, however, as seen at Kew—Optima, Fascinator, and Exquisite—are more showy. The one regret in connection with this latter race of hybrid Begonias is that the plants require special treatment, while, on the contrary, B. Gloire de Lorraine is grown by the thousand in private gardens, and by hundreds of thousands in market nurseries for the florists' shops.

Appointments for the Ensuing Week.—

Wednesday, December 20.—Hertford Horticultural Society's meeting. Thursday, December 21.—Manchester and North of England Orchid Society's meeting. Saturday, December 23.—Dunfermline Horticultural Society's annual meeting.

"The Gardeners' Chronicle" Seventy-Five Years Ago.—*Education of Gardeners.*—I have watched anxiously for some time past the progress of education and improvement amongst gardeners, and from your observations last week, I am inclined to think that you, at least, would willingly remove the impediments that oppose themselves to the advancement of an object which, no matter how disagreeable to certain individuals, must be hailed by the thinking portion of the community with delight. Truly you have arrived at the right conclusion. It is to those men, self-styled "practicals," that we, the rising generation of gardeners, owe our backward position. You have boldly stated the fact; I could prove it. From the time I first entered the business I have heard your motives aspersed. I have known you only as the enemy of the working gardener until more close attention to facts set me right. Now, I can discover a miserable attempt to paralyse us in our progress, and hold us in that state of mental ignorance which characterises the old school. My employer has not allowed his influence to remain inactive in endeavouring to prove that the means adopted in the establishment with which you are connected, are only superficial, or, at best, unnecessary. What an outcry was raised against mutual instruction amongst these very practicals. I have visited a mutual instruction society, and knowing that no better principle could be adopted, was grieved to see the manner in which it was supported; and be it remembered that this society is under the patronage of an influential metropolitan association. It is full time that young men who propose to raise the science of horticulture from its present condition should be in arms against this attempt to stay their progress; and that the facts should be manfully stated. Public opinion will be our judge.—*Philo. Gard. Chron., December 18, 1847.*

NOTICES OF BOOKS.***Cyclopedia of Hardy Fruits.**

THE literature of American pomology is growing fast, and there exists already a goodly number of descriptive works which are indispensable to the student of fruits. In the work before us Prof. Hedrick has condensed a large amount of information and description from his well-known "New York" series, and has provided a book of great utility for the amateur and nurseryman. It is, of course, intended for the American fruit grower, and describes mainly varieties of native origin, and it is very noticeable how few of our British varieties succeed in the United States, and conversely how few

The Himalaya Berry is said to become almost barren in the mild regions of Pennsylvania, as does the vine in Africa, and the Mammoth Berry, in this country often called the Low Berry, is self-sterile, but is pollinated by the Loganberry. The Superlative Raspberry is largely grown on the Pacific Coast, and there considered the most profitable variety.

A few slips are noted; Pear Doyenné Boussoch was not raised by Van Mons, as it existed before his day, and he changed the name to Beurré de Merode. The Pear Duhamel du Monceau is said to keep longer than Winter Nelis, but its season is given as October-November. The Pear Roosevelt is described as being 2½ inches in length, and having the faintest trace of a blush, and in such a description we can



FIG. 140.—CHRYSANthemum WELLINGTON WACK. N.C.S. FIRST-CLASS CERTIFICATE, NOV. 16 (SEE P. 314). SHOWN BY MR. H. J. JONES.

transatlantic varieties are really happy in our moist and comparatively sunless climate. We may best measure this difference by remembering that the bulk of American Apples are grown where the Vine and Peach thrive in the open. This means a great amount of summer heat, and it is for want of this that so many American varieties fail in this country.

The fruit grower will nevertheless find much to interest him in Prof. Hedrick's *Cyclopedia*. It is a large 8vo volume of 370 pages, each fruit being briefly described and its orchard behaviour treated more fully. Outline drawings are given in many cases and there are four coloured plates.

Such a book can only be criticised after a year or two of constant reference, but a few points were noted in the course of a glance through its pages. It is curious to see that only two English Peaches are considered of value, and not one British Strawberry figures in a long list. We see that the American Gooseberries are now considered as derived from Ribes hirtellum, and not from R. oxacanthoides.

**Cyclopedia of Hardy Fruits.* By U. P. Hedrick. The Macmillan Co., 27s.

hardly recognise the rubicund and obese President! Can Prof. Hedrick have the true variety? Peach George IV. is not our Royal George, as the text would lead one to suppose.

These are the accidents which befall every author, and it is but a poor spirit which sets them in the foreground of a criticism. A more serious matter is the size of the outline drawings, most of which are half-size, and have (× 1) placed beneath them. In the Cherries, however, they seem to be drawn full size, but still have the (× 1), which makes Napoleon 2½ inches broad and 3 inches deep—which is absurd, even for America!

The most original feature of a work of this popular character is the very interesting discussion of the species from which fruits have probably been derived.

The value of the book to British gardeners will be mainly as a handy reference book to American hardy fruits, some of which are already being tried in this country, and in some cases a study of its pages will check enthusiasm raised by florid catalogue descriptions.

The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Odontoglossum citrosimum.—Plants of this beautiful species have completed their growth, and water should be withheld gradually, and in a few weeks entirely. Owing to dryness at the root during the resting period, the pseudo-bulbs will probably shrivel considerably, but this will do no harm unless carried to excess, it not being injurious to the plant, as when the flowering period arrives they quickly return to their normal condition of plumpness after receiving water a few times. This Orchid requires a long season of rest, and if not thoroughly ripened rarely produces flowers.

Other Odontoglossums.—*O. Reichenheimii* and *O. laeve*, having also finished their growths, should receive but little water at the roots during the winter. *O. Uro-Skinneri* is pushing up its flower spikes, and should be watered until the flowers open, when the amount of moisture should be gradually diminished and the plants induced to rest. When the new growths commence to develop fresh roots, the plants may be repotted. These distinct *Odontoglossums* should be placed in the lightest and coolest part of the Mexican or intermediate house during their season of rest, and be grown in slightly more heat (whilst they are making their growth) than *Odontoglossums* generally.

Sophranitis grandiflora.—This little gem, which has been used by hybridists for imparting its wonderful colour to many hybrids, is now in bloom, and its brilliant flowers are always appreciated. The spikes are produced on partly-matured pseudo-bulbs, and care should be taken that no water lodges in the crown, as it may set up decay of the flower spike and the new growth. At this season it is advisable to remove the plants to slightly warmer quarters, which will favour the development of the flowers, and be the means of avoiding the dangers of damping, both of the flowers and growths. Until the flowers are produced, the plants may be afforded water at the roots whenever they are seen to require moisture. After the flowering period is over, any plants needing fresh rooting material may be given attention when new roots are seen to be pushing from the young growths. A similar compost to that used for *Cattleyas* is suitable, but owing to the small size of the plants the material should be cut into small portions. The plants are best grown in small pans suspended from the roof, where they will receive all the available light during the winter. Hybrids of *Sophranitis grandiflora* include some of the most beautiful Orchids in existence, and comprise hybrids with *Laelias*, *Cattleyas*, *Laelio-Cattleyas*, *Brasso-Cattleyas*, and others. These should be treated as *Cattleyas*, and should be grown under similar conditions to those usually given the predominant partner. Many of them are bad growers; but, to my mind, it is only a question of finding a suitable place for them, and making conditions suitable to their requirements. The hybrids vary considerably as regards size and stature, but all will succeed under the conditions named.

THE KITCHEN GARDEN.

By JAMES E. HATHAWAY, Gardener to JOHN BRENNAND, Esq., Baldersby Park, Thirsk, Yorkshire.

Asparagus.—This vegetable forces very readily; the easiest plan is to make a hotbed of litter and leaves, and if made a good depth the bed will provide sufficient warmth to force two or three batches. Place on the bed a portable frame, and put in the latter about 4 inches of old potting soil of a light texture. The crowns should not be inserted until fermentation declines, by which time the rank gases will have passed off. Place the roots closely together and cover them with about 5 inches

or 6 inches of soil. Keep the bed well syringed with tepid water, and admit air in mild weather. Protect the frames from frost.

Preparations for Seed-sowing.—During bad weather seed-boxes should be overhauled and repairs made good. Any boxes that are of no further use should be replaced with new ones. Soil for seed sowing should be mixed and placed in a shed, where it will be handy to get at in bad weather. Labels should be made and stakes prepared, as this will save time in the busy season.

General Remarks.—Attend carefully to all crops in frames; keep all decaying leaves and weeds picked off, and the soil between the plants stirred on the surface. Admit air at every favourable opportunity. A close watch should be kept for mice, as they often spoil crops when the frames have to be kept covered with the lights in very severe weather; mice will soon ruin *Cauliflowers* in frames. Continue to sow plenty of *French Beans*, and expose the plants to all the light possible. *Suttons' Forcing*, *Ne Plus Ultra*, and *Magpie* are good varieties for present sowing. Keep a sharp watch on all roots in store, and remove any decayed ones.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

Mid-season Vineries.—The vines in mid-season vineries may now be pruned, cleansed, and put in working order ready for starting, but they should be kept cool and theinery airy to ensure a long and decided rest to the vines. If other plants are being grown temporarily in these houses they should be of the hardiest kinds, as constant shutting of the house at night and turning on a little fire-heat will react injuriously on them. Very few growers can afford to keep their fruit houses entirely idle, but they should be helped in this matter to the fullest extent possible until after the turn of the year. When the vines are pruned and washed the wounds may be dressed with styptic, especially if there is any danger from bleeding. All operations at the roots will have been finished by now; the roots should be kept sufficiently moist, but should autumn watering have been neglected, it will be well to allow them to remain on the dry side for some time after pruning.

Late Vines.—Houses in which ripe Grapes are hanging cannot be kept too cool and airy in mild, dry weather. A temperature of 50° is suitable for black Grapes, but Muscats need a little more warmth. A little fire heat should be used when there is danger from frost, or the atmosphere stagnant with moisture. The fall of the leaf is the most trying time, especially for vines in low houses, but damp in these houses may be counteracted by picking up the leaves each day. Damp, which fosters mould, does the greatest harm to ripe Grapes, and must be counteracted; but the lighter the firing and the steadier the temperature, the better will the Grapes retain their colour, and fresh, plump condition. Houses in which only a few bunches of ripe Grapes are hanging may now be cleared of the fruits with the greatest advantage, not only to the fruit, but also the vines. Opinion prevails that Christmas is the time for bottling Grapes, but no particular date will ensure them keeping well, unless they are fully ripe, and when ripe they may be cut and bottled at any time. When cutting Grapes before the leaves fall, the latter should be left to ripen and drop, as every fresh cut in the removal of leaves or laterals forms an outlet for the sap, as may be proved by the rapid absorption of water from the bottles.

The Grape Room.—This useful structure is often utilised for the storing and ripening of choice Pears: the gentle warmth, so essential to developing flavour in the Pears, will render it suitable for the reception of long-keeping Grapes, when the time arrives for cutting and bottling them. The bottles in the meantime may be filled with soft water in empty store-rooms.

THE FLOWER GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

Primulas.—Plants of the earliest batch of Chinese *Primula* are sending up their flower spikes, and a little light feeding with liquid manure will greatly assist them to develop their inflorescences. In watering *Primulas*, take care not to wet the foliage, as this would probably cause damping. An excessive amount of warmth is also harmful.

Lily-of-the-Valley.—Very often this sweetly-scented flower is left in the beds too long without proper attention. The plants should not be allowed to grow on year after year without breaking them up and replanting them, or the results will gradually be more and more poor, not only from soil exhaustion, but also owing to the growths crowding and injuring one another. Every four or five years at most the clumps should be divided, and the ground well prepared for replanting by trenching it and applying a good quantity of well-decayed manure and plenty of leaf mould, to make the soil as light as possible. Thereafter select the strongest of the crowns and replant them at a shallow depth—just sufficient to cover them with soil—then cover the surface of the bed with about 2 inches of leaf-mould. Some of the very best crowns may be selected for forcing, and in after years others may be similarly selected. Where it is desired to leave the bed for longer periods than the four or five years, the crowns should be set 8 or 9 inches apart, and the bed mulched with manure. The roots should be fed with manure water each season. A shady, cool position should be selected for forming a plantation of *Lily-of-the-Valley*.

Solomon's Seal.—This old favourite perennial is valuable for decorative work, and should be dealt with somewhat similarly to *Lily-of-the-Valley*. Though this plant will grow well in almost any kind of soil, it does best when planted in deeply worked, well-manured ground. The present is the best season for forming fresh beds. *Solomon's Seal* is a useful plant for forcing for winter decoration.

The Water Garden.—This is a suitable time to attend to various operations in the water gardens. Streams that are overhung by trees will require cleaning out, as many fallen leaves will have collected at the bottom: if the streams are formed with concrete beds, and are capable of being emptied, the concrete should be examined for damage possibly caused by roots of adjacent trees, and the necessary repairs attended to. Water plants, such as *Nymphaeas*, may be planted during open weather, and waterside plants divided, reduced, and replanted under similar climatic conditions.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir C. NALL-CAIN, Bart., The Node, Codicote, Welwyn, Hertfordshire.

Eranthemum pulchellum.—This beautiful old plant is very seldom met with in private gardens, yet when well grown there is none other better in its colour. The blue flowers do not show to advantage under artificial light, but for brightening up the stove or intermediate house it is one of the best subjects at this season, and the plant remains in flower for a considerable time.

Lapageria.—The present is an excellent time to attend to this beautiful climber in such matters as top-dressing, re-potting, and cleansing the foliage. The shoots of *Lapagerias* are very brittle, therefore great care is needed in handling them, but now that the growths are hard and matured, they may be unfastened from the wires or trellis, and, after removing all the weakest shoots, the remaining growths should be thoroughly cleaned. After cleaning the plants, and before training them into position again, ascertain if it is necessary to repot them or renew the soil if they are planted out in borders. The *Lapageria* thrives best in a restricted root space; a suitable rooting medium consists of a mixture of good peat and fibrous loam, with

sufficient broken charcoal and coarse silver sand added to render the compost porous. *Lapageria* will grow well in a cool greenhouse, while in some favoured localities they will thrive against a warm wall in the open, provided some protection is afforded them during the winter. Slugs are very fond of the young shoots, and means should be taken to trap the pests.

Richardia.—Where Arum Lilies have been grown in a cool house to retard their flowering, while *Chrysanthemums* have been plentiful, a few of the more forward plants should be placed in a warm house, and the roots well fed with liquid manure twice weekly. Keep the plants free from aphids, and spray them regularly with tepid water to promote a moist atmosphere.

HARDY FRUIT GARDEN.

By H. MARKHAM, Gardener to the EARL OF STRAFFORD, Wrotham Park, Barnet.

Young Trees.—When planting young trees see that the soil is thoroughly drained. The compost should consist of the best fibrous loam, mixed with old brick mortar, wood ash, and a little decayed manure. Make the soil rather firm. Remove the tips of damaged roots, spread the latter at different angles and cover them with soil, but not too deeply. Place a little strawy manure over the soil, and defer

TREES AND SHRUBS.

THE BEST FRUITING BARBERRIES.

TWENTY-FIVE years ago our native Barberry (*Berberis vulgaris*) had few rivals among shrubs cultivated in our gardens for their attractive autumn fruits, but explorations during the present century in China have introduced a considerable number of rivals, and these, grown in our gardens, have cross-pollinated freely. That some of the seedlings surpass in beauty any species we already possess among the fruiting Barberries is very evident, judging by the fruiting sprays sent to the R.H.S. exhibitions at Vincent Square from the Wisley gardens. Several of these, including *rubrostilla*, Coral, The Sparkler, Fireflame, and Autumn Cheer were given Awards of Merit. Even more beautiful than any of these, at least as shown at the last R.H.S. meeting on October 31, is the variety *Lady Beatrice Stanley* (see Fig. 114), one of a number of seedlings grown from seeds obtained from Wisley.

In the raising of these seedlings we are only in the early stages of progressive development. What the future holds in store when the hybridist systematically cross-pollinates the different species and varieties we can only conjecture, as so far the crossing appears to have been more or less a matter of chance, through the

the ends of the stiffer branches. *B. Pratii* differs in having a round rather than an oval-shaped fruit. *B. Wilsonae* is dwarf in habit compared to those previously named. It is seen to the best advantage planted on a sloping sunny bank or hanging over boulders in the rock garden. As previously mentioned, the best forms of the Common Barberry, *B. vulgaris*, make gloriously beautiful fruiting bushes.

One of the new Chinese species, *B. Francis Ferdinandii*, is not unlike our Common Barberry in growth and fruit, producing quantities of bright red berries along the vigorous growths. *B. Beaniana* (Fig. 141) with slender branches and dark fruits, is also worthy of note.

When planting *Berberis* with the idea of obtaining a wealth of fruits sunny positions must be chosen to ripen the wood and develop the brilliantly beautiful colour of the fruits.

COTONEASTER HORIZONTALIS VARIEGATA.

ONE of the most noteworthy additions that have been made to the *Cotoneaster* group for some years is the variegated form of *C. horizontalis*, which comes from a French nursery. This variety is similar to the type in habit of growth, fruiting, and all other respects save the colour of the foliage, the green of which is clearly and



FIG. 141.—*BERBERIS BEANIANA*.

the pruning and training of the trees until the spring. The main point to be observed when pruning young trees is to select the best-placed shoots to form a well-balanced specimen.

Gooseberries.—If not done already, complete the thinning and pruning of these fruits. Gooseberry bushes should be well thinned, removing annually a few of the oldest and worst placed shoots, especially if the heads are crowded with branches. In dealing with these fruits it has been my practice for some years past to remove and thin the bushes soon after the fruits have been harvested, and, later, when the leaves have fallen, to complete the pruning. Spur back all young shoots in the centre of the bush to within a couple or three buds, and leave all short and sturdy fruit-bearing shoots their full length. Long shoots may be shortened to about two-thirds their length. The main points to be observed are to keep the heads well thinned, evenly balanced, and furnished with plenty of young, fruitful shoots. Dust the bushes freely with soot, lime, and wood ash occasionally, and fasten a few strands of black cotton at intervals over the bushes and others about 2 feet above the heads to prevent birds destroying the buds. This should be done early where birds are troublesome and destructive, as neglect in this respect may mean the loss of almost every bud.

Black Currants.—Thin the branches well, feed the roots, and top dress the latter with rich material on light, shallow land. The Black Currant thrives best in a deep, mellow, cool soil. Keep the bushes well furnished with young, healthy growths, but not too thickly.

action of insects and, or, wind pollinating flowers of *B. polyantha*, *B. Wilsonae*, and *B. subcaulalata* growing in close proximity.

Unlike some hybrids which either fail to produce seeds or comparatively few, the Wisley hybrid *Berberises* may be raised freely from seeds. We cannot hope, however, that there will be more than a very small percentage of seedlings equal in beauty to *Lady Beatrice Stanley* or *The Sparkler*. To reproduce these true they must be propagated by means of cuttings or layers. At first sight this may not appear an easy matter, but when we remember that the hundreds of thousands of *Berberis stenophylla* bushes in our gardens have all been grown from a chance seedling which appeared in a nursery near Sheffield about 1860, we may assume that propagators will soon get to work on the vegetative increase of the best fruiting kinds.

Five hybrid Barberries, excluding the one illustrated in the issue of November 11, have already been named. To complete a list of the best twelve fruiting Barberries for our pleasure grounds and shrubbery borders the following species are desirable:—

B. subcaulalata, a Chinese Barberry with angled branchlets and vigorous, arching growths laden with carmine-red fruits with a slight bloom. *B. polyantha*, the species with the longest and widest panicle of fruits yet seen among the species, these hanging like bunches of small salmon-red Grapes (see Fig. 105). *B. aggregata*, which belongs to the same group as the last named, but does not grow so tall, with fruits borne in smaller panicles towards

very strikingly variegated with white. So far *C. h. variegata* has not proved to be quite so vigorous as the common form with us, nor so easy to strike from cuttings; but it is, nevertheless, a good and steady grower almost anywhere, and one that will be most welcome in rock-gardens, where a grey effect is desired. Admirable as it is in spring when the leaves are developing, and throughout the summer fruiting period, *C. h. variegata* is, I think, most delightful in November when its foliage becomes suffused with the rich tints common to the type. But instead of the leaves changing to crimson, their green parts assume a mauve hue, which strikes an uncommon note of colour in conjunction with the white, which deepens to ivory.

CELASTRUS ARTICULATUS.

ALTHOUGH seeds of this vigorous climber were first sent to Kew by Professor Sargent so long ago as 1870, *Celastrus articulatus* is comparatively little grown. This is surprising, for when the leaves turn a rich golden yellow in autumn previous to falling, and the yellow capsules open to reveal the scarlet-coated seeds, it forms an object of considerable beauty. Though thriving best in deeply dug garden ground, this latter is by no means essential, for the shrub does quite well in a shrubbery border, with vigorous growing bushes or trees around up which the strong, vigorous shoots can twine. Just now (early December) a specimen on the Flag-staff Mound at Kew, twining up a Lime tree to a height of 25 feet, is resplendent with hundreds of open yellow capsules, showing the scarlet-coated seeds within. A. O.

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MR. KINGDON WARD'S SEVENTH EXPEDITION IN ASIA.*

NO. IV.—ON TO YÜNG-NING.

AFTER spending a week in Lichiang, we started northwards on April 9, travelling up through the great loop of the Yang-tze. I had sent out my collectors from the city, more with a view to see what was in flower than with the expectation of finding plants I wanted; for I was on classic ground. They returned with three Rhododendrons and two Primulas in flower, all familiar, besides a few shrubs; it was early for flowers yet, they reported. Still, we had a long journey before us, so we started.

For the first two days we marched at the foot of the snowy range, crossing spur after spur; spiteful gusts of wind whistled through the rocks. They tore rain from the fringes of the cloud wrack which muffled the Lichiang range, and flung it rudely in our faces. Even the proud Pines bent to the onslaught. Winter and spring succeeded one another abruptly.

In the dry limestone ditches Primula Forrestii was a wonderful sight, gilding the banks; but we soon lost it. Like all the members of the Suffruticosa group, it seems to have a very restricted area of distribution, though abundant within that area.

We crossed a bleak, brown meadow surrounded by Pine forest—a marsh during the rainy season, evidently. Not a blade of green, nor a flower was in sight; only the melancholy-looking Conifer forest stretching up to the white slopes of the Lichiang range. Yes, one! Here and there the brown was dotted with the mealy purple heads of Primula sphaerophala. Then, descending to one of the glacier torrents, we found protection from the wind, and all was changed again. The Larch trees were tipped with emerald green, and a sea of foliage, coppery red for Poplar and Apple-green for Willow, splashed with waves of milk-white Azalea, appeared. The afternoon sunlight danced in and out amongst the trembling leaves.

The next sight was Primula sonchifolia just coming into flower; not one of the best forms, though. It seems to enjoy life most when growing at about 12,000 feet, in the trickle from lingering snow, in deep shade, of course. Alas! that all attempts to introduce this plant should have failed. In nature, the ripened seeds are never dry until the winter snow covers them; then they may be—unless they have already germinated towards the end of the rainy season.

Whether it is that the seeds have no vitality, or that they are short-lived, or that they cannot withstand being dried—and, of course, they can hardly be expected to survive a journey through the tropics while still damp—the fact remains that all attempts to raise plants from seed in England have failed so far. Farrer and Cox sent home from Burma resting plants; for the plant forms a sort of Brussels Sprout in winter. What the out-

come of this bold experiment was I do not know. However, be the difficulties what they may, they will doubtless be overcome some day.

In the forest, on sheltered slopes, the big silver-leaved Rhododendron (*R. argenteum*?), of which I had collected seed the previous year (K.W. 4995) was now in full bloom. The flowers are very fine, blush pink, frosted inside, each with a single purple spot at the base, like a drop of Plum juice; the trusses are large, and fairly loose. The species grows on limestone slopes buried under forest; but I suppose I ought not to say that. It is a well-known fact that Rhododendrons do not grow on limestone—except in Yunnan!

Now we began to diverge from the Lichiang range, which, trending west of north, is cut through by the north-flowing limb of the Yang-tze; our road lay east of north, within the river loop, which now closely invested us on three sides.

Pine forest succeeded Pine forest, for we were not very high up, generally between 9,000 feet and 10,000 feet, with passes up to 11,000 feet. On April 12 we crossed a marsh full of a beautiful Lavender blue, dwarf Rhododendron which was just coming into flower. This is not the same as my "Lavender dwarf" of 1921 (K.W. 4184), also a peat bog plant, but growing several thousand feet higher. It differs from the latter in foliage, indumentum, and length of style.

On the dry, Pine-clad slopes Rhododendron racemosum was everywhere abundant. It is a most variable plant, but the varieties all fall into two groups: (1) Dwarfed under-shrubs, the inflorescence condensed. The axillary flower buds are massed under the terminal bud, so that, though the truss carries only three flowers, the effect is that of a large truss. Found on open slopes. (2) Tall, slender shrubs, 8-10 feet high, in shady situations. There is only the terminal flower bud to begin with, the axillary flower buds either aborting altogether or opening later. Truss three-flowered; flowers loose or nodding, having ample room for expansion.

Other shrubs in flower included a leafless Lonicera with dull purple flowers, which, though rather twiggy and awkward, is pretty when the leaves come out and the dangling scarlet berries are ripe; and a common Daphne.

On April 14 we crossed some high plateau country where many Rhododendrons flourished; but there was no sign of spring here yet, and, in fact, they all drooped their foliage dejectedly, as though it were mid-winter. After a long march we began the long descent towards the arid Yang-tze gorge, and reached a village after dark.

The only thing of note found on the scorched slopes of the Yang-tze was a hairless form of Primula malacoides, which may, indeed, prove sufficiently distinctive to be called something else. It grew in the long grass fringing the irrigation channels, on the cultivated terraces of Feng-kou. This may be the same plant that I found in the gorge of the Sho-lo river last year, in seed (K.W. 4232), but I collected more seed here.

There were several bushes on the rocks above the river, a lemon-yellow-flowered Acacia, and a bleary-flowered Acanthad, a Rose, a Bauhinia, and other stiff, thorny shrubs. But only in the villages were there trees—beautiful weeping Willows and shady Walnut trees.

Even thus early in the year, the heat at the bottom of the gorge was most exhausting. We camped the night on a sandbank, the ferry-boat not being in condition; in short, it leaked, and they were patching it up. We crossed on the following day, and it took nearly the whole day, the boat being so small that only two mules could be taken across each trip. The river being very low and the water quite tranquil, the passage itself was a simple affair and presented no thrills.

On April 17 we began the ascent of the range which separates the Yang-tze from the Yung-ning basin.

There are peaks on this range, in the immediate neighbourhood of Yung-ning, of over 14,000 feet, but the passes are 2,000 feet lower and present no difficulty.

We reached the summit of the divide after nightfall, and camped there. In the forest—chiefly Picea, Rhododendron, and Bamboo—there was nothing new in flower.

On April 18, ten days after leaving Lichiang, we descended to the small mountain-girt plain of Yung-ning. It burst into view quite suddenly as we cleared the forest—the cultivated, octopus-shaped plain, still brown and bleak; the Lion Rock, which looks very much like Gibraltar; the conical-shaped hill above the Monastery, and over the ridge a glimpse of the sapphire lake.

Early in the afternoon we reached the monastery and settled down to work. F. Kingdon Ward.

"A COMPENDIOUS HERBAL."

It could almost safely be asserted that the above-named Herbal is not mentioned in the book criticised on page 324. It is obviously the "puff" of a seventeenth century empiric and as a Herbal has very little to recommend it. The entire title page reads:—*A Compendious Herbal, Discovering the Physical Vertues of all Herbs in this Kingdome, and what Planet Rules each Herb. And how to gather them in their Planetary Hours.* By John Archer. London, Printed by E. C. for the Author, 1673.

In a brief address to the "good reader" it appears that Archer wrote also a book called *Every Man His Own Doctor*. The "Directions for the Gathering of Herbs" is included in part of two pages, in which the uninitiated are informed that "every Planet governs the first Hour after Sun Rise" on the day assigned to it. "And if you gather herbs in their Planetary Hour, you may expect to do Wonders, otherwise not."

As a brief Herbal, it is a very long way inferior to Culpeper's, though arranged similarly. In glancing through its pages such notes as these are found: "Beanes ought to be eaten with Fat Meat or Butter"; "French Beanes are very profitably eaten green in the Husk, as the manner is boyled"; "The leaves of the Beech Tree are good to be applied to hot swellings," and the Birch Tree "is a very good Water for a Sore Mouth or Throat; the Coal of the green Wood beat to Powder stops Blood presently." Of Garlic the use is said to be dangerous to the Brain. Clove-Gilliflowers on the contrary "strengthen both Brain and Heart and is one of the most approved Flowers in our Garden." Nettles were greatly esteemed for the "tender tops in spring boiled in broth" and for the cure of many diseases, while Onions, as now, were "very attractive and drawing the Corruption of any thing to itself; being bruised and applied."

These examples may suffice to show the quality of the instructions given. The reason for production of the little volume is, however, only discovered when the Herbal portion ends, three leaves being appended, one to commend an Elixir Proprietary, "being the Quintessence of the best of Vegetables . . . esteemed as the greatest Cordial Preserver of the Body from Corruption, and the best Antidote against Diseases of all kind, and Infection, and if any Medicine may be said to be universally good for all Persons, Constitutions and Diseases it is this . . . It cures all Agues or Feavers, quartan, tertian or quotidian; also all astmahs, Palsies, Convulsions. Falling Sickness, Consumptions of the Lungs, all decays in the vital and noble Parts"—and so on to an extensive and varied list of diseases, and concludes with the information that the preparation is to be had "at the Rate of five shillings the Ounce. From my House in Winchester Street, being the sign of the Golden Ball near Broad Street, London."

The other two leaves refer the reader to "three experiments," first "a Hot Bath by Steam, most delightful and powerful in cure of most Diseases." Secondly, a "New invented Oven which doth bake, distill and boil a Pot or stew all with the same charge of fire and is moveable." The third, "a compleat Chariot capable of being moved by one Horse as easily as other Chariots by two Horses." Another leaf is occupied by verses in praise of this invention. R. P. Brotherhood.

* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 23, August 20, September 3, October 8, October 29, 1921; January 7, January 21, March 11, March 25, April 8, April 22, May 6, May 20, June 3, June 17, July 1, July 15, July 22, August 5, August 26, September 9, September 23, October 7, October 21, November 4, November 18, and December 2, 1922.

KEITHIA ON THUYA PLICATA.

In 1918 and 1919 the occurrence of *Keithia* thujina on *Thuya plicata* was recorded more or less generally throughout Ireland, specially bad attacks being noted on seedbeds in Queen's County and Wexford, and on older plants in various parts of the country. Strange to say, the only case reported in Great Britain was apparently at Leonardslee, where the late Sir Gerald Loder found it attacking a plantation in the spring of 1919, the trees at that time being nine years planted. The fatal effect of the disease on seedbeds and young plantations gave rise to considerable anxiety lest it should prove a menace to the cultivation of *Thuya* in Ireland, where on certain soils and situations this species has proved of economic value.

Since 1918, therefore, the occurrence of *Keithia* has been carefully watched, and it is satisfactory to note that the disease has not only ceased to spread to any serious extent on old trees, but numbers of young plants badly affected in 1918 and 1919 show partial or complete recovery. Seedlings and transplants which showed signs of disease were, of course, destroyed more or less generally in these years, and no means exists of proving their powers of recovery.

One experiment, however, which was tried in Co. Wexford, throws some light on this question, where a number of affected plants were purposely retained and planted out in the spring of 1920. These plants were four years old, and as badly affected as trees of that age could be without actually being killed. Before moving them from the nursery the plants were sprayed with copper sulphate, and then planted on a low-lying piece of ground in a moist situation, and in the type of soil in which this tree succeeds best. During the summers of 1921 and 1922 these trees have gradually regained a healthy appearance, although traces of the disease still exist; but unless the latter reasserts itself there is every reason to believe they will develop in a normal manner.

A similar improvement during the last two years has been noticed on affected trees generally throughout Ireland, chiefly on those which had been attacked when about eight or ten years of age. Weakly or thickly shaded individuals have usually succumbed, but strong plants or those exposed to the light are now growing at their usual rate, and the disease is apparently no longer affecting their vigour.

The explanation of the 1918-20 attack of *Keithia* is more or less a mystery. As already noted, in the autumn of 1920 the disease appeared simultaneously in widely separated districts, and without any possibility of transmission by artificial agency. If it existed previously in a mild and unnoticed form its sudden virulence in a particular year, and in different districts in which climate and soil conditions vary greatly, is equally difficult to explain. One thing is quite evident, and that is the serious nature of the disease to nursery stock, and probably seedbeds and young transplants should be periodically sprayed as a precaution against attack. If this is done, we may possibly be able to continue growing this species without serious risk.

Another way in which disease may be kept in check is by sowing the seed sufficiently thin to prevent overcrowding in the beds. *Thuya* seed is produced in such abundance on home grown trees, and is so light in weight, that the tendency is always to sow thickly, on the assumption that a large proportion of the seed consists of scales or infertile material. The result of this is that seedlings often come up so thickly that the individual plants have not room to develop, and the lower branches and leaves are continually in a moist condition.

Seedlings standing thinly in the beds are not only usually free from disease, but are more robust and better rooted than crowded plants, and better able to resist attacks of *Keithia* should they occur.

Nurseries in which the disease has appeared should not be used for raising seedlings for several years, after which probably the ground has again become sterilised as regards this particular organism. *A. C. Miles, Rathdrum.*

THE ALPINE GARDEN.

LITHOSPERMUM PROSTRATUM.

ONE would like to get at the truth as to the cultural requirements of this beautiful plant. There is a widespread belief that it dislikes lime in the soil, but early in October of this year, at Oxted, in Surrey, I found it growing in great vigour and flowering profusely in a mixture consisting of one part of lime refuse

a spade in August, to cut off the roots and reduce its feeding capacity, but all to no purpose. I also exchanged a specimen of my plant for one from the Edinburgh Botanical Gardens, but whilst the plant I sent to Edinburgh flowered, the one I received in exchange simply grew and grew and seems to me to be better adapted for cattle feeding than garden decoration! I wonder if any of your readers found it thus with them, and if so have they found a cure? My gardens are in Renfrewshire, a district fairly wet and not too liberally supplied with sunshine. *Formakin.*

PLANTS NEW OR NOTEWORTHY.

JASMINUM REX.

THIS distinct *Jasminum* from Siam (Fig. 142) occupies the first plate, t. 8934, in the recently issued volume 148 of the *Bot. Mag.* *Jasminum rex* was first discovered by Mr. Henry James



FIG. 142. *JASMINUM REX*; LIFE SIZE; FLOWERS PURE WHITE.

to two parts of loam. Again there is a question as to whether it wants full sun or, as many believe, that it grows best in partial shade, and yet in another garden in Oxted, at the same time of the year, I found many plants growing magnificently on a retaining wall facing full south. In the latter position it was not only flowering but seeding freely, and I have in a pot a number of seedlings raised from seed then collected. *Wm. Somerville.*

GENTIANA SINO-ORNATA.

I WAS much interested in the article on *Gentiana sino-ornata*, in your issue of the 25th ult., as also in the illustration of the plant bearing such profusion of bloom. I have possessed this charming little Alpine for quite a number of years now, having been presented with a specimen from the Edinburgh Botanic Gardens shortly after its introduction, but do as I will, I cannot get it to flower. It grows most luxuriantly, and makes large tufts and, though I have tried it in sunshine and shade, dampness and drought, in peat, leaf-mould, loam, sand, lime, ashes and every conceivable soil and situation, it absolutely refuses to flower with me. I have also chopped round the plant with

Murton, an old Kewite, who was gardener to the King of Siam from 1830-1882. The Herbarium specimen at Kew is dated "February 1882, Kao Soy Whow, 7,000 feet," Chantabun being his headquarters at that date. It is only, however, so recently as 1921 that a living plant in a Warden case was received at Kew from Mr. F. S. Sanitwongse, Bangkok, Siam. This gentleman describes it as a most beautiful climber on a pergola in his garden at Bangkok.

In a stove or warm, moist greenhouse, growing in a pot, *Jasminum rex* does not appear at present to be a rampant climber. Rather does it suggest a plant for training balloon fashion. The leaves are broadly oblong up to 4 inches long by 2½ inches wide, dark green above, paler beneath. The pure white flowers are borne in drooping cymes of two to four flowers, and are 1 inch to 1½ inch across, with a peduncle about ¾ inch long. Most of the flowers are eight-lobed, rarely seven or nine-lobed, though, curiously enough, in the spray figured, both a seven and a nine-lobed flower are represented. The name *rex* or "king" fittingly denotes the size and purity of the flower, and the only regret is that the blooms lack fragrance. *A. O.*

EXHIBITING DAHLIAS.

(Concluded from page 340.)

As the selected bud grows, and reaches the stage of showing colour, the anxiety of the exhibitor increases. Earwigs and caterpillars are ready to damage the bud by eating all round the tips of the florets or boring holes into the bud, thus rendering the flower useless for exhibiting. Many remedies have been, and are, tried, with varying success, such as bagging the bud, the bag being made of soft muslin, or other similar material. This is well up to a certain point, but if the bud is kept too long in the bag the shape of the bloom is spoiled, as the petals become fluted and hug one another. In the case of show flowers, white Cactus Dahlias are likely to have the tips of the florets broken by dew settling on the muslin bag, or by rain. Another plan is to put a box round the buds and put a glass top on the box; this is to draw up the bud or flower, and is an everlasting nuisance that would deter many folk from exhibiting. A simpler and better way is first to tie the bud to a stick to prevent damage from wind (and we generally get wind about show time), then get a sheet of good cotton wool, pull out the fleecy part, and tie it loosely around the stalk of the bud, say about 6 inches down; it must not be tied so tightly as to stop the flow of sap or to cause a wound. Earwigs and caterpillars do not like cotton wool, as it impedes their progress towards the bud or flower. This is an easy, lasting, and cheap method of protection, and one that has been practised by exhibitors for many years. Moreover, it will not cause disfigurement as a box or bag does. Another method, though not so often practised, is to get a piece of good rubber, melt it over a lamp or candle, and let the liquid drop into a little vessel; when so melted, it will be like treacle and will continue soft. When it is cold daub a little on the stem of the bud, about the same distance as recommended for cotton wool, and it will remain sticky for a long time. Insects cannot crawl over it, and there is no need to remove it, or the cotton wool, until the bloom is cut. Flowers grown in the open are more natural and beautiful than those grown under the artificial methods some growers adopt.

It will often be found necessary to shade the flowers to protect them from strong sunshine, or to retard them; but when shading is practised the material used should be tied securely to a stake, otherwise the wind will blow it about and damage the bloom. Shades may be made or purchased; but, as a rule, exhibitors do not consider the cost so much as the production of good blooms. Very often blooms of the best quality are shown by those who do not use special protectors, but simply give their flowers consistent care and attention.

The smaller varieties need no shading or protection; they produce their blooms so freely that if some are spoiled it is not an important matter; but the adoption of the same methods as advised for the larger flowers would be safer, especially for a very small exhibitor.

Some folks have an idea that a Dahlia plant should be defoliated and otherwise mutilated, or exhibition blooms cannot be produced. I am repeatedly asked whether the leaves should be cut off, or the plants be reduced to one stem; all this is nonsense, and where the idea came from is a mystery. If common sense is applied to the growth of the Dahlia, and after the exhibitions are over the plants are "let go," they will produce a large number of flowers suitable for cutting or remain in the garden as decorative subjects.

We need hardly wonder that the Dahlia has been banished from many gardens; flower-pots set on stakes to catch earwigs are not beautiful, and at times a real nuisance. Dahlia plants with many stems grown from old stools are frequently neglected, or all the growths are tied together like a faggot! Rightly grown a Dahlia plant should be a beautiful object and worthy of a place in any garden, producing grand

flowers for exhibition or for decorative purposes; and a grower will learn in a very short time that some of the best exhibition sorts are also the best for decoration in the garden and in the home.

I hope that a better idea of the usefulness of the Dahlia for all purposes may be the result of the forward policy of the National Dahlia Society.

Whatever section of the flower is grown for exhibition, extreme care must be taken in cutting the blooms. Cut those flowers that will improve rather than "go off." A weak eye or centre will cause loss on the exhibition table, as the "eye" is the first thing the judge looks at. If the centre is weak, with the florets showing signs of drooping, however large the bloom may be, the chance of winning a first prize is reduced to a minimum; younger and fresher blooms are always given the preference, at any rate by a competent judge. Exhibitors should endeavour to set up their blooms apart from other exhibitors; for it is easy to make mistakes, and there is the danger of an exhibitor getting into a discussion concerning the name or quality of a flower and so on, and thus time is wasted, and the judges are ready to do their work before the exhibitor is ready. The exhibitor gets flurried, bad staging is the result, and prizes are awarded elsewhere. Exhibiting is like everything else that is worth doing: it must be done well. On the morning of the exhibition it is a good plan to mind one's own business first and compare notes afterwards, if time permits. The display of Dahlias, as with all other flowers, is subject to varying tastes. Some exhibitors use small, and others large, vases, some prefer stands and other wired frames; still others show their blooms on boards, but whichever plan is adopted, let each flower show off its individual beauty. If on boards, let every bloom stand well up and without touching the board. The blooms may be shown in vases with long stems, and not held up or supported by anything, such as Berberis or other hardy foliage. If the latter is used, let it be the garnishing, not the chief item, as flowers can now be shown quite free of all extraneous foliage and yet support themselves.

The object of this paper is to persuade the smaller grower to exhibit his flowers in as practical a manner as possible. Prizes may come at the first effort or they may not; it is certain they will come if he keeps on trying. Our Society needs the support of small exhibitors. At one time in its history it was not an uncommon thing to see sixteen or eighteen small growers showing in one class; to-day one rarely sees more than three. Competition is needed in everything if the best is to be obtained, and the Dahlia will continue to improve if everyone does his best to secure plenty of new members—some for sympathy, but many more as exhibiting members. The trade growers are quite able to look after themselves as regards exhibiting, and they will gladly advise the smaller growers if asked to do so, as will all workers on behalf of the National Dahlia Society.

INDOOR PLANTS.

LEPTOSYNE STILLMANII.

This is one of the quickest flowering annuals in cultivation. Its yellow flowers are used for decorations, as they last well when cut, but the use of the plant as a pot specimen is not so well known.

Make a sowing in January, placing the seed pan in a house having a temperature of 50°. Prick out the plants when they are about half an inch high, into 3-inch pots, placing about five plants in each receptacle. As soon as the pots are filled with roots, transfer them to pots 4½ inches in diameter, using nearly all loam and sand, and a very free drainage.

As much air as possible should be admitted, and the plants grown near the roof-glass. Do not over-water them, and if artificial manure is used it must be given in very small doses. Keep the dead flowers picked off, and the plants will continue blooming for some considerable time. J.

ORCHID NOTES AND GLEANINGS.

ABNORMAL CYPRIPEDIUMS.

SEVERAL cases of abnormal flowers of *Cypripedium* have appeared this season. The departure from the regular form is due largely to the very complicated ancestry of the plants, and the excessive vigour now in many cases imparted by high cultivation. The changes are of two kinds, those with regular arrangement of the misplaced segments, such as the dividing and spreading laterally of the lower sepals, which usually retain their normal greenish colour on the lower sides, while the upper ones are enlarged and coloured like the dorsal sepal; and those which have mainly diverted and twisted organs, in which the parts are confused, and in some of which parts of two flowers appear in one abnormal head. Those of the first, with regular features, have enhanced floral beauty, and, fortunately, are tolerably constant; but those of the latter, while being highly interesting, are not desirable except as curiosities.

Harold Wigan, Esq., Belmont Park, Bedhampton, showed at the meeting of the Royal Horticultural Society on the 28th ult. a specially interesting specimen in which the bract of the flower was normal and spotted with purple in the usual way, but from the apex was continued a true green leaf about 3 inches in length—a foliaceous bract, but with the parts distinct. One petal was normal, and the other incorporated in the sepals, which also bore spotting obtained from the malformed dorsal sepal. The lip was perfect on one side, but the other resembled a crumpled lower sepal.

Messrs. Sanders, St. Albans, have sent us two flowers of the *C. Pyramus* class, one of which is very showy. In the regular position there are three dorsal sepals, all white, heavily blotched with claret-red. The petals also are of the usual shape, but the lip and staminode very much distorted. The other flower has all the segments abnormal, the dorsal sepal being reduced in size by the part which has joined a lower sepal.

CYPRIPEDIUM ONON.

A FLOWER of a new hybrid raised between *Cypripedium* Lord Ossulston (*Charlesworthii* album × *Leeanum virginalis*) and *C. Psycho* (*bellatulum* × *niveum*) is sent by Mr. J. T. Barker, gardener to the Duke of Marlborough, Blenheim, Woodstock, Oxfordshire. The dorsal sepal is like that of *C. Charlesworthii* album, white with dark purple band, and some thin rose lines at the base. The petals are broad and curved slightly. They are cream-white, with feathered mauve lines. The short lip is coloured like the petal externally, but the infolded side lobes are white. The column and staminode are white, with a ruby-red blotch.

CATTLEYA JULES SERRU.

MESSRS. SANDERS send a grand flower of this showy hybrid raised in their Bruges' establishment between *C. Warszewiczii* Sanderiana and *C. Dietrichiana*, and named after their clever Orchid grower at Bruges, M. Jules Serru, who thinks it is the finest of the large-flowered Cattleyas yet raised there. The flower measures 7 inches across the extended petals, which are over 3 inches in width, and of bright mauve colour with dark veining. The lip, which is 4 inches across and well displayed, is crimped at the margin and slightly fringed; its colour is intense violet purple, the base of the tube being apricot yellow with fine gold lines.

BRASSO-LAELIO-CATTLEYA LEMONIANA.

THIS fine novelty, which was raised by Messrs. Flory and Black, Slough, between *B.-L.-C. The Baroness* (B.-C. Mrs. J. Leemann × *L.-C. Ophir*) and *Cattleya Schröderae* alba, continues the handsome set of which the collection of Baron Schröder has always held special interest. The flower has the main features of *B.-L.-C. The Baroness*, but enlarged and made more *Cattleya*-like by the introduction of the white form of *C. Schröderae*. The sepals and broad, crimped petals are cream-white, and the fine labellum at the fringed margin cream-white, the base and middle area being orange colour, changing to lemon yellow towards the margin.

* A paper read by Mr. J. T. West, Brentwood, at the Dahlia Conference, held at the Royal Horticultural Hall, Westminster, on October 17.

HARDY FLOWER BORDER.

ANOMATHECA CRUENTA.

LOOKING back upon the flowers which I have seen during the past season, I have been impressed by the infrequency with which the bright little Irid, known as *Anomatheca cruenta*, has come under my notice. It seems, indeed, as if but few are acquainted with its beauty, and this is, I think, especially true of the many amateurs who own town and suburban gardens. These have comparatively infrequent opportunities of seeing such flowers. Were they acquainted with this bright little Cape bulbous plant they would, I feel sure, cultivate it to their great gain. Much of the neglect it is at present experiencing is, no doubt, due to the fact that it is not absolutely hardy, except in the warmer parts of the kingdom, and, although it has been in past days recommended for even more districts than I should feel justified in doing, it has not justified the optimistic advice to plant it more largely as a permanent occupant of the hardy flower border.

Apart from the warmer districts, such as the south of England and Ireland, and favoured places along the coast line further north, it is advisable to treat it as a half-hardy bulb, planting it in March, and lifting the bulb when the foliage is ripe.

In the warmer parts, grown in well-drained, sandy soil, it is hardy and increases rapidly, so that in a year or two the clumps may be divided; while in some places where it ripens its seeds well, these may germinate even in the open; but it is more prudent to save them and to sow them in pots or pans when ripe.

I have seen some charming, informal groups of the plant in borders, where this *Anomatheca* is hardy and seeds well. Coming up among other and dwarfier herbage, the brilliant carmine-crimson flowers on short spikes gave a most delightful effect for a long time in summer and autumn. In this connection it is well to mention that this flower looks better in the shade than in the sunlight, so that it may with advantage be planted in a position shaded from the sun at a time of the day when the garden is most frequented.

I am anxious that the *Anomatheca* should become once more a favourite, and I am confident that those who know it best will not think that I am according it too high praise. It varies in height from about 6 to 12 inches, according to the nature of the soil and other conditions. The depth at which to plant may vary with the nature of the soil. In a light compost about 3 inches would be a suitable depth; in heavier soil a depth of 2 inches will be ample, but if intended for permanent planting it is well to have the bulbs not less than 3 inches below the surface. In addition to the typical carmine-crimson *Anomatheca*, there is a rare white variety; this possesses the coloured spot at the base, which, in a deeper form, adds distinction to the type. A rose-pink *Anomatheca*, named *A. juncea*, is recorded, but I do not think this species is in commerce.

ARABIS LUCIDA VARIEGATA.

It is possible to visit many gardens without finding the old *Arabis lucida variegata*, which, at one time, was much employed as edging or as a carpet bedder in conjunction with other plants of distinctive foliage. Now it is but rarely cultivated at all, and is becoming far from plentiful even in nurseries. In this respect it has shared the fate of many plants with variegated leaves, which are not so popular as they were at one time. Personally, I do not care much for *Arabis lucida variegata*, but there are some who may be in want of such a plant, and who may care to know something about it. It is excellent in its way for edging borders or beds, as it makes good rosettes of shining, longish leaves, distinctly edged with gold or silver, the former, I think, being more plentiful than the latter. It does not like a hot, dry soil, and I know one good garden in which it was employed rather largely along the edges of some formal beds, and where the surplus, after annual division and replanting, was disposed of to English nurseries in exchange

for other plants. In the south, this *Arabis* does not thrive so well as in the cooler north. It seems to prefer a fairly heavy and rich soil. It needs to be divided annually, and the offsets planted separately, to form larger rosettes for another year. Its variegation is more pronounced and the plant is much better adapted for its purpose as a variegated edging subject, if the flowers are pinched out as soon as they can be seen in the heart of the plant. The blooms are worthless from a garden standpoint. Annual division is desirable, as has been suggested, and any plants which show a tendency to revert to the normal green leaves should be discarded. *S. Arnott.*

THE BULB GARDEN.

IXIA AND SPARAXIS.

THE *Ixia* is a native of the Cape; it has a small corn and is a member of the Iris family. The plant abounds so freely in its native land



FIG. 143.—SPARAXIS FIRE KING.

as to constitute much of the herbage, and it is commonly known as the African Corn Lily. The flowers are of various colours, red, white, yellow, and, strange to say, green, and when the sun shines on them, and the blooms open wide, a gorgeous picture is revealed. The height is about 12 inches, and it is surprising that such a small corn is capable of producing a large spike of bloom. The roots are cheap, and for a trial one hundred or fifty of the mixed varieties might be planted at a cost of about 5s. per hundred.

The name of *Sparaxis*—also from the Cape—is derived from "sparasso," to tear, because of the torn appearance of the spathes. These also have flowers of white, yellow, and red colours, and they are not more than 6 inches in height; but, perhaps, equally as beautiful as the Corn Lily.

Both need practically the same cultivation. They are not quite hardy, but will bear a little frost. As they start into growth early, it is not wise to plant the corns until December or January. A light, sandy soil, fairly rich, in a dry, sunny situation, suits them, and the corns should be planted 3 inches deep and the same distance apart. Should all go well, a wealth of bloom may be expected in the early summer, and no buyer will regret investing in a few of these charming occupants of the garden.

Good varieties of the *Ixia* are Beauty of Norfolk, pale yellow; Emperor of China, deep yellow; Bucephalus, crimson; White Swan, white; and Viridiflora, green; whilst of the *Sparaxis*, Scarlet Gem and Fire King (Fig. 143) are both excellent. *T. D. T.*

MARKET FRUIT GARDEN.

As compensation for a wet summer we have had a dry autumn. Only 1.76 in. of rain was measured during November at my place; and it would have been a very dry month indeed if there had not been a rather heavy shower on the last day. The land is now drier than it usually is at this time of year, and wells are low. It is clear that the wet summer was hardly enough to make up for the drought of 1921.

CONDITION OF FRUIT TREES.

In some ways fruit trees have not behaved as one might expect in a wet season. They have not made a lot of growth. Newly-planted trees, in some cases, have almost stood still. This is probably because May and June were dry months. Fruit trees make their most active growth from the middle of May to the middle of June; and the extent of it depends partly on moisture stored in the soil during the previous winter, but also on the rainfall of April and May. We had a wet April, it is true, but the moisture did not penetrate far; and a dry May followed. July, August and September were months with over-average rainfall; but that came after the most active growing period, and would not have much influence on the wood growth of this year.

It seems to me that the weather of one year influences the behaviour of fruit trees in the next more than we are apt to think. We evidently had to get a long way into 1922 before the trees fully recovered from the severe drought of 1921. It seems quite possible that we may next year see the result of the rainfall of the recent summer. Although it came too late to force growth this season, it was probably the reason of the leaves hanging on late, which is always a good sign, and of the well-budded appearance of the trees now. Prominent fruit buds in autumn are likely to give strong bloom in spring.

On the whole, orchard trees are looking very well at present. There is not much scab on the young shoots of Apples, and less dead or diseased wood to be cut out of Plums than usual. Plums have made more growth than Apples, in spite of their heavy crop.

END OF APPLE SALES.

I have finished selling Apples for this year, but have stored all the late cooking fruit that is sound enough to keep. This will probably realise considerably higher prices in February. Prices generally drop during late November and early December, owing to the heavy supplies of imported fruit. Fortunately, Apples promise to keep very well.

It has been one of the worst marketing seasons on record. Several causes have combined to bring this about. Cheerless summer weather and general scarcity of money spoil the demand for fruit, whilst supplies were heavy both from home and overseas growers. Bad trade in most other countries diverted to England more than her normal share of fruit from all over the world, so that imports were on an unusual scale. These are adverse conditions which will pass in the course of time. There is another factor which growers are almost unanimous in blaming as a potent cause of slow trade: our present system of distribution. This will remain unless organised efforts are made to bring about an improvement. It is to be hoped that the inquiry promised by the Ministry of Agriculture will prove to be the starting point. The problem will not be easy of solution, but it must be tackled for all that. No one can doubt that there is far too wide a margin between the price of fruit to the grower and the cost to the consumer. Between these two stand the railway company, the salesman, and the retailer. The inquiry should discover which of these, if any, is getting too big a share of the spoils.

Meanwhile, the grower will find his best remedy to lie in the improvement of the quality of his fruit and his packing. Never has a season shown more forcibly the importance of these matters. Good fruit well packed has sold fairly; poor or badly-graded fruit has been difficult to sell at any price. I have found

it best, this year, to send high-grade fruit only to certain markets, and dispose of the lower grades in a market recognised as having little appreciation of quality. The financial result of the year's work has been far more satisfactory than in 1921, largely because of better management of the marketing.

WINTER MANURING.

One of the first jobs to consider as soon as the fruit harvest is ended is the manuring of the plantations. As all my bearing trees received in August a mixture of fertilisers supplying nitrates, phosphates and potash, intended for feeding the fruit buds, I conclude that a bulky nitrogenous manure is all that is needed as a winter dressing, the object being to assist growth during the next season. Results of American investigations indicate that nitrates are the most important food for fruit trees; so I am trusting to the August dressing to supply enough of the other two foods, phosphate and potash. Slow-acting organic manures are generally preferred, and are certainly best on my light land, to improve its water-holding capacity. Only a very small amount of farmyard manure is obtainable locally, and town stable manure is dear when its poor quality is considered. The choice, therefore, rests between certain bulky organic manures. There are several of these, but only four or five of them are purely nitrogenous. These are dried blood, ground hoof, greaves, waste hair, and wool shoddy. Dried blood is more suitable as a spring than as an autumn dressing, being fairly quick-acting; and it is not bulky enough for my purpose. Ground hoof is freely used by growers, but it is such indestructible stuff that it must be very slow-acting indeed. Greaves, hair, and shoddy are materials of a very similar character, and the choice really depends on a comparison of the price of the unit of ammonia in each. Quotations made to me indicate shoddy as the cheapest at present. I have used this material with much satisfaction before, and have ordered it again.

Shoddy needs buying with care. The fairest method is at so much per unit of ammonia per ton, the vendor and purchaser sharing the analyst's fee. I do not want shoddy of too high quality. I would sooner apply two tons per acre of a 7 per cent. shoddy than one ton of shoddy showing double the percentage of ammonia, because it is easier to distribute the heavier dressing, and it supplies more organic matter. Then there is the mechanical condition to consider. This varies enormously. I have had shoddy moist and in large lumps, similar in appearance to farmyard manure. This was good stuff, but impossible to spread at a lower rate than three or four tons per acre, which makes an expensive dressing. A wool dust is preferred, as this is generally dry and quite easy to distribute at the rate of two tons per acre or less. It ought to be ploughed or dug in as soon as possible after application.

MANURING GRASS ORCHARDS.

I have one grass orchard which must be treated in a different way. Shoddy is unsuitable here, as it would be an endless time working its way in through the turf, if it ever did. The usual way of manuring a grass orchard is by grazing cake-fed stock on it. This is easy where the trees are standards, but mine have only 3 ft. stems. Pigs or sheep suggest themselves, but there is always the trouble of finding a different run for them when spraying is in progress; so I prefer to do without stock. Farmyard manure has generally been used in this grass orchard; but it seems to me that there is no need to go to the expense of an organic manure, considering that the grass is mown annually and allowed to rot on the surface. This must supply plenty of organic matter. Therefore, I am going to rely on mineral fertilisers. This orchard received the same complete mixture of bud-feeding artificials in August as the rest of the farm; so I consider that it needs only nitrates as a winter dressing. I shall give it 2 cwt. per acre of nitrate of soda in early spring, just before the flowers expand. *Market Grower.*

FORCING VEGETABLES.

GROWERS with sufficient houses and frames at their command should have no difficulty in producing choice vegetables much in advance of the ordinary outdoor crops. Fallen leaves, which are now plentiful, should be raked together and carted to the frame yard ready for making into hotbeds. The leaves mixed with long stable litter, form excellent material for the making of hotbeds for raising early crops in frames, and the quick growth made under these conditions is very tender and succulent.

The short and stump rooted varieties of Carrots, Turnips, Beets, and Radishes may all be forced in this way, and be available for use in the early months of the coming year. Two parts of leaves to one part of litter, well mixed two or three times, and built up into a solid bed, will promote a steady warmth for a long time after the excessive heat of early fermentation has declined. A bed ten feet wide and twenty feet long will accommodate two frames six feet by eight feet each, and allow two feet all round the outside for adding more fermenting material as required.

Larger beds may, if desired, be made to accommodate more frames; in fact, the larger the bed the longer will the warmth be maintained. After the material has been placed in position and well trodden, allow it to stand for a few days and then place the frames upon it. At the same time thrust a stick into the centre of the bed and examine it daily, and when the heat is seen to be on the decline fill the frames with the soil required. Place the lights in position and again leave the frame for a few days. The covering of soil will probably cause the temperature of the bed to rise again through conserving the heat. Therefore plunge the testing stick in again to ascertain when the warmth is suitable. Potatoes, provided suitable varieties are selected, may be forced with success under these conditions. The "seed" for this purpose should have been set up previously in boxes or trays, containing a little leaf-mould for them to stand in, and placed in a cool greenhouse to sprout.

Frames intended for forcing Potatoes should be half-filled with a compost consisting of one part good fibrous loam, well broken apart; one part leaf-mould and two parts old potting soil, such as that in which Chrysanthemums have been grown, with a liberal sprinkling of wood ash and a little soot ad-dled. As soon as the tubers have made sprouts about half an inch long, they should be planted in the frames about one foot apart, and covered with two or three inches of soil. Make the latter fairly firm, and do not water it until the Potatoes have commenced to grow, and not then if the weather should be very cold; there will be sufficient moisture from the hot-bed to satisfy the plants' wants for some time. A little air should be admitted to the frames in the daytime, but the lights should be closed early in the afternoons to conserve the warmth. In the event of severe, frosty weather, the frames should be well protected with mats, on the top, and by plenty of leaves and litter placed around the outside.

As the season advances and the weather becomes warmer, more air may be given, and if the soil requires watering use tepid water from the greenhouse tank. When the top growth is about six inches or so high, place a little more soil round the plants, and slightly lift the frames to allow the growth more head room.

Potatoes may also be forced in pots or boxes, placing three tubers in a ten-inch pot. The forcing may be done in a Peach house or viney. This method has one advantage; the receptacles may be removed to frames if the room is required, and from thence to the foot of a south wall, where they may be protected at night. Good crops may be had in this way, and the pots will be available when they are needed for growing Tomatoes or Chrysanthemums. Asparagus may also be forced

quite easily in frames on hotbeds, by employing much the same methods as for Potatoes, except that the crowns will not require so much soil on the surface, and this should be kept fairly well watered with tepid water. The flavour is not quite so good as of that grown outdoors, but, nevertheless, the heads are very acceptable at this early season. The crowns are not of much use after being forced. Suitable varieties of Turnips, Carrots and Beet may all be forwarded by sowing seeds in frames on a hotbed, drawing drills about six inches apart in a similar compost to that advised for Potatoes. The frames may be nearly filled for these, and two or three inches of sifted soil placed on the surface for the reception of the seeds. Sow thinly and water in, and then close the lights and shade from the light until the seeds have germinated, taking care to watch the temperature of the bed. Admit a little air to allow the ammonia from the manure to escape, and cover at night in the event of frost. Thin the seedlings out as soon as large enough to handle, and draw a little soil up to them to afford support. Syringe them with tepid water on bright afternoons, and close the frames to encourage quick growth; and as the plants gain strength admit more air to prevent them becoming drawn and weakly.

Young, forced roots of Carrots are particularly useful, and are always much appreciated, whilst round Beet is much in favour for the making of early salads.

Radishes may be grown very quickly in warm frames. Sow a few seeds at a time and not too thickly, so that the largest roots may be pulled and used, leaving room for the others to swell. There are many varieties which may be used for this purpose, and nearly all are good.

Lettuce is another crop which responds readily to forcing in frames, and especially the small Cabbage varieties. These may be obtained by sowing a pinch of seed in a warm house, pricking the seedlings out into boxes, and growing them on in a warm temperature until they have made two or three rough leaves, when they may be transferred to the frames and placed about six inches apart. Plant firmly, and well water the roots. Damp them overhead every afternoon, and keep the frame closed, for the roots must never be allowed to become dry. The plants will mature quickly. Fresh, young Lettuces are appreciated perhaps as much, if not more, than any other forced vegetable, and every effort should be made to produce them as early as possible. *R. W. Thatcher, Carlton Park Gardens, Market Harborough.*

HOME CORRESPONDENCE.

The Late Sir Isaac Bayley-Balfour.—Sir Isaac Bayley-Balfour was more than a great botanist, for he excelled in practical knowledge of plants and their ways, their cultivation and propagation. He was, too, an admirable administrator endowed with acute judgment, tenacious of his objective, yet knowing well when to yield. He was trusted alike by a succession of official chiefs and by his staff, and he would have scorned to "let down" any of the latter. The present status of the Edinburgh Botanic Garden is standing proof of his administrative powers. It is also an adequate memorial to the man who re-created it. Londoners have a constant reminder of Balfour's wide practical influence in the training of the trees in the Mall. Balfour's unique position as Regius-Keeper of the Edinburgh Garden was largely due to his very human qualities. He interpreted the duties of his office in a most courteous and liberal spirit, and although over-worked of late years, was always accessible. His accessibility, coupled to an aversion to the delegation of his work, no doubt shortened Balfour's life. Although he might have had a hundred and one pressing matters on hand, the pilgrim who journeyed to Inverleith Garden for advice or assistance was never allowed to know it, and it was impossible

to discuss botanical or horticultural matters with him for ten minutes without learning something fresh. Of late years, as interest in horticulture increased and the fame of the garden spread, pilgrims grew more numerous and interruptions more frequent. At the same time botanical material for identification came pouring in from Western China and elsewhere. He was continually consulted on arboricultural, botanical and horticultural matters. The working day was not long enough, and in the result, the small hours of the morning often found "The Professor"—as he was affectionately known to his staff—still at his table, secure from interruption. It is small wonder that his not over-robust frame should have rebelled at last, but rather that it should have borne the strain so long. If ever a man sacrificed himself in the cause of science, it is he. Balfour had a warm corner in his heart for the keen horticultural amateur and made him especially welcome. He held that amateurs are the backbone of horticultural progress in Britain and that they should be encouraged; further, he took the view that it was part of the duty of the head of a national Botanic Garden to encourage them. He practised his principles in generous fashion, taking care to see that amateurs specially interested in any genera or species of plants were offered such specimens of new or old species as he had it in his power to give. He applied the same rule to the horticultural trade, merely stipulating that they should furnish him with plants needed in the Garden on reasonable terms. Largely through the generosity practised there in the distribution of plants, the influence of the Edinburgh Botanic Garden has spread to private gardens throughout the country. Though much hampered of late by ill-health, Balfour had been working on a subject which lay very near his heart, the elucidation of *Rhododendron* material collected by George Forrest—an old Edinburgh boy—for Mr. John Williams, of Caerhays. It is to him that we owe the inception of the method of determination of *Rhododendrons* by the character of the indumentum on the under side of the leaf, a discovery of which the importance is not perhaps fully realised. Those who have had the privilege of association with Prof. Balfour in his retirement know how his physical disability galled him, and yet with what courage it was borne. *G.*

Potato Synonyms.—Dr. Salaman, in his remarks on *Seedsman's Catalogues*, p. 311, has taken the easy course of criticising an effect—which "looks the whole world in the face"—instead of manfully tackling the cause, of which he must be very well aware. Seedsman, in general, did not raise, name, or put on the market the "new" varieties of Potatoes of which Dr. Salaman complains; this was done by so-called raisers. Seedsman are therefore not responsible for the multiplicity of names. When a new variety was "boosted," they invariably accepted the raiser's description in good faith. No other course was possible. There was no Synonym Committee to refer to, and when the "new" variety was grown in the seedsman's own trial grounds alongside older sorts, it was probably distinct in habit, vigour, growth, or cooking quality. These differences may, of course, have been due to the "seed" having been grown in widely separated localities; still, the results were different, and Dr. Salaman must remember that no one had, as yet, taken the trouble to record the morphological characteristics of commercial varieties of Potatoes. Likewise, seedsman are not responsible for the variations in price. It is the grower and the wholesale dealer—and generally of the Scottish variety—who put enhanced prices on the "sensational" stocks of Up-to-Date. And can it be wondered at if the seedsman said to themselves: "It must be a better sort; it costs more money." Let me quote from the 1921 Report of the Synonym Committee, of which Dr. Salaman is Chairman. In referring to the adoption of a "definition of synonymy" in 1920 (please note how very lately even these learned men were able to decide the question—"when is a synonym not a synonym?"), the Report says: "They (the Committee) regard two Potatoes as

synonymous not only when they present precisely similar morphological characters as regards the flower, foliage, habit of growth, colour of stem, stolon formation, size, shape and colour of tuber, but also when the two varieties possess identical physiological characteristics as exhibited by identity of maturity and resistance, or susceptibility to Wart disease. Even then by this term they do not necessarily imply that these two varieties are of identical origin, though doubtless in the majority of cases they are. The possibility of two seedlings of different parentage presenting such a close, if not complete, similarity as to



FIG. 144.—DAHLIA IMPERIALIS.

mask their individuality has not been lost sight of. But the Committee have to deal with facts as they are; they have, therefore, regarded as synonymous all Potatoes which are identical in the sense used above, even when they knew that the origins were different." It will thus be seen that Dr. Salaman has unwarrantably expected of seedsman in general a considerably greater degree of Potato wisdom and prescience than is collectively owned by himself and his colleagues on the Synonym Committee, because Dr. Salaman has based his remarks on the contents of catalogues issued in 1921 and 1922, which were all printed and circulated before the issue in January or February of 1922 of the printed report referred to above. Another point, I do not find in any of the reports which I have by me a complete list of synonyms, which would enable seedsman to identify Eclipse with Sir John Llewelyn, Midlothian Early with Duke of York, or Sensation

with Up-to-Date. It might, though I do not know that it would, be possible to get the necessary information by collating all the reports which have been issued from time to time, but surely this is expecting too much of the average seedsman, who is not in touch with the work of the Ormskirk trials, and sees only such abbreviated reports as appear in the trade Press. Finally, is the National Institute of Agricultural Botany doing its best to enlighten seedsman by confining its discoveries to these reports whose existence is so little suspected, and for which the absurd price of 1s. 6d. is charged, the printing of which should not cost one-third that sum? Candidly, Dr. Salaman seems to me to be looking at this matter as through a pair of binoculars, focussing his attention and venting a good deal of vituperation on a selected portion of the landscape. Might I suggest that seedsman will welcome reform in this matter, provided they are put on the right track, and can feel assured that the root of the trouble is receiving the necessary attention? *E. Horton.*

Iris unguicularis.—What a wonderful season this is for *Iris unguicularis*. The blooms are constantly expanding, and may be cut with a good length of stalk. The dry weather of late autumn has suited the plants admirably. *James A. Paice, Aldenham Vicarage Gardens.*

Dahlia Imperialis.—Mr. T. Hay's suggestion (see p. 270) that *Dahlia Imperialis* should be used for hybridising in order to obtain a new type of flower seems to me to be a valuable one, for the hybrids may be much dwarfer and yet show some of the striking characteristics of the parent. The species seems to be too tall (see Fig. 144) for general garden decoration, but, seeing that some of the modern varieties—for instance, those of the Mignon type—have a stature of only a few inches, there appears to be no reason why garden forms, with *D. imperialis* as a parent, should not be evolved of a size and habit more in keeping with garden requirements. The flowers are pure white and bell-shaped; they have been likened to small, white Water Lilies. But perhaps the value of *D. imperialis* is greatest for indoor cultivation, for, when specimens grown in the old orchard house at Chiswick were moved into a warmer house as the blooms were developing, they are said to have developed magnificent, pyramidal panicles of dazzling white flowers. The bell-shaped heads differ in form from the flat, disc-like single Dahlias, and the broad, white ray florets taper from the middle to the tip into very acuminate points, and are sometimes suffused with pink. Some years ago, in order to overcome the objection of exceptionally long stems, young shoots were grafted on the tubers of one of the dwarfier Dahlias, but Mr. Hay stated that he had tried this method and had failed. A better method, perhaps, than grafting would be to adopt that described by Mr. S. Mottet in his note on the plant in *Gard. Chron.*, January 8, 1916, of pinching the main shoots when they are one or two feet high, in order that side shoots may develop. The species was sent from Mexico by Roehl, but there is no record as to whether he found it growing wild or only as a cultivated plant in Mexican gardens. As the flowers begin to appear in December, and are said to last until Christmas is over, *D. imperialis* or its hybrids might make a useful addition to indoor flowering plants for winter. *T.*

Lonicera Hildebrandtii (see p. 263).—Some years ago we were successful in layering this plant, but not without great difficulty. I have since raised it from seed four or five years in succession. I find it best to sow when the seed is soft and green, over a brisk bottom heat of 75°. Some years ago we sent a plant to Messrs. J. Cheal and Sons, and last year we sent a two-year-old plant to the Earl of Crawford. Our specimen is in a cold house facing due south and trained against a wall. It was planted 14 years ago, and now covers a space of about 20 feet. *H. Cunningham, Bishops' Hall Gardens, Romford, Essex.*

SOCIETIES.

ROYAL HORTICULTURAL.

DECEMBER 12.—The concluding meeting of the year 1922 was held on this date, and the exhibition proved to be a somewhat small one, and, indeed, would have been very small but for the several excellent displays of Orchids. In addition to these, there were a few exhibits of Chrysanthemums, some of shrubs and alpinas, and one of Begonias. Novelties were scarce, except among Orchids, and the attendance was small.

Orchid Committee.

Present:—Sir Jeremiah Colman, Bart. (in the chair), Prince Shimadzu, Messrs. Jas. O'Brien (hon. secretary), C. J. Lucas, R. Brooman White, Arthur Dye, H. T. Pitt, H. G. Alexander, J. Cypher, J. E. Shill, F. K. Sander, Chas. H. Curtis, S. W. Flory, T. Armstrong, Pantia Ralli, E. R. Ashton, Frederick J. Hanbury, J. Wilson Potter and G. F. Moore.

FIRST-CLASS CERTIFICATES.

Vuystekeara Aspasia (*Odontioda Charlesworthii* × *Miltonia Charlesworthii*), from Messrs. CHARLESWORTH, Haywards Heath. A superb development of their famous strain. The flowers are Miltonia-like in form. The sepals and petals are bronzy-crimson; the lip white with spotted lines of dark ruby crimson and a lighter flush in front.

Odontoglossum Vega (*King Arthur* × *Midnight*), from Messrs. J. AND A. McBEAN, Cooksbridge. One of the richest in colour of any *Odontoglossum* of the section. The plant bore a strong spike of large, claret-purple flowers with delicate silvery margins and pure white tips to the petals and front of the lip.

AWARDS OF MERIT.

Odontioda Royal Scot (*Odm. King Arthur* × *Oda. Coronation*), from Messrs. McBEAN. A charming flower of the class approaching *Odontoglossum*. The plant bore a spike of eight large flowers of rich reddish purple colour on the inner part, the outer being pure white.

Cypripedium Etta (*Mrs. Richards* × *Chardwar*), from R. WINDSOR RICKARDS, Esq., Usk Priory, Monmouthshire. A superb addition to the dark class and of model form. The perfect dorsal sepal is white on the upper part and has large, confluent, blackish claret blotches changing to rose upwards. The broad petals and lip are tinged with purple, the petals being also spotted.

Cypripedium Golden Fleece (*insigne Sanderæ* × *Antinous*), from Lt.-Col. Sir GEO. L. HOLFORD, Westonbirt (gr. Mr. H. G. Alexander). A charming yellow form of the class of Westonbirt *Actæas Bianca*, but larger. The flowers are pale lemon-yellow with pure white upper part to the dorsal sepal.

Sophro-Laelio-Cattleya Lustre (*S. grandiflora* × *L.-C. Sandhage*), from Messrs. CHARLESWORTH. The flowers have very broad petals, coloured rosy-mauve with an orange-scarlet shade. The front of the lip is deep ruby-red.

Cypripedium J. M. Black (*Beryl* × *Hera Euryades* var. *Mirum*), from Messrs. FLOYD AND BLACK, Slough. A very distinct dark form of fine shape. The dorsal sepal is heavily blotched with blackish purple and is white in the upper half. The petals and lip are tinged and spotted with dark chocolate.

CULTURAL COMMENDATION.

To Messrs. J. AND A. McBEAN, Cooksbridge, for a noble plant of the rich claret red *Odontoglossum Orosius* (*Solon* × *Mailleanum*), with three spikes bearing together thirty-six flowers.

GROUPS.

A Gold Medal was awarded to G. F. MOORE, Esq., Chardwar, Bourton-on-the-Water (gr. Mr. Page), for one of the best exhibits of *Cypripedium* yet staged. The plants were raised by Mr. Moore by following special lines in crossing, and the result is all that could be desired, the flowers being of the largest, the dorsal sepals developed to a surprising degree, and the colouring clearly defined.

A Certificate of Appreciation was also awarded for the remarkable advance in size and form in these hybrids. The crosses of C. Christopher were especially noteworthy.

A Silver-Gilt Flora Medal was awarded to Messrs. CHARLESWORTH, Haywards Heath, for a fine group of *Odontoglossums*, *Odontiodas*, *Miltonia* crosses and new hybrids, among which specially noteworthy were *Odontonia Luna* (*Odontonia Magali Sander xanthotes* × *O. crispum xanthotes*), a pretty white flower with straw-yellow markings, curiously following the colour suppression in the parents. The *xanthotes* *Odontoglossums* in the group were very effective and the *Laelio-Cattleyas* fine and various. H. T. PITT, Esq., was awarded a Silver Flora Medal for a very interesting group of hybrids and rare species. Among the best were the fine *Odontoglossum Solon Pitt's* variety, a model flower of rich colouring; *Laelio-Cattleya Majestica*, with a rich head of showy blooms; *Cypripedium Etta Rosslyn* variety, and the tall carmine rose *Eulophiella Rolfei* (*Peetersii* × *Elisabethae*).

Messrs. J. AND A. McBEAN, Cooksbridge, were awarded a Silver Flora Medal for a compact group in which their high cultivation of *Odontoglossums* and *Odontiodas* was well displayed.

Messrs. SANDERS, St. Albans, were awarded a Silver Flora Medal for a fine group, all the exhibits being good. A new *Cymbidium* and a new *Angraecum*, provisionally named *A. muribile*, with pretty, pure white flowers with a purple spot at the base of the lip; a good series of rare *Coelogynes*: the new green and white *Cypripedium Emerald* (*Curtisii Sanderæ* × *Maudiae*). Messrs. COWAN, Southgate, were awarded a Silver Flora Medal for a group of splendid *Cypripediums*, with various *Laelio-Cattleyas*, including a lighter form of their *Laelio-Cattleya Dodona*.

OTHER EXHIBITS.

Lt.-Col. Sir GEO. L. HOLFORD, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander), sent *Sophro-Laelio-Cattleya Nada* (*C. fulvescens* × *S.-L.-C. Marathon*), a charming flower of a bronzy-orange tint; and the pretty *Cypripedium Ballet Girl*, with the lower sepals white and extended on each side.

PANTIA RALLI, Esq., Ashted Park (gr. Mr. Farnes), showed *Odontoglossum eximium Arghiro* of fine form and colour.

Mon. HENRI GRARE, St. Fuscien, Amiens, sent *Odontocidium Graireanum* (*Odon. Thompsonianum* × *Oncidium macranthum*), a very interesting hybrid, intermediate between the parents, bearing a graceful spike of dark chocolate-red flowers with a few yellow markings.

Floral Committee.

Present: Messrs. H. B. May (in the chair), J. Heal, J. F. McLeod, H. J. Jones W. J. Bean, Sydney Morris, E. A. Bowles, Jas. Hudson, W. G. Baker, W. B. Cranfield, R. C. Notcutt, C. R. Fielder, W. B. Gilling, E. Harrow, R. Cory, C. E. Pearson, W. P. Thomson, and A. Turner.

AWARDS.

AWARD OF MERIT.

Stranvaesia undulata.—A low-growing evergreen shrub introduced to cultivation in this country from China by Messrs. Jas. Veitch and Sons, through their collector, Mr. E. H. Wilson, about 1901. It is a hardy species and very attractive when, in autumn, it carries a profusion of roundish, rich red fruits about the size of small Peas. The leathery, glossy, ovate-lanceolate leaves have wavy margins, hence the specific name. A few fruiting branches shown on this occasion indicated the attractiveness of this spreading shrub late in the year. Shown by LIONEL DE ROTHSCHILD, Esq., Exbury, Southampton.

CULTURAL COMMENDATION.

To Maj.-Gen. Sir C. HADDEN (gr. Mr. Oliver Hayles), Rossway, Berkhamstead, for finely grown plants of a pink-tinted form of the old, double *Primula sinensis*, with large blooms, and named *Rossway Beauty*.

GROUPS.

Bright weather was needed to open the numerous flower buds on the well-grown plants of *Ipomæa rubro-coerulea*, grouped by Messrs. SUTTON AND SONS, but, unfortunately, the sun did not shine and never a flower opened. Mr. G. W. MILLER provided a foretaste of spring with pans of Primroses and Polyanthus. Dwarf Conifers and branches and canes of interesting and rare species of Conifers were displayed in considerable number by Mr. G. REUTHE. Mr. F. G. WOOD showed a collection of alpinas, including Saxifrages and Sedums.

Mr. KEITH LUXFORD was the largest exhibitor of Chrysanthemums, and his handsome group (Silver Banksian Medal) contained vases of fine flowers of the yellow, Japanese variety *Ida*; the bronzy-amber *Teresa*; the crimson, decorative *Dr. Jacobs*, a new sort; *Mrs. Heneage*, an interesting *Anemone* variety, and numerous well-grown singles. Messrs. SCOTT AND WICKHAM, Witley, showed their new Chrysanthemum *Golden Butterfly*, of very brilliant colour, and suitable for market. Cream and pink varieties of *Favourite*, together with the white type, and vases of the new, amber-coloured *Winter Gem*, were shown in fine form by Mr. NORMAN DAVIS, while Mr. ISAAC GODBER, Willington, Bedford, contributed large flowers of his new deep golden-coloured Chrysanthemum named *Golden Star*, a decorative flower of good form, but a trifle soft in texture.

Begonia Gloire de Lorraine is always attractive when in flower, and the two dozen finely grown specimens exhibited by J. B. BODY, Esq. (gr. Mr. C. Hay), Hindhead Court, Hindhead, were greatly admired. Many of the plants were nearly a yard through and 2½ feet high, and smothered in flowers (Silver Flora Medal). A similar award was made to Messrs. STUART LOW AND CO., for their pleasingly arranged group of Carnations, in which we noted fine examples of such pink varieties as *Laddie*, *Mrs. T. Ives*, *Eileen Low*, *Lady Inverforth*, and *The Hon. Nita Weir*, displayed among white, yellow and scarlet sorts. Mr. C. ENGELMANN and Messrs. ALLWOOD BROTHERS also contributed groups of Carnations, the former showing *Laddie*, *Benora*, *Cupid* and *Saffron* in fine form, while the Wivelsfield firm had *Wivelsfield Apricot*, *Edward Allwood*, and *Dianthus Allwoodii* var. *Hugh* with deep crimson-purple, semi-double flowers.

Fragrant Violets, including especially good blooms of *La France*, were shown by Mr. J. J. KETTLE; a smaller group of Violets was submitted by the HAYDEN VIOLET GROWERS, Blandford. In one corner of the hall the ROLVENDEN NURSERIES showed small but elegant blooms of winter-flowering Sweet Peas, among which the varieties *Flamingo*, *Mrs. Kerr* and *Blue Bird* made the strongest appeal to us (Silver Banksian Medal).

Mr. SYDNEY MORRIS, Norwich, brought up some splendidly fruited branches of a seedling form of *Cotoneaster frigida*: the fruits were of brilliant red colour, produced in wonderful profusion and extremely attractive.

Fruit and Vegetable Committee.

Present: Messrs. C. G. A. Nix (chairman), H. S. Rivers, E. A. Bunvard, Geo. F. Tinley, A. Smith, W. F. Giles, S. B. Dicks, G. Reynolds, A. Bullock, A. Metcalfe, E. Beckett, E. A. Merryweather, W. H. Divers, W. Wilks, J. Cheal and A. N. Rawes.

The only awards made by this Committee were a Silver Banksian Medal to Mrs. MILLER, Mowle, Marlow, for a collection of preserves; a Silver Banksian Medal to Messrs. WESTMARTON AND CO., 368, Strand, for tinned and preserved fruits from South Africa; and a Bronze Banksian Medal to Miss SEWELL, 67, Harcourt Terrace, South Kensington, for marmalades and jams.

The deputation which inspected the seedling Grape shown by Mr. W. BUTCHER, of Ecclesdon Manor, reported very favourably on the variety and recommended it to be tried with standard varieties at Wisley. The name *Ecclesdon* has been given to the variety, the fruits of which keep well to the end of February. It is stated that the vine is a remarkable specimen, with

the main rod some twenty-two feet long from which short, fruiting rods ascend to the top of the vinery, which is only heated on very rare occasions. The vinery is shaded by Elm trees, and receives only two or three hours' sunshine each day. The vine is stated to be absolutely distinct, especially in leaf, and the pips are bright red. With regard to the origin, it is stated that some white Grapes were given to the owner thirty years ago during an illness, and a pip was saved from the biggest berry, which, when sown, gave rise to the seedling.

Mr. W. F. EMPTAGE showed a coloured fruit of Newton Wonder, said to have originated as a bud sport with Mr. C. DICKER, Holwell Bury Fruit Farm, Hitchin.

ROYAL CALEDONIAN HORTICULTURAL.

DECEMBER 5.—The last monthly meeting of this society for the session was held at 5, St. Andrew Square, Edinburgh, on this date, Mr. David King, president, in the chair. In opening the proceedings, the CHAIRMAN made sympathetic reference to the deaths of Sir Isaac Bayley Balfour and Mr. George P. Berry, and it was resolved to send letters of condolence to Lady Balfour and Mrs. Berry.

The meeting was an open one, and interesting discussions took place on the decline of the show Pansy as an exhibition flower; the Chrysanthemum leaf-miner grub and its ravages; and the most suitable trees for town planting.

Office-bearers were nominated to fill the vacancies caused by retirements by rotation, at the annual business meeting, which will be held on January 10, 1923, and at which the elections will take place, Lord Elphinstone being nominated for the honorary presidency, and Mr. McHattie for the presidency.

The exhibits were: Gloxinias from Messrs. DOBBIE AND CO., LTD., Edinburgh (awarded a Silver Medal); large blooms of Chrysanthemums from the City of Edinburgh Parks Department, per Mr. McHATTIE (Cultural Certificate); Begonia Bowden Beauty from Mr. JOHN DOWNE, Edinburgh (Cultural Certificate); Pansies and Violas from Mr. C. COCKBURN, Pencaitland (Cultural Certificate); fruits of Amygdalus communis persicoides from Mr. M'ROBERTS, Dean Park House, Edinburgh (Special Appreciation).

NEWCASTLE AND DISTRICT HORTICULTURAL.

A LARGELY attended meeting of this society was held on the 28th ult., when Mr. Weidon, of the Agricultural Department of Armstrong College, gave a lecture on "Diseases of Potatoes." The lecture was followed by an interesting discussion. A special Chrysanthemum competition was arranged at this meeting, and Mr. J. Haley won the special prize for three splendid blooms of Norman Chittenden, Mrs. R. C. Pulling and Queen Mary.

READING AND DISTRICT GARDENERS'.

THE fortnightly meeting of this Association was held in the Recreation Club Room, Abbey Hall, on Monday, Nov. 20, when Mr. H. N. Cook presided over the largest attendance of members assembled for many years past. The subject for the evening was "Onions." Mr. Dalby, Greenham Lodge Gardens, Newbury, gave a most instructive lecture on this popular vegetable. The lecturer dealt first with the preparation of the soil, and laid great stress on the importance of deep cultivation; following with other cultural details, including seed-sowing, transplanting, and after treatment. Watering and the use of artificial manures, excepting soot and wood ash, were strongly deprecated. He stated that during thirty years' experience he had never watered an Onion bed. An excellent discussion followed. In the competition for Six Onions the 1st prize was awarded to Mr. D. TURNER, the Gardens, Coley Park; 2nd, Mr. F. J. GREEN, Aldermaston Court Gardens; and 3rd, Mr. W. GOWER, Calcot Grange Gardens. In the non-competitive section a 1st Class Certificate was awarded to Mr. W.

SHEARPE, Sidmouth Grange Gardens, for a vase of about three dozen Mary Allwood Carnations, and an Award of Merit to Mr. H. WYNN, Querns House Gardens, Goring Heath, for three vases of Chrysanthemums, and to Mr. G. GODDARD, Reading, for three dishes of spring-sown Onions.

—At the meeting held on the 4th inst. there was again a large attendance of the members. The subject for the evening was "The Rockery as a Home for Alpines and Rock Plants," and this was introduced by Mr. P. Wiseman, Hare Hatch, Twyford. The lecturer dealt with suitable soil, rock materials, types of rockery, moraines, general effect of the rockery, with its surroundings; planting, propagation, including the raising of plants from seed, and closed with list of various kinds of plants for different positions and purposes in the rockery.

A competition for Apples resulted in sixty dishes being staged. Mr. H. Goddard, Bear Wood Gardens, showed the finest three dishes of dessert Apples, in which there were eleven entries, and also the finest three dishes of culinary varieties, in which class there were nine entries.

MARKETS.

COVENT GARDEN, Tuesday, December 12, 1922.

Fruit: Average Wholesale Prices.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples.—					Graves.				
British Columbian					—Alicante	..	1	0	19
—Cox's Orange					—spec.	..	2	0	30
—Pippin	..	14	0	16	—Almeria, barrel	10	0	25	0
—Jonathan	..	7	0	9	—Canon Hall	..	6	0	10
—Delicious	..	7	0	9	—Belgian	..	1	0	20
—California					—Gros Colmar	..	1	3	40
—Newtown Pip.	12	0	13	0	—Muscat	..	5	0	80
—Oregon	..	14	0	15	—Grape Fruit	..	23	0	25
—York Imperial,					Lemons				
bushel	..	22	0	26	—Messina	..	14	0	18
English, per bus.					—Murcia	..	12	0	16
—Allington Pippin	1	9	2	3	Nuts.—Brazilis	..	45	0	55
—Blenheim Pippin					—Chestnuts	bag	18	0	26
bushel	..	5	0	7	—Cob.	..	24	0	3
—Bramley's					Oranges.				
Seedling	..	5	0	7	—Denia	..	15	0	25
—Charles Ross	..	3	6	5	—Jamaica	..	16	0	20
—Cox's Orange					—Mandarines	..	1	0	20
Pippin best					—Murcia	..	15	0	25
½ bushel	..	7	0	8	Pears.				
—ordinary	..	4	0	6	—Doyenné du				
—Newton Wonder	5	0	7	0	Comice, dozen	6	0	12	0
Nova Scotian,					—California				
—King of Tomkins					½ case	..	14	0	17
County	..	20	0	24	—Winter Nellis				
—Ribston Pippin	22	0	24	0	case	..	22	0	24
—Russet	..	28	0	30	—Beurré d'Anjou	22	0	24	0
Tyrolaan 40 lb box	5	0	8	0	Pineapples	..	1	6	4
—Bananas	30	0	40	0	Tunis Dates, doz.				
—doubles	..	30	0	40	cartons	..	5	6	6

Vegetables: Average Wholesale Prices.

	s.	d.	s.	d.		s.	d.	s.	d.
Asparagus,					Onions				
bundle	..	6	0	10	—Valencia, case	6	0	9	0
—Sprue	..	1	6	2	Parsnips, cwt.	..	3	0	36
Beans.					Peas, lb.	..	3	6	50
—Guernsey lb.	3	0	3	6	Potatoes.				
—Madeira basket	3	0	6	0	—Guernsey, new lb	3	1	6	
Cabbage, tally.	..	2	6	3	Dunbars	..	£5	—	
Carrots, cwt.	..	3	0	3	—King Edward	£3	15	£4	10
Cauliflowers,					—Others	..	£3	10	4
doz.	..	2	0	4	Savoy, tally	..	3	0	5
Celery, roll	..	1	6	2	Seakale, lb.	..	1	0	1
Cucumbers, doz.	18	0	24	0	Sprouts, bushel	1	6	2	0
Lettuce, doz.	..	1	0	2	Tomatos English				
Mint, dozen	..	6	0	9	—New crop, pinn	8	0	9	0
Mushrooms, lb.	2	0	3	0	—P. & W.	..	—	8	0
Onions.					—Canary Islands	25	0	30	0
—Dutch, bag	..	4	0	4	Turnips, cwt.	..	3	0	3
—English, cwt.	5	0	6	0					

REMARKS.—There are little or no signs of increased demand for the Christmas trade, and conditions generally are dull. Trade in hothouse Grapes shows some improvement, and prices have hardened. The Apple market is feeling the effects of the large quantities available, and even low prices do little to stimulate the demand. It is likely, however, that the low prices prevailing should restrict future consignments of Apples from the United States and Canada. Bananas have advanced sharply in value owing to a considerable shortage due to storms in the Canary Islands. Tomatos from the same source have also advanced considerably in price. Oranges from Spain are a steady trade, with fair supplies on offer. Considerable quantities of Pines are on the market, and their prices are moderate. Cob nuts, Brazilis, Chestnuts and other nuts are all comparatively moderate in price. Choice vegetables, such as Asparagus, French Beans, Peas, new Potatoes and Seakale, are all a fairly good trade. Green vegetables remain plentiful and cheap. French and English Lettuces and other salads are meeting a fairly good demand. Potatoes are in steady demand, but show very little improvement in value.

Plants in Pots, etc.; Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s.	d.	s.	d.		s.	d.	s.	d.
Adiantum					Erica gracilis				
cuneatum,					48 per doz.	24	0	36	0
per doz.	..	10	0	18	—60	..	12	0	15
—elegans	..	10	0	12	—Thumbs	..	6	0	8
Aralia Sieboldii	10	0	12	0	Erica nivialis				
Araucarias	..	30	0	48	48	..	24	0	30
Asparagus plu-					—60	..	10	0	15
mosus	..	12	0	15	—Thumbs	..	6	0	8
—Sprengeri	..	12	0	18	—Genistas 48"	per doz.	..	15	0
Aspidistra, green	48	0	72	0	per doz.	..	15	0	18
Asplenium, per					Marguerites, per				
doz.	..	12	0	18	doz.	..	15	0	18
—32's	..	24	0	30	Nephrolepis, in				
—nidus	..	12	0	15	variety	..	12	0	18
Cacti, per tray,					—32's	..	24	0	36
12's, 15's	..	5	0	6	Palms, Kentia	..	24	0	30
Chrysanthemum					—60's	..	15	0	18
—white per doz.	15	0	18	0	—Cocos	..	24	0	36
—coloured	..	9	0	15	Pteris, in variety	12	0	21	0
Cinerarias,					—large 60's	..	5	0	6
per doz.	..	12	0	—	—small	..	4	0	—
Crotons, per doz.	30	0	42	0	—72's, per tray	..	3	6	—
Cyclamens,					of 15's	..	3	6	—
per doz.	..	18	0	30	Solanums, per doz.	10	0	12	0
Cyrtomum	..	10	0	15					

REMARKS.—Supplies of flowers from home growers appear to be even shorter than last week, and prices are gradually rising, especially for white blooms. It will not be surprising if Chrysanthemums are very scarce for the Christmas trade. Roses are gradually finishing, and certain varieties are getting very poor in quality. The colder weather is also retarding the development of Carnations. These, like other blooms, will advance in price during the next few days. Liliun longiflorum has been very scarce during the past week, whilst the white L. speciosum has been poor in quality. Tulips, Daffodils, Primroses, and large white Hyacinths have already made their appearance. Christmas Roses (Hellebores) are also arriving in fair quantities. Larger supplies of flowers are being received from the South of France. Paper white Narcissus, also Narcissus Soleil d'Or, single Violets, Anemones, Ranunculus and Acaia (Mimosas) are all arriving in good condition. Larger supplies of white Lilac are being received from Holland. Large consignments of Mistletoe are advised to reach the market at the end of this week; several crates from France are already on the market, and there are also small quantities of Mistletoe from Cornwall. Holly appears to be fairly plentiful and well berried, but there will be no great demand for it until the end of the present week.

GARDENING APPOINTMENTS.

Mr. A. J. Wells, for nearly three years Gardener to Capt. GASCOIGNE, Southbrook House, Devizes, Wiltshire, as Gardener to Colonel KNOWLES, Stansfield, Southmead, Wimbledon Park. (Thanks for 2s. 6d. for R.G.O.F. Box.—Eds.)

Mr. Wm. Taylor, previously Gardener to Col. W. S. KINCAID, C.B., Priory Cottage, Burnham, Bucks, as Gardener to S. F. MONTAGUE STONE, Esq., Northfields, Barrow-on-Soar, Leicestershire.

CATALOGUES RECEIVED.

AUSTIN AND MCASLAN, Glasgow.—Trees and Plants: Roses.
FOREST AND ORCHARD NURSERIES, LTD., Milbury Heath, Milfield, Glos.—Fruit trees.
W. SEABROOK & SONS, LTD., Chelmsford.—Fruit Trees and Roses.
WOOD AND INGRAM, Huntingdon.—Trees, Shrubs, Roses, Fruits, etc.
J. PIER & SON, LTD., Bath Road, Langley, Bucks.—Roses, Fruit Trees, Ornamental Trees and Shrubs, etc.
W. WELLS, JUN., Hardy Plant Nurseries, Merstham.—Heraceous and Alpine Plants.
J. W. COLE AND SON, Westwood Nurseries, Peterborough.—Chrysanthemums, Pelargoniums, Dahlias, etc.
ALLWOOD BROS., Wivelsfield Nurseries, Haywards Heath.—Carnations.
SAMSONS, LTD., Kilmarnock.—Forest and Ornamental Trees.
LITTLE AND BALLANTYNE, Carlisle.—Trees, Shrubs, etc.
JAMES MACDONALD, Harpenden, Herts.—Grasses.

Bulbs.

J. HANDCOMBE, Feltham, Middlesex.
MICHIE & CO., Alnwick
DANIEL BROS., Norwich.
ARTHUR CHARLTON & SONS, Summerville Nurseries, Tunbridge Wells.
DICKSON, BROWN AND TAIT, 57, Cross Street, Manchester.
H. N. ELLISON, West Bromwich.

Foreign.

VILMORIN-ANDRIEU & CIE, 4, Quai de la Mégisserie, Paris.—Cereal Seeds for autumn sowing.
BARRIER AND CO., The Nurseries, Orleans, France.—Roses.
V. LEMOINE & SONS, Rue du Confort, Nancy, France.—Trees and Shrubs, Greenhouse Plants, etc.
HAGER AND SCHUBT, Erfurt, Germany.—Seed novelties.
M. LINDERS & CO., Steyl-Teerlen, Holland.—New Roses.
SITUS AND GROOTS, Enkhuizen, Holland.—Vegetable and Flower Seeds (wholesale).

Obituary.

Mr. David Wood, Assistant Park Curator, Pietermaritzburg, Natal, and a native of Torquay, died very suddenly on Saturday, November 4, at Pietermaritzburg, at the age of sixty years. Mr. Wood was seized with sudden illness at the close of a speech made by him against Communism, during a debate on the previous Thursday evening, at the local debating society's meeting. Mr. Wood had spoken with his accustomed deliberateness and cogency, and his sudden seizure was totally unexpected. He never regained consciousness, and was taken to Grey's Hospital, where he died. Mr. Wood left Torquay for Natal a quarter of a century ago, and was for some years in charge of the gardens at King's House, Durban. Ten years ago he was appointed assistant curator of the Alexandra Park, Pietermaritzburg. Mr. Wood bore the reputation of being an exceptionally able horticulturist, his aptitude in this respect being, in part, inherited from his father, who was a horticulturist of note, and well known as a writer on horticultural subjects. The deceased gentleman was a Wesleyan local preacher, and was highly esteemed by a large circle of friends. He was one of the principal speakers at the meetings of the debating society of the city. He leaves a family of four sons and three daughters. Natal has lost in Mr. Wood one of the best type of colonists.

TRADE NOTES.

We are informed that the old-established and well-known business of Shand, Mason and Co., fire-engine makers, of Blackfriars, has been purchased by and is now incorporated with Messrs. Merryweather and Sons, of Greenwich.

In the open competitions for pulled roots at the three great cattle shows this year, Messrs. Sutton and Sons' customers have obtained no fewer than 25 out of a possible 35 first prizes. At Edinburgh they gained the champion award, *viz.*, the gold medal offered for the best root exhibited, as well as 8 firsts; at the Dairy Show 9 first prizes (out of 10); and at Birmingham 6 First Prizes.

In the "Northern Ireland" Supplement of *The Times* for December 5, special reference is made to Rose growing in Ulster. It states "the world's greatest Rose firm is domiciled in Ulster, and it is natural that Ulster patriots should see in this a national bond of union. For over a century the Ulster firm of Alex. Dickson and Sons, Ltd., have been producing these beautiful flowers. Hawmark Roses, as they are called, have brought to Ulster this season alone the National Rose Championship trophy, the King's Cup, presented by His Majesty, the Wigan Cup, the highest award of the Royal Horticultural Society, the gold medals of the Royal Agricultural Society and the Royal Lancashire Society, their highest awards, together with numerous other distinctions."

THE WEATHER.

THE WEATHER IN NOVEMBER.

AFTER an opening week or more of very unsettled weather, the drought of October returned, and it continued until the afternoon of November 30. The winds, however, were from southerly to westerly and north-westerly points, instead of from the easterly ones, which so especially characterised the previous month. There was, therefore, more cloud, but very little fog or haze at Southport; although, after the 10th, air pressure was exceedingly high and steady. Calms were frequent, and the amount of evaporation small. Fortunately, however, owing to a very unusual prevalence of north-westerly winds by day, there was no shortage of ozone, or excess of humidity. The mean temperature of the complete month was 44.3°, or 0.9° above the average. There were 57 hours of sunshine, or just the normal number. Notwithstanding a fall of 1.17 inch of rain on the 6th, the total precipitation scarcely amounted to 2½ inches, and was 0.67 inch below the average. The underground water at last sank to a normal level. Frost in

the screen occurred on three nights, and ground-frost on five nights. Brief, moderate gales were experienced on the 1st and 2nd. Hail fell on the 2nd, 3rd, and 4th. Mist and haze prevailed on a few dates, but thick fog was confined to the night of the 15th to 16th. There was no thunder. *Joseph Bazendell, Borough Meteorologist, The Fernley Observatory, Southport.*

ANSWERS TO CORRESPONDENTS.

BEGONIAS "DAMPING OFF": A. C. The Begonias are suffering from "damping off," caused by too much atmospheric moisture and lack of ventilation. Use less water and open the ventilators on all favourable occasions.

BERRIES, POISONOUS OR OTHERWISE: H. H. (1) There does not appear to be any record of the berries of *Aucuba japonica* being poisonous. The pulpy portion is sweet, but the large kernel or seed is bitter. The nearest European allies are the species of *Cornus*. The berries of *C. Mas* are, or used to be,



FIG 145.—GEASTER IRIPLEX, JUNG (SYN. G. MICHELIANUS W. G. SM.).

made into jam in Russia. The berries of *C. sanguinea* are used as a febrifuge. (2) The berries of *Leycesteria formosa* do not appear recorded as poisonous. The berries of the near ally, the Honeysuckle, are sometimes eaten by children without harm. (3) The berries of *Hippophae rhamnoides* have been largely used by the Tartars for making jam, jelly, etc.; by fishermen around the Gulf of Bothnia for giving a relish to fresh fish; and by people in the south of France for making sauce. Birds eat the berries in this country, and sheep eat both leaves and berries. (4) The berries of *Skimmia* are not recorded as poisonous in this country, but the Japanese name *Skimmi* means hurtful fruit, but this may refer to their bitter character. Few people would care to eat any of the above, except, perhaps, *Leycesteria*. The berries of *Skimmia* are most doubtful, but their flavour would prevent many being eaten.

GARDENERS' AGREEMENT AND NOTICE: S. G. F. In the absence of any agreement to the contrary, you are entitled to a month's notice as head gardener, and a week's notice would be had. This applies also to the rooms you were to have as part wages, but you cannot claim for cost of removing your goods, nor can you insist on a reference being given. If you cannot get justice you should consult a solicitor.

LILIES AND GHENT AZALEAS: W. E. Field. Most or all of the hardy Lilies could be grown in beds or plantations of Ghent Azaleas, where there is room without undue crowding. The Azaleas should just shade the ground sufficiently to keep it cool. Peat is often used for making beds for Azaleas, but sandy soil would suit both them and the Lilies, if not too dry. Between the bushes you can plant *Lilium auratum*, *L. speciosum*, or any of their varieties. Other first-class species are *L. tigrinum*, *L. pardalinum*, *L. chalcedonicum*, *L. pomponium*, *L. regale*, *L. elegans*, *L. testaceum*, *L. Hansonii*, *L. Henryi*, and *L. monadelphum Szovitzianum*, or any of their varieties. A number of them may be grown in an ordinary border, such as *L. candidum*, *L. croceum*, *L. umbellatum* and *L. pyrenaicum*. The first named likes sunshine, but all the others can be grown on the shady side of trees, a little distance away, to allow of them receiving plenty of diffuse light, without direct sunshine.

NAMES OF FRUIT: J. G. M. 1, Cornish Gilliflower; 2, Lincoln Codlin; 3, Shepherd's Fame; 4, Broad Eyed Pippin; 5, Sandringham; 6, Scarlet Golden Pippin; 7, Herefordshire Beefing; 8, not recognised (shrivelled); 9, Reinette van Mons; 10, Duchesse de Bordeaux; 11, Huyshe's Prince Consort.—*J. H. R.* 1 and 2, Marie Louise; 3, Catillac.—*T. R. L.* Shepherd's Newington.—*J. S.* 1, Bietigheimer; 2 and 5, Bramley's Seedling; 3, Norfolk Beefing; 4, Prince Bismarck; 6, Annie Elizabeth; 7, Golden Noble.—*C. F. G.* A, Dumelow's Seedling (syn. Wellington); B, Lord Lennox; C, Dutch Mignonne; D, Lady Henniker; E, Baronne de Mello; F, decayed; G, Fondante de Noël.—*R. P. S.* 1, Worcester Pearmain; 2, Court Pendu Plat; 3, Lane's Prince Albert; 4, King of the Pippins; 5, Tom Putt; 6, Prince Bismarck; 7, Stirling Castle; 8, Lady Henniker; 9, Passe Colmar.—*T. W. B.* 1, Lane's Prince Albert; 2, decayed; 3, not recognised; 4, Ribston Pippin; 5, Chelmsford Wonder.

NAMES OF PLANTS: C. R. 1, *Thalictrum adiantifolium*; 2, *Pteris serrulata*; 3, *Nephrolepis exaltata* *Piersonii*; 4, *Cupressus pisifera squarrosa*; 5, *Cupressus pisifera plumosa aurea*; 6, *Pyracantha Lalandei*; 7, *Pieris japonica*; 8, *Pieris floribunda*.—*C. E.* *Pyracantha coccinea* var. *Lalandei* (syn. *Crataegus Pyracantha*).—*J. R.* Geaster triplex, Jung (syn. *G. Michelianus* W. G. Sm.) (see Fig. 145).

RATEABLE VALUE OF GREENHOUSES: F. M. The rateable value of your two greenhouses would vary according to the district. In the Cheshunt area the rateable value of two greenhouses, each 120 ft. by 30 ft., if used for trade purposes, would be gross £12, net £8. In another district we could mention the assessment would be gross £18, net £12, and the latter figures would be the more likely to apply in your case.

SEEDLING SINGLE CHRYSANTHEMUM: E. P. Your seedling is unlike any variety we know, and its shade of yellow colouring is very effective, but the shape of the flowers leaves something to be desired and the florets appear to lack substance. However, you should grow the plant again and adopt various methods of cultivation in an endeavour to find which will suit it best.

VIOLET LEAVES DISEASED: H. G. R. The leaves are affected with Violet leaf spot, caused by the fungus *Ascochyta violae*. Very badly diseased plants should be burned, and fresh stock obtained from a new source, planting them in ground as far away from the old bed as convenient. The disease may be kept in check by spraying the plants with potassium sulphide at a strength of ½ oz. in two gallons of water. This specific turns white paint black, and should not be allowed to come in contact with painted woodwork.

Communications Received.—C. C.—E. C.—Mrs. de C.—T. A. F.—D. T. S.—G. E. G.—T. H. M. & Co.—J. C. F.—J. A. P.—W. E.—G. L.—H. C.—Redhill—J. P.—J. M., Perth.

THE

Gardeners' Chronicle

No. 1878.—SATURDAY, DEC. 23, 1922.

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 39.1°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, December 20, 10 a.m. Bar. 30.2; temp., 38°. Weather—Dull.

Colour in the Garden in Autumn and Winter.

To utter dispraise of the English landscape at any season of the year is to risk the displeasure of those whose eyes find delight not only in its pageantry in spring, and in the more sombre yet still rich tones of autumn, but also in the grey-black December phase. Nor is it to be denied that even the funereal sootiness of Elms in December has a mournful charm. Yet there are those who find our English winter landscape apt at times to look a little desolate. It is for the latter that these lines are written in order to suggest that if they possess even a small garden they may conjure away the desolation, and by the judicious planting of suitable, small-growing subjects, create an oasis of colour in the desert of winter greyness. What, for example, can rival the rich hue of the coral-like fruits of the many hybrid *Berberis* commonly grown under the name of *B. polyantha*? A group of such plants with fruit-laden branches, pendulous, beside a flight of grey steps or among a mass of leafless shrubs will convince the most despondent that gardens are not meant only for summer use. Unless birds are troublesome, the berries last long, and this year they bid fair to bring in Christmas. The beauty of *Cotoneaster horizontalis*, the leaves of which die a flaming red, is more fugacious, but very vivid, and the lace-like framework of the leafless plant is gracious. Nor are the Slec-coloured fruits of other *Berberis* species—

B. Bealii, *B. canadensis*, *B. Gagnepainii*, etc., to be despised, nor the bronze beauty of the autumn foliage of the common *Berberis*, or of *B. Thunbergii*. *Rosa nitida* deserves a special mention. Its stems stand up so brightly and boldly red after the leaves have fallen. The yellow of the old *R. rugosa* leaves is not to everyone's taste, but in our opinion is very beautiful. *Lonicera nitida*, which makes such a charming low hedge, takes on, at all events in damp places, a dull bronze tone, which in sunlight is striking and effective. Nor, to desert shrubs for a moment, is there anything more lovely in the rock garden in late autumn than the rosettes of *Androsace sarmentosa*—collars of rubies surrounding the emerald centres of young leaves. Of the Heaths, which flower bravely in the winter, there is no need to speak; they are known and grown wherever soil conditions admit. Nor is it our present purpose to speak of flowers which are proper to winter garden decoration, but rather of shrubby plants whose stems and leaves make bright display. Of Cornuses, there are *C. Kousa* and the damp-loving *C. sanguinea*, and *C. argentea*, and with them, where space and situation allow, the bright-stemmed *Salix*, red and yellow and plum-coloured, may be planted; but they are rather for the waterside in large wild gardens than for the small garden. Among other relatively small growing plants with striking autumn colour are *Euonymus alatus*, the leaves of which turn to an almost purple before they fall; and reverting again to the rock garden to cite them in sheer gratitude for a wonderful autumn display of flower and leaf, mention must be made of *Polygonum vacinifolium*, a winter harmony, still persisting, of pink and red, growing beside a white bank of *Cardamine gibraltarica*, which persists in flower regardless of season, frost and rain. The red berries of *Skimmia japonica* and the white of *Symphoricarpos* make bright and pleasing contrast; and against walls—provided the latter be not red—the crimson berries of *Pyracantha coccinea* make a wonderfully persistent show, and those of the variety *Lalandei*, look well even when the wall is of red brick. The grey of the *Cotton Lavender* and of *Senecio laxifolius* make welcome masses of sober tone showing up brighter specimens such, for instance, as *Stranvaesia undulata*—not so very bright, but not unpleasing. Of course, the *Lavender* and *Rosemary* harmonies of grey and green grow well together, and the latter plant at all events retains in its youth all its freshness of green colour even in winter. Brooms of all kinds, late flowering—*Genista aetnensis*, *Cytisus Andreanus* and *C. Dallemorei*, as well as the Common White Broom give a rich greenness to the place where they grow, and some of them continue to throw a stray flower, solitary, like a butterfly, on green stems. It is easy to enlarge the list and to include the many evergreen plants, *Pernettya* with its berries of varied colour; *Myrtle*, where shelter can foster it; *Lonicera pileata*, *Cotoneasters*, which retain their well-groomed appearance, and relieve the untidiness of deciduous things; but more difficult to say where these plants of special winter beauty should find a place in the small garden.

That, indeed, is a hard problem. Some are tempted to form beds of the choicest of them near the house; but somehow, in such situations they seem out of focus, and tend rather to direct attention to the leafless gaps between them rather than to rivet the eye on their own beauty. Though each gardener must solve the problem for himself, we, for our part, think that the shrubby plants or

small trees planted for colour effect must stand at some distance from and obliquely to the house windows, in splendid isolation; as, for instance, in the most conspicuous part of shrubberies of flowering trees and shrubs, or in the case of the trees, rising from mounds of evergreen shrubby plants, such as *Cistus*. Much has been written on planting for autumn and winter effect; but generally from the point of view of the large garden. With the present wealth of suitable subjects, there is no reason why the small garden should not be so laid out as to include the best of them; but in spite of the desirability of admitting them, it must be confessed that to do so with full effectiveness must entail some departure from the usual planning. To dot them here and there in herbaceous borders is, of course, unpleasing and unpractical; but to plant small groups of "winter shrubs" in it, though it should break the stately impressiveness of the summer effect, might by relieving their general dreariness in winter prove to be good practice. Now, at all events, is the time when the gardener can begin to experiment. The plants are available in plentiful variety. Probably the best course is to proceed warily, conscious of the possibility of erroneous planting, and to proceed by the old method of trial and error till each plant or group finds its proper place and contributes its full effect to making the garden beautiful in defiance of the seasons.

Golden Wedding.—The golden wedding of Mr. and Mrs. Alfred Tomalin was recently celebrated at Oakwood, Crayford, Kent. Mr. Tomalin was appointed head gardener at Oakwood in 1874, and is thus within a year or so of completing a half century of continuous service in one garden. During this period the estate has changed ownership three times, and it was during the residence of the late Stephen White, Esq., that Oakwood reached its highest point of interest as a garden, and became well known for its extensive collection of Orchids. An interesting report on these appeared in the *Gard. Chron.* many years ago from the pen of Mr. Jas. O'Brien. In addition to Orchids, Ferns, Caladiums, and other stove and greenhouse plants were very successfully grown at, and exhibited from, Oakwood. *Chrysanthemums* also were largely grown and exhibited, over 1,000 plants being grown for large blooms each season. In this connection it is interesting to recall that Mr. Tomalin was one of the founders, and the first secretary, of the West Kent *Chrysanthemum Society*, which flourished for over 30 years. On their departure from Oakwood in 1918, the family of the late Stephen White, Esq., showed their appreciation of Mr. Tomalin's ability and integrity by presenting him with a cheque for £100 and a gold watch inscribed—"1881–1918, Presented to Alfred Tomalin in recognition of long and faithful service at Oakwood, Crayford." On the same occasion Mrs. Tomalin was presented with a handsome brooch. Mr. Tomalin has for many years taken a great interest in Dahlias, the variety Oakwood Beauty having been raised by him a few years ago. Of their family of four sons and five daughters only one has adopted horticulture as a profession, viz., Mr. T. E. Tomalin, who has been for fifteen years gardener at the Earl of Bessborough's seat in Co. Kilkenny.

Departmental Committee to Consider Agricultural and Horticultural Prices.—The Minister of Agriculture has now set up the Committee which is to inquire into the methods and costs of selling and distributing agricultural, horticultural, and dairy produce in Great Britain, and to consider whether, and if so by what means, the disparity between the price received by the producer and that paid by the consumer can be diminished. The constitution of the Committee is as follows:—The Marquess of

Linlithgow (Chairman), Sir Basil Mayhew, Mr. A. W. Ashby, Mr. Ernest R. Debenham, Dr. Charles M. Douglas, Mr. Percy A. Hurd, Mr. Rowland R. Robbins, Mr. R. J. Thompson, and Mrs. Margaret Winttingham. The secretary of the Committee is Mr. A. W. Street, and the assistant secretary, Mr. F. Grant, both of the Ministry of Agriculture.

Prince Shimadzu.—At the last meeting of the Orchid Committee of the Royal Horticultural Society, in 1922, the chairman, Sir Jeremiah Colman, Bart., announced that Prince Shimadzu, who had regularly attended the meetings for more than a year, was about to return to Japan, and he expressed regret on his own part and in the name of the members of the Committee at the loss of such an admirable representative of Japanese horticulture, and especially of Orchidology. The Committee hoped to maintain communications with the Prince, who had given interesting information about Japanese Orchids and Japanese Orchid cultivation, and had shown the Committee admirable drawings and photographs of Orchids flowering in Japan. Prince Shimadzu, in saying farewell, expressed his intention of conveying news on Orchid subjects from time to time, and thanked the chairman, the Committee and the Royal Horticultural Society for the valuable information he had acquired while enjoying the privileges of a seat at the Orchid Committee table.

Garden Features at Wembley Park.—Many of the natural features of Wembley Park are to be retained within the grounds of the British Empire Exhibition, and displays of flowers, trees, and shrubs will be contributed by horticulturists who are responsible for laying out the gardens and avenues. Rows of Lime trees will form a feature of the grand avenue leading between the main exhibition buildings from the north entrance to the terrace of the stadium, and midway up this avenue three ornamental lakes are being made for boating, diving, and swimming competitions. Until 1894, Wembley, forming part of the Harrow district, was almost entirely agricultural land. That portion known later as Wembley Park, consisting of 280 acres, was acquired about 50 years ago by a company of which Sir Edward Watkin was director and the Metropolitan Railway Company the principal shareholders. Part of the estate, about 180 acres, was enclosed, and Mr. E. Milner, of the firm of Milner, Sons and White, was engaged to lay it out as a playground for Londoners. Under Milner's direction, the area was transformed from meadowland into a combination of pleasure gardens and sports grounds, beautified with groups of trees and shrubs, flower-beds, a lake of eight acres for boating, cricket and football grounds, a racing track, and a pavilion for entertainments and refreshments. There are several groups of healthy Pines which Milner planted, and there is a good example of the American Blue Spruce, *Picea pungens glauca*, growing near the old lake which is now being drained and converted into a sunk flower garden. The best trees, however, are Oaks, Elms, Horse Chestnuts, Poplars, Willows, Hawthorns, Cherries, Prunuses, and Pyruses. It is intended to plant, as permanent features of the British Empire Exhibition grounds, many of the newer trees and shrubs which are known to thrive in heavy, clay soil, and no doubt others that prefer a lighter soil can be provided for by using the top soil which has been removed where buildings, roads, and new lakes have been formed.

Aberdeen Memorial to Professor Trail.—At a meeting of the Aberdeen Natural History and Antiquarian Society, held in Aberdeen University Buildings, on 15th inst., Professor J. Arthur Thomson presiding, a letter was read from the secretary of the Professor Trail Memorial Committee, communicating a scheme for the publication of Professor Trail's "Flora of the City Parish of Aberdeen," as part of the proposed memorial, and asking for the consent and co-operation of the society. The committee unanimously agreed to give the MS. for publication, on the understanding that the society would be entitled to obtain further copies, if desired, for supplying to the public,

as one of its own publications. The printing of the volume, which has been prepared for the press by Professor Craib (successor to Dr. Trail in the Chair of Botany at Aberdeen University), Mr. Anderson, Dr. Skene, and Dr. Clark, all of Aberdeen University, is now near completion, and will be issued at the time of the presentation of a memorial plaque, probably in April next.

Sir Lawrence Weaver.—The resignation of Sir Lawrence Weaver from the Ministry of Agriculture, in order to assist in the organisation of the British Empire Exhibition, is a severe loss to the Ministry. His colleagues and friends know even better than the general agricultural community how important are the services which Sir Lawrence rendered, both during the war in the Food Production Department, and subsequently in the Ministry. The feelings of admiration and regard with which Sir Lawrence inspired his colleagues found expression at the farewell dinner recently held in his honour and in the presentation of books made to him by his colleagues of the Ministry. The dinner, which was held at the Hotel Cecil, was presided over by the new Minister of Agriculture, and in addition to the permanent staff there were also present the



Photo by Cambell Gray.

SIR LAWRENCE WEAVER.

Parliamentary Secretary and the late Minister, Sir Arthur Griffith-Boscawen. The speakers—Sir Arthur, who proposed the health of Sir Lawrence, the Minister, Sir Francis Floud, the permanent Secretary, Lord Ancaster and Mr. French who of all Sir Lawrence's colleagues were perhaps most closely associated with him—bore eloquent testimony to Sir Lawrence's extraordinarily versatile ability and to the affectionate regard in which he is held by the staff of the Ministry. It must be a source of satisfaction to Sir Lawrence to feel that the great work which he has done is appreciated, and a yet greater source of satisfaction to know that in doing it he has won the deep and lasting regard of his colleagues. No one who has worked with him and who has any knowledge of men can fail to realise that Sir Lawrence possesses one of the rarest of human qualities—genius for organisation. That genius found wide scope for activity during his tenure of office at the Ministry of Agriculture, but of all its manifestations the establishment of the National Institute of Agricultural Botany is probably the most remarkable and enduring. It is good, therefore, to learn that Sir Lawrence will continue to hold the office of Chairman of the Council, so that the

Institute which owes its origin to his initiative will continue to enjoy the advantage of his leadership.

Yorkshire Gala, 1923.—The schedule of the Grand Yorkshire Flower Show and Gala for 1923, is before us, and includes over seventy classes. The dates are fixed for June 13, 14 and 15, and the show will be held as usual in the Bootham Park, just outside the old walls of the City and close to Bootham Bar. The issue of the schedule at such an early date will enable intending exhibitors to make their arrangements in good time, and the secretary is to be congratulated on his Society being one of the first to issue its schedule for 1923. The York Gala is one of the best of the provincial exhibitions and has in the past set the fashion in certain classes, especially those for rock gardens and water gardens. The collections of plants, too, are of great importance at York shows, and as much as £70 is offered in money prizes for a group of miscellaneous plants in or out of bloom, arranged for effect, in which the awards are £20, £15, £12, £10, £8 and £5 respectively. For a rock garden with alpine plants only, a sum of £35 is offered in four prizes, and a similar sum is offered in the class for an ornamental rock work decorated with hardy plants and flowers. Very substantial prizes are also offered for a water garden arranged with water plants and sub-aquatics. No fewer than eight classes are allotted to Orchids, of which the most important is for a table of Orchids, 12 feet by 5 feet, in which the prizes are £12, £10 and £7 respectively. Florists flowers, including Roses, Carnations, Begonias, Calceolarias, Gloxinias and Sweet Peas are important features of this exhibition, and the aggregate value of the prizes offered for these flowers amounts to a very considerable sum. No less important are the classes for hardy flowers, which number nine, there being special classes for Delphiniums, Lupins, Paeonies, Poppies and Irises. The fruit and vegetable classes are also numerous, the chief one being for a decorated table of ripe fruit, for which a first prize of £10, a second of £8 and a third of £5, are offered. The York Gala is not only one of the most extensive flower shows in the country, it is also one of the best managed, for the Council not only undertakes the conveyance of exhibits free to the show ground from the railway station, but also offers every facility in its power to exhibitors and their assistants.

Changes at Hyde Park and Regent's Park.—We learn that early in the New Year Mr. J. A. Gardiner will retire from the Superintendency of Hyde Park, a position he has held for many years, following a successful period as Superintendent of the gardens at Hampton Court. Mr. Gardiner's successor will be Mr. T. Hay, Superintendent of Regent's Park.

Estate of a Noted Horticulturist.—The late Sir Albert Kaye Rolitt, who died on August 12 last, aged 80, member of the Council of the Royal Horticultural Society and President of the National Chrysanthemum Society, left an estate of the gross value of £104,544, with net personalty £88,510. Sir Albert Rolitt was a solicitor and a former President of the Law Society. Like that of many other famous lawyers, his will, which was made on two sheets torn from a scribbling-block, was not properly prepared, and an affidavit of due execution from an attesting witness was required before it could be admitted to probate. He left the whole of his property to his daughter.

Coloured Sport of Apple Newton Wonder.—When visiting Mr. J. C. Allgrove's fruit nursery at Middle Green, near Slough, this autumn, our attention was drawn to a remarkable case of colour sporting in Apple Newton Wonder. The tree (see Fig. 145) was cut down when a maiden for the purpose of training it as a single cordon, and it has been cut back subsequently each season at varying heights to obtain fruit spurs along the main stem. This year the tree cropped freely, and as the season advanced all the fruits on the portion of the tree above the part where it was first cut down developed a deep red colour, and by the end of August the fruits were a deep crimson

over the whole of the surface. The Apples on the lower part of the stem were of the typical Newton Wonder colour, green, with a red flush on the side exposed to the sun. There are several other well-known Apples that have given highly coloured forms by sporting, such as the Crimson Bramley, which originated as a bud sport in an orchard in Southwell, Notts, and The McCoy, a bright red form of James Grieve, which originated in the fruit plantation of Mr. Hall Jones, a fruit grower of Letchworth. Mr. E. A. Bunyard, in an interesting article on "Variegated Fruits" in *Gard. Chron.* September 16 last, dealt with this subject and showed that some of these chimeras cannot be kept true by vegetative propagation, stating that "if it be that the selection of buds from a 'coloured or plain' area is the cause of such variation, it is obvious that striped, coloured varieties will continue to give pale forms, while the pale forms should give only their own type."

"Gardeners' Chronicle" Seventy-five Years Ago.—*Plantations.* One of your correspondents has introduced into your pages some very valuable remarks on plantations and wood; not respecting their internal treatment, whether it is best to keep them in the dark, excluding by their numbers the sun and light; not in depriving a tree of its branches, and consequently leaves, by which it can get its living; but respecting their boundary fences, whether formal or irregular. To the latter subject I will add a few words. The eye dislikes to be fettered with a straight line or any other formal figure. It is this consideration which makes a wild river superior to a formal pond, which never, at any time, whether large or small, added to the picturesque. The eye hath a sort of enjoyment in winding walks and serpentine rivers, and all sorts of objects whose forms are composed of the waving line of beauty. Intricacy of form is that peculiarity of lines which compose it—that leads the eye to a wanton kind of chase, and from the pleasure which it gives the mind entitles it to the name of beautiful; the poet knows it as well as the painter. I have, with a wood, taken the natural forest as my guide. As soon as the age of the trees allowed me, I destroyed the outer fence and placed it thirty or forty yards within the wood, and the trees outside I thinned as irregularly as possible. The fence is now the common iron hurdle, which at even a very short distance is invisible to the naked eye. The man of taste is gratified at beholding the forest cattle going in and out without any apparent obstruction, each tree unfolding itself as Nature has taught it. It was observed by some that I had placed too weak a fence against wild Scotch cattle, but the experience of a few years has taught me they were wrong, and their apprehensions vain. I have as mischievous animals to contend with as possible, such as would almost break through any fence to obtain shade and shelter, but now when they get within the protection of the outer trees they remain contented, and will stand for hours, and keep the flesh on their bones; but when they cannot obtain shade they gallop about the park, overheat themselves, catch cold, and suffer a considerable depreciation in price ultimately in the market. When the weather is cold, with wind and rain, they come to seek shelter, which is food; as I think Professor Playfair has said, if a man was stripped naked he would require more food, more carbon; so it may be said of a beast, if warm he will do with less food. In a mountainous country shelter is not sufficiently valued, nor sufficiently known, by the grazier and others also, where it is a sufficient distance not to interfere, by its roots, with the growth of farming produce. *Fraxinus.* *Gard. Chron.* December 25, 1847

Publications Received.—*Potato Growing in Australia.* By G. Seymour. Whitcombe and Tombs, Ltd., 9-10, St. Andrew's-hill, Queen Victoria Street, E.C. Price 3s. *Chrysanthemums and Dahlias.* How to grow them and how to show them in South Africa. By W. J. Kightley. The Specialty Press of S.A., Ltd., Johannesburg, S. Africa.

PLANTS NEW OR NOTEWORTHY.

SOME NEW SPECIES FROM SIAM.

RECORDS of the introduction of good horticultural plants, and of the first flowering of these plants are usually supplied by the larger and more fortunate establishments further south. It gives me, therefore, no little satisfaction to be able to record the successful introduction of a few desirable plants.

Among those who have of recent years been adding so extensively to our knowledge of the flora of Siam the name of Dr. A. F. G. Kerr stands out pre-eminently. To his indefatigable labours we owe hundreds of new records for that country. As opportunity has occurred, Dr.



FIG. 145.—CORDON TREE OF NEWTON WONDER APPLE BEARING FRUITS OF TWO DISTINCT COLOURS; UPPER FRUITS HIGHLY COLOURED, LOWER FRUITS OF NORMAL COLOUR.

Kerr has also been sending home seeds. Among the plants introduced through his agency I may mention *Streptocarpus orientalis*, Craib, which flowered some years ago at Kew, and which was figured in the *Bot. Mag.*; *Aeschynanthus macrocalyx*, Hosseus; *Ornithoboea Wildeana*, Craib; *O. lanata*, Craib; and *Kalanchoe Dixoniana*, Hamet, all of which have flowered in the plant houses at Trinity College Botanic Gardens, Dublin.

Last year *Chirita tubulosa*, Craib, flowered here, but, unfortunately, did not set seed, so that for the time being it is lost to cultivation. All of these, with the exception of the *Aeschynanthus* (which was first introduced to the Continent by Dr. Hosseus, and later to Dublin by Dr. Kerr) have been described from Dr. Kerr's collections.

To this list have now to be added four species which have been raised in the Cruickshank Botanic Gardens, Old Aberdeen, from seed or tuber sent by Dr. Kerr, and which have flowered this year, i.e., *Stephania erecta*, Craib; *Petrocosmea Kerri*, Craib; *Didymocarpus Wattiana*, Craib, sp.n.; and *Barleria siamensis*, Craib.

STEPHANIA ERECTA

Of *Stephania erecta* we possess but the one tuber. *Stephania* is an interesting genus of the Menispermaceae, and this particular species is exceptional as being an erect plant in a genus of typical twiners. Horticulturally, the plant may not be of much account; but, in any case, propagation would, I think, present a somewhat difficult problem.

PETROCOSMEA KERRI.

The genus *Petrocosmea* (Gesneraceae), so far as I am aware, has not previously been in cultivation. Although probably not the most desirable of the genus, yet *P. Kerri*, with its white, Boea-like flowers and its habit (at least so far) of continuing in flower for a considerable time, is an attractive little plant. Its foliage may be rather on the large side, but although the flowers are by no means obscured, they are not carried up very far.

DIDYMOCARPUS WATTIANA.

Didymocarpus Wattiana has just finished flowering. I have described it here as a new species, and have named it in honour of James Cromar Watt, one of the keenest and most successful amateur horticulturists whom it has been my good fortune to meet. To him also I am greatly indebted for a considerable number of additions to the Cruickshank Botanic Gardens.

The attractiveness of *D. Wattiana* lies in its inflorescence. The flower in bud is of a dark wine colour, with a very lustrous surface. When fully open the corolla is slightly paler, passing from pale wine colour at the base to a rich wine colour at the tip. The flowers are carried well up above the leaves, and the corolla itself is of a good size (c. 7 cm. long).

A full description of this plant* is appended to these notes.

BARLERIA SIAMENSIS.

Barleria siamensis will, I think, compare very favourably indeed with any *Barleria* in cultivation. It forms a nice, bushy, well-foliated plant, and the flowers, of a very pleasing lavender colour, are of good size, well exerted, and are borne in considerable numbers.

Of these newer plants *Barleria siamensis* and *Didymocarpus Wattiana* especially are to be regarded as novelties which, when known, will easily hold their own. The former at present gives promise of a good crop of seed, and, further, it is very easily multiplied by cuttings. The latter has failed to set seed, but it would probably present no difficulty in propagation by cuttings. *Wm. G. Craib, Botany Department, University, Aberdeen.*

* *Didymocarpus Wattiana*, Craib, species nova caule evoluto, foliis oppositis, pedunculis circa 7-floris, corolla circa 7 cm. longa, vinosa plus minusve pendula cognoscenda.

Caules sat robusti, circa 6 cm. alti, pilis albis divergentibus tecti. Folia opposita, oblongo-elliptica, elliptica, vel ovato-lanceolata, apice acuminata, subacuta, basi parum inaequilateralia, cordata, ad 9 cm. longa et 5.5 cm. lata, subtus pallidiora, supra pilis erectis albis et squamis aureis tecta, subtus ad nervos albopilosa, parce squamosa, nervis lateribus utrinque circa 13; subtus proeminens supra impressis nervulis supra proeminens, proeminulis, margine denticulata, petiolo cat. valido circa 8 mm. longo suffulto. Pedunculus communis 6 cm. longus, pilis albis divergentibus glandulos-capitatis et squamis aureis scabibus tectis, flores circa 7 gerens, pedunculis parvis 1 cm. longis indumento ei pedunculi communis simili tectis, pedicello floris terminalis 5 mm. longi nudo vel sparse aureo-squamoso; bractea decidua alabastra pendula, nitida, fusco-vinosa, max. parum pilulosecentia. Calyx nitidus, glabr., 19 mm. longus, apice circa 1 cm. diametro, lobis brevibus rotundatis dorso concavis. Corolla 5 cm. exserta, tubo apicem versus dilatatum ampliato apice 1 cm. diametro, lobo antio band reflexo 8 mm. longo 9 mm. lato alius paulo longiore, lobis lateribus recurvis, posticis parum recurvis, amplexibus apice rotundatis. Filamenta clabra, antheris barbatis, staminodis filiformibus. Pistillum clabrum vel sparse squamosum, basi disco conspicuo laxo erectum.

Hort. Bot. Aberd. ubi floruit Nov. 1922, e seminibus siamensibus a Dr. A. F. G. Kerr lectis.

The Week's Work.

THE ORCHID HOUSES.

By J. T. BARBER, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Cypripedium.—Species and hybrids of *Cypripedium* are invaluable for winter blooming. They deserve to be largely grown, especially in localities where fogs occur frequently, as they are easy of growth, and their blooms are much less delicate than the majority of Orchid flowers. The potting of *Cypripediums* should be done soon after the blooms are over, at whatever time of the year that may be, but these remarks refer especially to those which are in flower, or about to flower at the present season. Whenever a plant has outgrown its pot, or whenever it is desirable to divide the roots in order to increase the stock, they may be repotted. In the case of any special variety that it is desired to propagate extensively, it is advisable to cut the rhizome through with a sharp knife some little time before repotting is contemplated, so that the divided portion may make fresh growths, which will soon root in the new material.

Compost for Cypripediums.—The nature of the compost has much to do with the production of large flowers. If loam fibre is used it should be of the best possible nature, and if inclined to run together in a solid mass, should be employed sparingly, placed well down in the pot, and be surfaced with peat or A1 fibre and Sphagnum-moss. A suitable compost consists of a mixture of peat, A1 fibre, Sphagnum-moss, and loam fibre, in equal parts; where large specimen plants are grown it is advisable to intermix with the materials some broken bricks to keep the texture open. The pots should be well drained, and pots used of a size according to the strength and vigour of the plants. These plants are never inactive at any season of the year; therefore they should never be allowed to become dry at the roots for any considerable length of time, or much injury will accrue to them. Excessive application of water to the soil during the winter is not to be recommended, whilst a hot, dry atmosphere will favour thrip and other insect pests, which will soon disfigure the foliage, and eventually be the means of the plant declining in health.

HARDY FRUIT GARDEN.

By H. MARKHAM, Gardener to the Earl of Stafford, Wrotham Park, Barnet.

Red and White Currants.—Keep a watch for birds, and protect the bushes with cotton if they attack the buds. If the gardener is not very watchful in this respect this danger may not be apparent till a great amount of damage has been done.

Loganberries.—As the Loganberry fruits best on the young wood, cut out all last year's fruiting canes, and train strong, well ripened shoots of the current year in their places, but not too thickly. See that the roots are well mulched with rich manure, especially if the soil is of light, sandy character. When grown in lines and trained to wires, Loganberries usually produce excellent crops of large fruits. They may be grown and trained on poles 9 feet high, or on old walls, arches, etc., where other fruits might not succeed.

Vines.—Outdoor vines may be pruned, dressed, and put in order for the winter. Spur back to within a couple of plump buds all laterals intended for fruiting next year; thin the branches where they are crowded, and train up young wood where there is still room for extension. Well-ripened shoots of vines grown on the extension system, intended to take the place of those having borne fruits the past season, may be shortened to a plump bud, leaving from 4 feet to 6 feet of growth to furnish

the wall space. These young rods should be trained at about 3 feet apart, and dressed with a mixture of Gishurst compound, or soft soap sulphur at a reasonable strength. See that the roots are protected with manure, and not allowed to get too wet and sodden during the time they are practically dormant. All vines need a top dressing annually, but this is best applied in the early part of November or March.

Figs.—Figs that have made too much wood to be fruitful should be root pruned. When Figs are planted in a restricted border and in firm soil, the young shoots are sturdy, short jointed and fruitful. Do not allow the branches to become crowded, and train in at their full length fruitful shoots, only shortening useless ones that are not required. Cut out all suckers. In the colder parts of the country Figs growing in the open need protection in winter.

Grafts. Those intending to graft Pears, Apples, Plums, etc., of useful kinds next spring should select suitable young shoots from the prunings, tie them in small bundles, correctly and securely named, and heel them in on a border. When grafting Apples do not overlook the merits of Ellison's Orange (early) and May Queen (late), both of which are useful and dependable varieties.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir C. NALL-CAIN, Bart., The Node, Codicote, Welwyn, Hertfordshire.

Coleus thyrsoides.—This is undoubtedly one of the best blue flowering indoor plants for winter and early spring decoration of the greenhouse. The plants are developing their flower spikes, and should be given some manurial aid in the form of liquid manure to assist them to open their flowers freely. Plants judiciously fed with this material will be found to develop a much richer tone in the flowers than those that are allowed to become starved during the time when they are developing their flower spikes. A minimum temperature of 55° will be found suitable for the plants at this stage of their growth.

Euphorbia pulcherrima.—As the bracts of *Poinsettias* attain their full development they will be found to remain in better condition when kept in comparatively little warmth, provided a dry atmosphere is maintained. Continue to water the plants as needed, but do not use any more stimulants to those that have fully developed their bracts.

Hippeastrum (Amaryllis).—Where numbers of these plants are grown a supply of bloom may be obtained over a considerable period, by selecting a few of the best plants and placing them in warmth at intervals. *Amaryllis* bulbs do not require repotting each year, therefore, after selecting some of the best specimens, thoroughly soak the pots in water, afterwards top dressing the plants with a rich compost. During the process of removing the surface soil, examine the bulbs carefully for mealy-bug, which is a great pest of the *Amaryllis*. Arrange the plants, if possible, on a mild hot-bed, and for a time use very little water at the roots, or leaf growth will be too much in advance of the flower spike. A moist atmosphere is essential, therefore the floor of the house should be damped frequently with water by means of a fine rose can.

Azalea indica.—Plants of the early varieties of *Azalea*, such as *Deutsche Perle*, *Fielder's White*, and *Hermosa* may, if well set with bloom buds, be placed in a little warmth and forced gradually into flower. Spray the shoots with tepid water twice daily, and, should thrip be present on them, thoroughly syringe the plants with a solution of nicotine. When watering these plants see that they are well supplied with moisture; a light stimulant, consisting of a soluble plant food, liquid manure, or soot water will assist them to develop their flowers to perfection.

THE KITCHEN GARDEN.

By JAMES E. HATRAWAY, Gardener to JOHN BRENNAND, Esq., Baldersby Park, Thirsk, Yorkshire.

Carrots.—Prepare a hot-bed, and as soon as the temperature is suitable place about 10 inches of sited soil on the dung for sowing *Early Nantes* or *Inimitable Forcing Carrots*. Do not sow until the temperature of the fermenting material has declined to about 80°. Admit air in favourable weather as soon as the seeds have germinated. Carrots are easily grown in frames and they are always in demand.

Onions.—To obtain extra large bulbs of Onions a start should be made by sowing the varieties *Premier*, *Cranston's Excelsior* and *Ailsa Craig* in shallow boxes. Fill the boxes with a mixture consisting of two parts loam, one part leaf-mould, and part old decayed manure, with sufficient fine lime rubble to render the soil porous. Sift the soil through a $\frac{1}{2}$ -inch sieve, fill the boxes to within about $\frac{1}{2}$ inch of the top, and make the soil firm. Sow the seed thinly, as the plants will grow spindly if they are crowded. The seed should be lightly covered with very fine soil. Place brown paper over the boxes until the seeds germinate, when the seedlings should be exposed to plenty of sunlight.

Seakale.—Forcing pots should be placed over the crowns of Seakale, and the pots in turn should be covered with leaves and litter sufficient to create a gentle heat, but not more than 55°, or the stems will grow spindly, and the flavour will be impaired. This is the best way of forcing this vegetable.

Lettuce.—A sowing of Lettuce should be made now. *Golden Ball*, *All-the-Year-Round*, and *Early Paris* are suitable sorts. These will follow the crops in frame. Keep the seedlings well up to the light, and prick them off as soon as they are large enough to handle.

Peas.—Make a sowing of a dwarf variety of Pea in frames and another in pots. *Early Giant* is a suitable variety for growing in pots in cool houses.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

Management of Late Vines.—The borders having been kept without much moisture for two or three months, the grower may be tempted to water them, and right freely would the vines take copious supplies of moisture. But time is on the wing, and pruning must be thought of first, for if the roots are watered before the pruning is done, the vines will bleed, therefore prune first and dress each cut with styptic. After a week has passed the roots growing in inside borders may have their first watering. The vines, meanwhile, should be cleansed, also the house, the borders pricked over, and all loose and inert soil removed, when another watering may be given, and so on until the borders are restored to a moderately moist condition. The house will, as a matter of course, be kept dry, airy, and cool by abundant ventilation.

The Early Orchard House.—Where the development of the very early trees has been assisted by mild fermenting material, the past month having been mild and favourable for growth, the buds will develop rapidly, but no change in the temperature from 45° to 50° should be made until the trees come into flower. When the petals begin to show colour, the house should be moderately fumigated on a calm evening, and well syringed the following morning to ensure immunity from fly during the time the trees are in flower. When this stage is reached, a little more fire-heat will be necessary, particularly through the hours of daylight, as Peaches always set best when a free circulation of fresh air favours the ripening and dispersal of the pollen. Use less moisture at this stage, but unless the weather is dark, wet, or foggy, the walls and floors may be damped, when gentle warmth from the pipes is

turned on for the day. From this time forward the maximum temperature may range from 60° through the day, and 50°, more or less, by night.

The General Orchard House.—The end of December is early enough to start this house, meantime the cleansing of the pots and trees, and their proper arrangement should be completed. The main object of this house, which often includes all kinds of fruit trees, is to obtain good crops of fruit, which will provide supplies for use until the crops in the open are ripe. The buds, as the natural season of flowering comes round, are sure to be in advance of those in the open, and when this stage is reached, retarding should be discontinued, and a temperature suitable to the opening of the flowers and the setting of the fruit maintained.

THE FLOWER GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

Trees and Shrubs for Swampy and Shady Places.—The choice of trees and shrubs for planting in swampy ground is limited; for trees one has to rely on such subjects as *Alnus* (Alders) of various species, and of these *A. glutinosa* and its many varieties; *Alnus incana* and its varieties; *A. nitida*, *A. japonica*, *A. rugosa*, *A. subcordata*, *A. firma*, and *A. cordifolia*, all thrive well in wet ground, being especially good when growing alongside water. Many of the *Poplars* do well under similar conditions, including the common *Populus albus*, *P. canescens*, *P. serotina* and *P. szechuanica*. The *Willows* comprise another group of trees that do well in wet land, and their coloured bark in winter forms a decidedly interesting feature. *Salix alba*, and especially its fine variety *S. a. argentea*; *Salix babylonica* and the improved variety that has such fine golden wood, *S. b. ramulis aureis*; *S. daphnoides*, *S. purpurea*, *S. Salamonii* and *S. viridis*, are a few that we find especially useful at Aldenham. Two other trees that call for mention are *Hippophae rhamnoides*, the Sea Buckthorn, that presents a fine sight in autumn with its many fine golden berries, but care should be taken to plant a male specimen in close proximity to the females in order to ensure the fruits setting; whilst the other is the deciduous *Cypress*, *Taxodium distichum* and its pendulous form, which look so dainty with their pretty, fine, light green foliage in summer. Bush plants are not many, but there are the smaller growing *Willows* such as *Salix Bockii*, *S. hypoleuca*; the dwarf Birch, *Betula nana*; *Myrica Gale*, with its spicely foliage, and various members of the *Oxycoceus* group. Many *Bamboos* also thrive in damp ground. For shady places, the list is even more meagre, and many plants which need only a minimum amount of light will not grow where there is overhead drip from trees. *Rhododendrons* grow well in woods where the light is poor, the air fairly stagnant and drip inevitable. *Aucubas* and *Hollies* seem to thrive under practically any condition and treatment. *Berberis Aquifolium* (*Mahonia*) is another good plant for a shady spot, and it is remarkable how many self sown seedlings of this plant appear at the foot of trees, strong evidence of their not heeding shade, etc. *Euonymus japonicus* and *Privet*, two fairly common shrubs, are also suitable for planting in shady places, and others that do well are *Ruscus aculeatus* (Butcher's Broom), *Hypericum* in variety, *Vincas* or *Periwinkles*, and *Rubus irenaeus*, a species introduced in recent years by Mr. E. H. Wilson, from China. The foliage of the last is reminiscent of that of a *Coltsfoot*, and has a pretty metallic sheen. This *Rubus* is a prostrate grower, and soon spreads, making an interesting carpet under a tree.

Gynierium.—*Pampas Grasses* have done wonderfully well this year, despite the somewhat poor weather conditions. We grow them chiefly as specimen plants on lawns, and after a year or two they form fine specimens of great ornamental value; we also plant them in the shrub-beries.

TREES AND SHRUBS.

COTONEASTER FRIGIDA.

AMONG the strong-growing species of *Cotoneaster*, *C. frigida* is the most ornamental and useful for our garden borders, pleasure grounds and open woodland. Naturally a free and robust growing bush, or small tree, it attains to 20 ft. or even more in height, and as much in diameter. By restricting the young plants to a single stem, *Cotoneaster frigida* may be trained to form a standard tree of medium size (30 ft. to 40 ft.), with a clean trunk 3 ft. to 5 ft. in girth at 1 foot from the ground.

As a lawn specimen in bush or tree form, *C. frigida* is deserving of attention. In common with other members of the *Cotoneaster* family, it thrives in most soils, and appears almost, if not quite, as happy in the town garden as in the pure air of the country. In spring the woolly underside of the leaves is noticeable, and the large, flattish corymbs of white

is not surprising. The species is a native of the Himalayas, and was first introduced in 1824. The behaviour of the birds in some districts and in different seasons in connection with berried trees and shrubs is very striking. Some years the berries of *C. frigida* remain undisturbed at Kew until January or February, but though there are plenty of *Holly* berries, the blackbirds and thrushes have already feasted freely, and in a few days no fruits will remain, *A. O.*

AZALEA OCCIDENTALIS.

In California, its native habitat, I have seen this beautiful species covering to shoulder height acres of the woodland floor, beneath the interlacing boughs of Oaks and other trees. But the behaviour of a plant in the shade in such a climate as California, with its wonderful sun and clear air, cannot always be taken as a guide in treating the same subject in this country. There is probably more actual light beneath the trees where I found *A. occidentalis* at home



FIG. 146.—COTONEASTER FRIGIDA, EARHAM VARIETY.

flowers open in April and May. But it is in autumn and winter, when the branches are heavily weighted with the large clusters of rich red berries, the size of garden Peas, that *C. frigida* is most attractive. It is fairly widely planted, though its name is not generally known—no berried shrub is so frequently sent to Kew for name.

During recent years several prolific fruiting and brilliantly coloured forms have been named and exhibited at the fortnightly meetings of the Royal Horticultural Society. The one named *Vicaryi* was raised at Aldenham House, and at the meeting on December 12, the Earham variety (Fig. 146), raised by Sidney Morris, Esq., Earham Hall, Norwich, was exhibited in fine condition. This had notably large individual fruits, richly coloured and borne in large clusters. I remember seeing in the Daisy Hill Nurseries at Newry a particularly prolific fruiting variety named *montana*. There is also a distinct form, var. *fructu-luteo*, with yellowish or creamy-white fruits. Though not particularly attractive at present, yet by a selective process of raising successive seedlings this should be the forerunner of a rich yellow-fruited variety.

When it is considered that *C. frigida* is so readily raised from seeds and so free in growth, the introduction of improved varieties

than in full sunshine in this country. Nevertheless, this pretty *Azalea* prospers with us under the partial shade of tall, deciduous trees.

It is naturally a rather thin-habited, deciduous bush, attaining about 5 ft. in height, and bearing in July or August small, terminal clusters of large, pure white, fragrant flowers that are often delicately flushed with pink. There are several forms of *A. occidentalis*, differing mainly from the type in the amount of pink or red present in the blossoms. Whether these are some of the results of hybridising I do not know, but that *A. occidentalis* has been used to a considerable extent in the raising of late flowering *Rhododendrons* is common knowledge. As a matter of fact, these forms of *A. occidentalis* now appear to be much more easily obtainable than the type. *A. T. Johnson, Taliesin, N. Wales.*

JUNIPERUS CHINENSIS VAR. SARGENTII.

THIS form of Chinese Juniper was found by Prof. Sargent in Japan, and it is stated* to be generally considered the handsomest of the numerous *Junipers* with prostrate stems. Plants raised from seed, in the Arnold Arboretum, have formed dense mats of bright green foliage 10 feet across, and only a few inches high.

* Bulletin of Popular Information, No. 47, Vol. VIII, Arnold Arboretum, Harvard University.

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Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 5, Tavistock Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

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WET WEATHER ROSES.

THE great contrast between the last two summers has afforded the observant Rose-grower useful opportunities for the selection of varieties which, on the one hand, revel in sunshine and warmth, and, on the other hand, delight in coolness and are proof against rain. This article is concerned with the latter class.

Too little attention has been given to the varieties of Roses especially suitable for growing in districts with a heavy rainfall. As regards any individual variety of Rose, the question whether its flower bud will continue to unfold its petals undamaged or will "ball" and rot during a spell of wet weather is largely left unanswered in books and catalogues dealing with this flower. Even the National Rose Society's publication, *Select List of Roses*, 1921, amid its many selections of Roses suitable for various purposes, supplies no list of varieties especially good in wet weather.

It may not be of great concern to growers living in the south and east of England whether they choose what may, in contrast, be called fine or wet-weather Roses; but in the western parts of the kingdom, and especially from my experience in this N.W. corner, it is most desirable to plant largely the latter class. In Cumberland July rather than June is the summer month for Roses, and this at the same time is usually a rainy one; consequently, if mainly fine-weather Roses have been planted, much disappointment in the way of spoilt blooms will ensue. The Rose bushes may be vigorous and full of flower buds, but if none or few of these later expand into presentable blooms, the main object in growing the plants fails of achievement. Disappointment of this nature can be largely avoided by a careful selection of varieties. I will not promise no unblemished blooms from wet-resisting Roses should the weather continue for long exceptionally rainy, but such periods are unusual.

Why, it may be asked, does rain cause the opening flower bud of one variety of Rose to "ball" and rot, while it does not interfere with the further expansion of that of another variety? Broadly speaking, it may be correct to state that the fuller the Rose the more difficulty it has of opening in the wet, and vice-versa. Single Roses are rarely spoilt by the weather. But some full Roses may be mentioned that expand undamaged by rain, e.g., *Avoca*, *Juliet*, *Mme. A. Chatenay*, *Los Angeles*, and that useful old-fashioned, garden Rose, *Jules Margottin*. While others, sparse of petal, open badly in the wet, e.g., *Mme. Ed. Herriot*, *Mrs. Alfred Tate* and *Pax*.

Foster-Melliar (*The Book of the Rose*, 2nd edit., 1902) refers incidentally to the effect of rain on Rose-blooms (see pp. 227, 297 and 314), and states, what no doubt was correct then, that Tea Roses are peculiarly liable to be injured by rain. He also adds that thin-petalled suffer less than stout-petalled Tea Roses in wet weather. *Mme. Lambard* is a case in point of a thin-petalled Tea Rose opening well in the wet, and such old show favourites as *Catherine Mermet*, *Maman Cochet* and *Ethel Brownlow*, which are stout of petal, illustrate the opposite tendency. But it cannot be true for Roses generally to

state that thin-petalled varieties stand the rain better than thick-petalled ones, and is not, I think, invariably so for pure Tea varieties. *Mrs. Herbert Stevens* can hardly be considered stout in petal, yet in my experience it is impatient of wet. Personally, I should be more inclined to the view that stout-petalled varieties stand the rain better than those with flimsy petals; but this rule will not hold entirely. *Frau K. Druschki* can hardly be classed among the thin-petalled Roses, yet it is by no means a good wet-resisting Rose. White Roses are, on the whole, probably less patient of rain than coloured ones; but here again exceptions can be found. *Augustine Guinoisseau*, a white bud-sport, is a much better wet-weather Rose than its parent, the pink *La France*. *Mme. Pernet Ducher*, a cream-white when expanded, is a fine Rose for a cool, wet climate.

Apart from great fulness, it would seem that no hard-and-fast rules can be laid down as to the features in the bloom that make for wet-resistance. I write, however, in an inquiring rather than a dogmatic spirit. Why, for example, should the petals of *Henrietta* resist wet, while those of *Mrs. Alfred Tate* rot in the rain? Both Roses are fairly similar in build, differing chiefly in colour. Of two yellow Roses, why should *Mme. Ravary* be uninjured and *Mrs. Aaron Ward* badly spoilt by rain? Why should *Ophelia* be a fairly good wet-weather Rose and *Prince de Bulgarie* quite a bad one? Both are somewhat similar in colour and shape.

A suggestion occurs to me that may bear on the matter. A Rose may be a wet-resister because it is capable of expanding its flower buds in cool weather, which in summer is usually accompanied by rain. On the other hand, a Rose may behave badly in wet weather because it needs considerable warmth (i.e., sunshine) to expand its blooms. Unable to unfold quickly enough in cool (i.e., rainy) weather, the arrested bud becomes so soaked in moisture as to rot. This idea would explain why pure Teas are, on the whole, poor rain-resisters. They, as a class, require the most heat for free blooming. If there be any truth in the above suggestion, then Roses that do well in cool seasons are those which withstand the rain best; and thus are eminently suitable for the wetter parts of the British Isles.

In conclusion, I append short lists of Roses which have proved with me to be respectively good, moderate, and bad wet-resisters. Very likely certain readers may be inclined to disagree in detail with these lists; but no one, I fancy, who has studied the varieties from this point of view would transfer any from the first to the third category, or vice-versa. If rosarians would study Roses from this aspect, and give their experience, sufficient data might be forthcoming to include in the N.R.S.'s List a selection of the best wet-resisting Roses. The lack of knowledge on this point led me to add last summer to my garden a Rose which has been a complete disappointment. A pink Rose was wanted, and from its description *Mrs. Charles Russell* seemed especially suitable; but, alas! it did not perfect one bloom. The plant has grown well, and bore upwards of 50 flower buds, but not one unfolded itself sufficiently even to reveal the character of the variety; all rotted off in the bud-stage. If to the description of this variety had been added, "bad in wet weather," or some such phrase, I should have shunned it.

GOOD WET-RESISTING ROSES.—*Avoca*, *Betty*, *Capt. Hayward*, *General McArthur*, *Gustave Grunerwald*, *Henrietta*, *Juliet*, *Lady Pirrie*, *Mme. A. Chatenay*, *Mme. Ravary*, *The Queen Alexandra Rose*, and *Richmond*.

MODERATE WET-RESISTING ROSES.—*Augustine Guinoisseau*, *Cherry Page*, *Hugh Dickson*, *Hoosier Beauty*, *Lady Ashtown*, *Lyon Rose*, *Mme. Ed. Herriot*, *Mélanie Soupert*, *Mrs. J. Laing*, *Mrs. Wemyss Quin*, *Ophelia*, and *Pharisæer*.

BAD WET-RESISTING ROSES.—*Caroline Testout*, *Duchess of Wellington*, *Earl of Warwick*, *Frau K. Druschki*, *La France*, *Léonie Lamesch*, *Mme. Alfred Corrière*, *Mme. Léon Pain*, *Mrs. Alfred Tate*, *Mrs. Chas. Russell*, *Pax*, and *Prince de Bulgarie*. *J. P., Carlisle*.

NOTES FROM WISLEY.

CONSTANT inconstancy of aspect is one of the fascinations of a garden. Not only do we get different effects during different seasons, but an entirely new picture may be evolved in a few hours.

One of the chief factors in bringing this about is sunlight, though there are others, such as frost. Although the latter is sometimes unwelcome, beautiful pictures may be produced by the freezing of moisture which has collected on plants.

Such pictures are often seen at Wisley, particularly in the rock garden, where these frost effects are often visible for a considerable time, since the ground, owing to its aspect and the proximity of a line of tall Oaks, fails to get the early morning sun. On a recent occasion many shrubs assumed an entirely new beauty owing to the conspicuous delineation of foliage by the frost, such, for instance, were *Cotoneaster thymifolia*, *Olearia Haastii*, *Berberis buxifolia* and *Arctostaphylos nevadensis* and certain Conifers like *Retinospora obtusa*. The common *Droopwort*, *Spiraea filipendula*, *Asperula hirta* and *Androsace lanuginosa* were also interesting, while the unusual shape of the leaves of the *Anemone Hepatica* was accentuated by the ice crystals, and the fine scarlet berries of *Stranvaesia undulata* covered with frost appeared to possess a bloom such as is found on the fruits of the new *Berberis* hybrids.

Among the *Pyracanthas* the red-berried *P. Gibbsii* and a Wisley seedling with yellow berries are following on the large orange-fruited *P. Lalandei*, which has passed its prime. Later still comes *P. crenulata yunnanense*, the berries of which are not yet fully coloured. Another late species is *Pyracantha angustifolia* (at one time known as *Cotoneaster angustifolia*). This handsome shrub has yellow fruits and narrow, strap-like leaves, as its name implies.

As a rule these *Pyracanthas* do not naturally form good-shaped bushes, but this may be brought about by judicious pruning. Standards may even be formed. Certain varieties have a pendulous habit and may be used with good effect on the side of a pool, or be planted around a tank, as has been done at the top of the rock garden at Wisley. They are also valuable for clothing bare walls or fences, and their suitability for use in small suburban gardens is fortunately widely appreciated.

A remarkable study in bright autumn colouring is to be found in *Berberis coccinea*, a small shrub rarely exceeding 2 feet in height and bearing large, red sealing-wax fruits. The under side of the leaves, which are small, is a silvery grey, and the upper side ranges from deep green to orange and scarlet. This plant is liable to be killed by prolonged frosts, and is best placed in a sheltered position.

The beautiful *Viburnum fragrans* is now in flower. At present it is leafless, and the warm, brown stems are exposed. Numbers of sweet-scented pink-white blossoms, bright rose in bud, occur at the tips of the side shoots. This shrub should be an admirable subject for forcing under glass (though the flowers stand bad weather in the open extremely well).

On my last visit to Wisley there were still some autumn Crocuses in flower in the alpine frames, such as *Crocus Salzmanii*, *C. erectophyllus*, the paler *C. sativus Thomasii* and the white *C. ochroleucus* with a yellow flush at the base of the petals. Autumn Crocuses flowering in the open have not had a very happy time this year owing to damp weather. Rain, however, seems to have left little impression on the ground, which is in many places astonishingly dry. For the second year in succession it has actually been too dry at Christmas to transplant certain large shrubs with safety.

The Carnation trial under glass has been continued, and there is plenty of bloom to be seen. The plants are now two years old and were re-potted last spring after flowering through the winter of 1921-22. Among other good varieties *Triumph* with deep red and finely formed and scented flowers, *Nora West* (pink), *White Wonder* and *Enchantress* are attractive. *J. E. G. White*.

FLOWERING PLANTS FOR CHRISTMAS.

DURING the week preceding Christmas Covent Garden Flower Market is a place of unusual interest and much activity. Quite apart from the immense business in cut flowers, there is invariably at this season a big trade in pot plants, and although the usual foliage plants are very much in evidence, such as Palms and Ferns in great variety of size and species, Aspidistras, Araucarias, Cordylines, Dracaenas, Codiaeums, Selaginella and Tradescantia, the chief attraction is provided by the flowering plants in pots and boxes.

The growers of pot plants for the Christmas market contend—and with good reason—that for an equal expenditure, the plants are better value and give a more lasting effect than cut flowers. The difficulty, of course, lies in the fact that a pot plant is not so easily carried or despatched to a friend as are cut flowers, and the handicap of railway charges for the former is considerable. Be that as it may, there is no doubt that a well-grown flowering plant in a pot is a charming and graceful Christmas present. The bulk of the pot plants sent into Covent Garden Market are grown in the home counties and come into London in specially-constructed motor-vans, and to see these vans unloading overnight or in the early morning is worth the inconvenience of an early or late visit. Most of the growers bear names that are very familiar in the market and among florists generally, as, in most instances, the firms have had several generations of experience in their work. A private gardener visiting the market is invariably surprised at the wonderful likeness each plant of a given species or variety has to any other of the same kind. There may be thousands of *Erica hyemalis* (Fig. 147) on the market, in 48 sized pots, and yet the difference between one plant and another is infinitesimal; the common remark from such an observer is, "they look as though they were all turned out of the same mould." There is probably no more popular plant than this Heath for the Christmas trade, and it is supplied in various sizes; other kinds are *Erica gracilis*, white and coloured, and *E. melanthera*. Swanley and Whetstone are the chief sources of supply of Heaths. Other "hard wood" plants which find a place in the market at this season are *Epacris*, *Acacias*, *Correas* and *Genistas*, but these are variable in quantity according to the variation of autumnal weather.

White Marguerites are usually supplied in fine condition and full of their Daisy-like flowers. There are *Cinerarias*, but it is a trifle early for them. The demand for *Cyclamen* appears to have increased during late years, and plants in 48 and 60 sized pots, with handsome foliage and attractive flowers, sell freely at good prices. Large-flowered *Hyacinths*, some in 48s, others in 60s, do not lack buyers, as the plants are presented for sale just as the spikes show one or two open flowers; consequently the ultimate purchaser or "consumer"—a market phrase as common in the flower trade as in the fruit and vegetable trade—is able to enjoy the beauty of expanding and fragrant blossoms over a long period. Roman *Hyacinths* with the bulbs closely packed in smaller boxes sell freely, and they are used by florists for filling bowls, with the addition of Ferns or *Selaginella*; these *Hyacinths* are, of course, just opening their white, sweetly-scented flowers, and have other spikes to provide a succession. One of these little boxes will sell for 10s. in the market. Tulips of the dwarf Duc van Thol group, in various colours, are supplied in similar fashion, in shallow boxes, and they are most effective when removed and placed in pots or bowls. A few early *Daffodils* are also generally obtainable at Christmas time, grown in similar fashion.

Dwarf, bushy *Chrysanthemums*, chiefly white and yellow-flowered varieties, are popular at this season, and, if well grown, the salesmen's art is not drawn upon to effect a sale. Very beautiful are the *Azaleas* (*indica* varieties) in various sizes, and the public is ever ready to purchase these bright-hued, shapely plants for Christmas presents. The several varieties of *Begonia Gloire de Lorraine* arrest a visitor's

attention, especially the large specimens, as fine as any seen at the R.H.S. Hall.

This by no means closes the list of pot plants in flower at Christmas time; indeed, "flowering" has a wide meaning in Covent Garden, and applies to *Solanum capsicastrum* and *Ardisias*. *Poinsettias*, *Euphorbias* and *Primulas* are other plants brought up for the Christmas trade, but the two first-named are chiefly represented as cut flowers. C.

castrum "takes" well with the public; they also have the choice of others—*Genistas*, *Azalea indica*, etc.

The majority of these are English grown, a portion of the huge stocks which supply Covent Garden and the provincial markets. Large consignments of cut flowers are despatched to Glasgow each day in the week or so before Christmas. There is a big business with *Chrysanthemums*, *Hyacinths*, *Tulips*,



FIG. 147.—*ERICA HYEMALIS*; THE MOST POPULAR HEATH FOR CHRISTMAS DECORATIONS.

THE GLASGOW FLOWER MARKET AT CHRISTMAS.

WITH the approach of Christmas, the special flowers associated with the season appear on the stands in the wholesale flower market—the Bazaar, as it is called.

New Year's Day is the National Festival in Scotland, and salesmen report maximum business during the week before the New Year.

Inquiry, with the retailer, is for the old favourites, the well-known selling lines, and, as usual, the flowering plant in most demand is one or another of the *Ericas*—*E. gracilis*, *E. g. nivalis*, or *E. hyemalis*. *Solanum caps-*

Roses, *Carnations*, and French flowers—*Acacia* (*Mimosa*), *Narcissus*, *Lilac*, and *Violets*.

While Glasgow absorbs the major portion of supply, the adjacent country towns, the industrial towns of Lanarkshire, and the Clyde coast resorts, draw most of their supplies from the Bazaar.

After orders for the day have been despatched, flowers remaining are sold by auction to small retailers and street vendors.

In the three weeks before the New Year, many thousands of bowls of bulbs are disposed of. The bowls, plain or fluted, are made up with a central Fern, usually *Pteris Wimsettii*, and half a dozen Tulips or *Hyacinths*. It is finished with a surfacing of green moss. The most popular Tulips for bowls are the Duc

Van Thol varieties and the yellow Montre-or. The variety Proserpine forces well and makes an uncommon bowl, but the bulb is an expensive one.

The Hyacinth mostly favoured for bowls is the prepared miniature white, L'Innocence, and this has largely superseded the Roman Hyacinth. These bulbs are grown in boxes, and the bowls made up as they come into flower. Despite this rough-and-ready treatment, they remain in good condition over a long period. Most of the local growers dispose of the bowls direct to the retailer, those seen in the Bazaar being from growers not so fortunately situated. Supplies reach the market from a wide radius. In most cases growers find it cheaper to send their produce by their own motor-lorries than by the railways.

Foliage plants in pots include the indispensable Aspidistra and the Norfolk Island Pine, *Araucaria excelsa*, of which quantities are shipped from Belgium. Hanging pans of Asparagus, well grown by Messrs. Finlay Brothers, local growers, are in demand; also *Aralia Moseri*. The last are bushy plants, composed of several seedlings potted together and grown on. *Kentia Forsteriana* and the more graceful *K. Belmoreana* are popular Palms. Mistletoe, well-berried Holly, and other evergreens; dried foliage, sprays of *Ruscus* and *Cycas* leaves, are all in demand at Christmas time. *Fred W. Jeffery, Dalserf, N.B.*

JANE WELLS LOUDON.

MRS. J. C. LOUDON was a native of Birmingham, but the year of her birth I do not know. Her father left her in rather straitened circumstances, and in order to make ends meet she took to writing books for children, and novels. One of the latter designated *The Mummy* had its scenes laid in the twenty-second century, and the authoress allowed herself to propose some very extravagant things that should happen in that far-away future. When I name some of them it will be seen that her fancies were not all so fantastic as they appeared about a hundred years ago:—"Everybody will then travel by air. Cows will be milked by machinery. Ireland and Scotland will have separated from the predominant partner. The most enlightened part of society will believe in ghosts and goblins, and ploughs will be operated by steam."

Loudon got to know of this book, and its weird imaginings impressed him so much that when an opportunity presented itself to meet the author, whom he thought to be a man, he accepted it with pleasure, with the result that they formed a friendship which ended in the closer relationship of man and wife six months later—September, 1830.

A few months subsequently her initials, "J.W.L.," were appended to a note in the *Gardeners' Magazine*, and right on till Mr. Loudon's death, thirteen years later, she helped him in everything, acting as his amanuensis, and working with him often till 2 and 3 o'clock in the morning. Wherever Loudon went she went with him, and he died standing on his feet with the arms of his wife supporting him. She had the highest opinion of her husband, morally and intellectually, and he reciprocated the sentiment, and in announcing the publication of one of her books he recommended the authoress as being superior to the majority of writers for the lucidity and perfectness of her style. With this estimate, I think, most will agree who are acquainted with her writings. *The Lady's Country Companion*, for instance, is so well written that the part devoted to cookery may be read with pleasure, even by a mere man. Or what can be more engaging than her preface to *Botany for Ladies*, in which the reader cannot but sympathise with the fruitlessness of asking questions about flowers, the answers to which were soon forgotten? Then she relates how on admiring "a mass of the beautiful crimson flowers of *Malope grandiflora*" she received the careless reply "a query as to its identity that it was 'some Malvaceous plant.'" She forthwith went in search of other plants of the same genus, and in turn learned to know, unaided, Cruciferous and Umbelliferous plants. Everybody must be

aware that natural history at second hand is apt to fade from memory in the course of time, while what one learns oneself is retained. I recollect how pleased I was to discover for myself that the part of the Christmas Rose that calls for our admiration was not the flower but the calyx, the flower itself being an inconspicuous portion of the floral array. That I have never forgotten.

Once Mrs. Loudon started on botanical discoveries on her own account she soon became expert enough to write simply worded books on botany and gardening, and was greatly helped in compiling the latter subject by her long co-operation with her husband as his amanuensis—as she herself admitted. The active period of her writing was from 1839 to 1845. *Domestic Pets* in 1851 is not worthy her pen and, like it, *Facts from the World of Nature*, a little earlier, is also mostly a compilation of anecdotes.

Her first adventure in horticultural literature was *The Ladies' Flower Garden of Ornamental Annuals*, which was issued in parts at 2s. 6d. each; part 1 on January 1st, 1839, and was completed in 16 parts, containing 48 coloured plates, costing, bound, £2 2s. In 1840, *Bulbous Plants* followed, and when that was completed, *Hardy Perennials*, all in 4to. The figures are drawn on zinc, and none of much excellence. A series of six volumes was contemplated, but those on the Stove and Shrubs were never executed, though she added, later, one on *British Wild Flowers*. The letterpress of these consists in synonyms of the plants, a note of previous illustrations, a description, and brief cultural remarks. I have a suspicion, and only a suspicion, that the copyright of these was confiscated by the creditors of her husband at his death, who, as is well-known, died insolvent owing to the great expense incurred in the production of the *Arboretum et Fruticetum Britannicum*. Another edition, however, was brought out in 1849, but from other types. In 1840 she produced *The Lady's Flower Garden*, ostensibly to afford increased information to those who found the volumes just mentioned to be too meagre for their requirements. It is an 8vo of 406 pages, and was sold on the day of publication to the number of 1,350. In the same year *Gardening for Ladies* was published, and up to 1851 as many as eight editions had been asked for. Also in this year appeared the *Companion to the Lady's Flower Garden*, and an enlarged edition in 1842. This was a very popular book, over 20,000 copies of it having been sold. This output for one year is certainly extraordinary, especially when it is remembered that it occupied only part of her time. In January, 1841, *The Lady's Magazine of Gardening* was launched, of which she was editress. It was a monthly, with coloured plates, at 1s. 6d. each part, but I think this venture did not survive the second year. The illustrations, as a matter of fact, in all the books were not of first-rate quality. *Botany for Ladies*, already referred to, came out in 1842, a 12mo, and was re-issued in 1851, and *The Lady's Country Companion* in 1845, with a second edition in 1846. She also saw her late husband's *Self Instruction for Gardeners* through the press, for which she wrote a brief sketch of his life, also a few more books on subjects unconnected with gardening.

As already stated, Loudon died insolvent, and Mrs. Loudon not long subsequent to his decease received an annuity of £100 from the Civil List. There was one daughter, Agnes, of the marriage, who also wrote books—*Tales of School Life*—and others. Her mother lived in widowhood fifteen years, and it is stated in *The Gardeners' Chronicle* of 1853, in an obituary notice, that she died at an advanced age. Various circumstances, however, indicate that her age could only be about 70, or perhaps a little more.

In gathering material for this brief sketch, I have been impressed by the perfect unanimity of sentiment existing between Mrs. Loudon and her husband. Notwithstanding his superabundant energy it is doubtful if he would have been able to produce his books, and to complete the *Arboretum*, without her help. *R. P. Brotherston.*

PALMS OF THE RIVIERA.*

I WILL now deal with some fan-leaved Palms that are among the very hardest of these plants, none of them having suffered the least, even from the severe frost of December, 1920, the worst which has been known on the Riviera since 1820—just one hundred years before. As I stated in a previous article, the temperature on that occasion, though only for some few hours, was as low as -8° or -10° C., but this exceptional cold was by no means general in the Riviera, as to the east of Nice, the most sheltered part of this very privileged country, the temperature at certain parts hardly fell much lower than 0° C., and even the most delicate plants suffered but very little.

Trithrinax brasiliensis, Mart, a slow growing Palm, known usually here under the name of *Thrinax Chuco*, is but rarely found in gardens of the Riviera. The leaves are somewhat stiff, of a dark green colour, and the rather slender trunk is covered with yellowish spines originating from the fibrous covering surrounding the bases of the petioles. The spines are at first erect, then horizontal, and at last bent down close against the trunk, giving a characteristic appearance to this Palm, so that it can be recognised at first sight. It is a rather small species, reaching only some 4 metres to 5 metres in height.

Trithrinax campestris, Dr. A. Gr., from South Brazil and adjoining regions, exists, so far as I am aware, in the Riviera only in my garden, where I have about a dozen rather young plants. The leaves are exceedingly stiff, so much even that the points of the divisions of the blade have the character of spines; their colour is distinctly greyish. It is a small species like the foregoing, and very slow-growing.

A third equally hardy species, *Trithrinax acanthocoma*, Drude, exists in the botanical gardens in Rome. The director of this famous establishment, Prof. Pirotta, has sent me seeds on several occasions, but for some reason or another, none has ever germinated. I do not know of the existence of this Palm in any other garden, botanic or private, and have never seen it listed in any catalogue, scientific or commercial.

Nannorhops ritchieana, H. Wendl, is a small, attractive Palm found in Afghanistan and adjoining regions. It forms, by its shoots from the base of the trunk, a group of low stems, while the above-mentioned species of *Trithrinax* forms only a single stem. The leaves are very glaucous, almost as much so as the famous "Blue" Palm, *Erythea armata*, Wats; they are rather stiff, though much less so than the leaves of *Trithrinax campestris*. When this slow-growing Palm has arrived at the stage of forming a tuft of stems it produces a fine ornamental effect. Many years ago I bought, under the name *Nannorhops Comesii* (a name which I have not found in any scientific publication) some seeds, which produced Palms that much resemble *Nannorhops ritchieana*, and may be a variety of this Palm. Prof. Becarri also considered that several varieties exist, though he does not describe any in his numerous writings dealing with Palms.

Rhapidophyllum hystris, H. Wendl, is a native of Florida, and, like the foregoing, produces numerous shoots from the base, forming a tuft of stems clothed with dark-green leaves, which much resemble those of the well-known *Rhapis flabelliformis*, so often met with in green-houses. When left with all its offshoots this Palm does not often reach a height of more than 1 or 2 metres, but when allowed to retain only one or two, it will grow to a height of some 3 to 7 metres. The stems are brittle, and have long, thin, black spines, from which it is named. These spines originate from the fibrous bases of the leaf-stalks, like those of *Trithrinax brasiliensis*; they do not, however, assume characteristic positions, but bristle in all directions.

* The previous articles by Dr. Proschowsky were published in our issues for May 1, June 12, July 16, September 4, November 20, December 18, 1920, March 12, April 30, June 11, October 8, November 19, 1921; January 21, February 11, April 1, June 17, July 29, October 14, and November 11, 1922.

It is a very slow-growing Palm, and more interesting for gardens by its curious appearance than by its ornamental value.

Serenoa serrulata, Hook, is a very common Palm found in the south-eastern parts of the United States, so far north as South Carolina, and as far south as southernmost Florida, though there may be local forms. For some thirty years I have tried to obtain fresh seeds of this Palm from all these different regions (it is, for instance, quite common around New Orleans, in Alabama, and many other places), but I have never succeeded. I shall take advantage of this opportunity to ask readers of the *Gard. Chron.* living in the South-Eastern United States, to kindly send me fresh seeds of this small Palm especially from the northern and western limits of its distribution, in exchange for other seeds. It is usually found forming a tuft of quite low stems, or, rather, stemless shoots from a common base. The leaves are glaucous and the petioles are lined with tiny spines, which are rather inoffensive. Notwithstanding these very small spines the popular name of the plant in the United States is *Saw-Palmetto*. *Dr. A. Robertson Proschowsky, Jardin d'Acclimatation, Les Tropiques, Nice, France.*

FRUIT REGISTER.

APPLES OF RECENT INTRODUCTION.

DURING the past four years several new varieties of Apples have been brought before the notice of the public. It is early to estimate the true merits of these novelties, as soil and climatic conditions have to be reckoned with. I am inclined to think some of them may be susceptible to "bitter pit," this disease being most noticeable in varieties similar in flesh texture to the Lord Suffield type.

The variety John Standish is a pretty fruit of medium size, well coloured and of perfect contour. The flavour is very good, the flesh being firm, full of juice, and acceptable to most palates. As shown, the branches were laden with Apples, and, being of a desirable dessert size, the variety will probably be grown for market sooner or later. The keeping qualities are greatly in its favour, Messrs. I. House and Sons, who introduced the variety to commerce, having kept specimens quite sound until the end of March.

Redcoat Grieve should prove most acceptable for its high colour. The appearance of the specimens shown to me brought to memory the fine finish of the Colonial Apples. The flesh of this highly coloured Apple appeared to me to be more yellow and much longer keeping than that of the typical James Grieve. The growth of the tree is identical with the variety James Grieve, from which it originated.

Pershore Pippin, a variety brought to my notice whilst judging at Birmingham recently, is an Apple of the best dessert size, and in appearance resembles a small form of King's Acre Pippin. The assumed parentage is Sturmer Pippin × Ribston Pippin. The variety was shown by Messrs. Hopwood, of Cheltenham.

Tibberton Codlin is another variety grown by the latter firm. The fruit is of medium to large size, conical, yellow, flushed red, with russet patches, the qualities being so good as to make it useful for dual purposes. The tree is a strong grower and prolific cropper. The fruits keep sound until the end of March.

Herring's Seedling (see Fig. 148), shown by Messrs. J. R. Pearson and Sons, is a Lincolnshire raised variety and destined to take a prominent place amongst early sorts, the appearance of the fruits being most pleasing. They are highly coloured and large. For growing as a pot tree, this variety is unsurpassed. The flavour is not in the same category as that of Cox's Orange Pippin, nevertheless, it compares favourably in quality with most early Apples. The foliage is large, the growth strong, and the tree should make a splendid standard for orchards. The season is the end of August to the end of September.

Harling Hero, of Messrs. Daniel Bros., is a late Apple, of hardy constitution, the fruit large in size and beautifully coloured. The tree is stated to be a very heavy cropper, a strong grower, very hardy, and thrives in most soils. As a culinary sort it is excellent, the fruits keeping sound until the end of February.

Madresfield Court is a very choice Apple, the colour and contour of the fruit being very attractive. The fruits are of a suitable size for dessert, and as delicious as they appear. The flavour is of the Ribston type, with a sugary juice. This variety is in season until January. This fine Apple makes a good tree in all forms, and will doubtless be planted extensively. Mr. Parsons is to be congratulated on introducing this fine variety.

Superb is a fine new Apple raised by Messrs. Laxton Bros. The fruits as taken from the trees are certainly not inviting, but by the description given by the raisers and the test

brook's introductions; the fruits are large and coloured yellow, with a bright red flush, splashed with crimson. The flesh is firm and of excellent cooking qualities, and, although a culinary sort, it is quite useful late in the season for dessert. The growth of the tree is strong and spreading; the variety will make a fine orchard tree. The fruits keep until the end of March, or even later, and came out top in an Apple-cooking competition last season. The raisers have a high opinion of this Apple as a market variety.

Queen Mary, which some consider synonymous with American Mother, is an early, excellent Apple, raised by Mr. Parsons. It has every quality of a first-class mid-season variety. The skin is yellow, streaked and shaded with crimson scarlet; the fruit is of splendid shape and ideal for packing. The flavour at its best is excellent, the flesh being yellow, firm, juicy, and very sweet, with an aromatic quality. The tree makes healthy growth, forming an abundance of clean fruit spurs. *Pomona.*



FIG. 148.—APPLE HERRING'S SEEDLING.

qualifications of several it is evidently a variety of high merit. I did not have the opportunity of tasting a fruit whilst at the Crystal Palace, but the appearance of the fruit suggested an Apple after the Ribston-Blenheim type, with less colour than either. The variety is claimed to be of a rich Cox's Orange Pippin flavour, and will keep long after that variety.

Excelsior (Seabrook) is an early, showy Apple of very large size, and at early exhibitions would make a notable dish. The fruits are highly coloured, and nearly entirely covered with bright red; they are conical in shape. The tree is very fertile and of a strong constitution. This variety is useful for both culinary and dessert purposes, and I predict a future for this "packer."

Mr. Prothero is a late variety introduced by Messrs. Seabrook and Sons. This medium-sized Apple should prove an acquisition, and it is a long keeper. The flesh is yellow, crisp, and sweet. The fruits should pack and travel well, owing to the toughness of the skin. It will keep for twelve months if stored under cool conditions. The colour is green-yellow, with a red flush. The tree is fertile, and very useful for growing in small gardens.

Monarch is one of the best of Messrs. Sea-

MARKET FRUIT GARDEN.

ECONOMY IN CULTIVATION.

WITH fruit down to pre-war prices, and no justification for any substantial reduction in wages, strict economy in cultivation is essential. I do not want to grass down any more orchards, because this system is not the best in a district where the soil is light and the summer rainfall likely to be inadequate. But I am going to try doing without hand work (hoeing and digging) in the older plantations. The spaces between the rows can be kept in an excellent state of cultivation with the plough, horse and motor cultivators, etc., leaving only a narrow strip down each row in which the trees actually stand. The grass on this strip will be mown every year, instead of being kept down by hoeing several times in summer and digging in winter. I do not believe that this work is worth its cost. The trees cannot suffer if the wide space between the rows is well cultivated and manured. Most of the useful roots are certainly there. The plan will allow of more frequent hand cultivation of the younger plantations of trees and bushes, which cannot have too much of it. *Market Grower.*

FLORAL NOVELTIES FOR 1923.

INTERESTING floral novelties promised for the coming year include several of which Messrs. Watkins and Simpson are the wholesale distributors. Two of these appear to be very distinct; they are *Dahlia Stella* (Fig. 149), a variously coloured single variety in which the seven or eight wide ray florets have their lateral margins incurved so much as almost to meet, thus making each segment more or less funnel or tube-shaped. This is a distinct curiosity and shows that the possibilities of the *Dahlia* in regard to new types have not yet been fully exploited. The second novelty to which reference is now directed is an early double-flowered form of *Cosmea* (Fig. 150), in which the disc florets are petaloid, flattish and spreading, making up a rosette that in a *Chrysanthemum* would be called an *Anemone-centre*; this will be offered in three colours—pink, crimson and white, and should prove a very welcome addition to plants of elegant growth which produce flowers as suitable for cutting as for garden decoration.



FIG. 149.—*DAHLIA STELLA*.

THE ALPINE GARDEN.

ARISARUM PROBOSCIDEUM.

LOVERS of the quaint and curious among rock or bog plants, may be glad to be reminded of the existence of *Arisarum proboscideum*, one of the most odd-looking of hardy flowers, even among its numerous singular fellow-members of the *Aroidae*. It has been called "a miniature *Calla*," but that does not convey to any degree the true character of this *Arisarum*. It is only some three or four inches high at the most, and has pretty little shiny green leaves of much the same form as those of the popular *Richardia aethiopica*, but, of course, very much smaller. Then there rise from the base small, curiously shaped miniature flowers of chocolate and white, *Calla*-like in form, yet distinct in numerous points and with a proboscis-like extension which is about two or three inches long, ending in a curiously twisted portion of deep brown, dwindling at the point to almost nothing. The flowers are pretty well hidden, but often the end of this proboscis-like appendage peers above, and is a guide to the searcher for the blooms. Some have likened these to the tails of mice which were disappearing into a hole in the ground, but they are much thinner than the appendages of the rodents. This little *Arisaema* grows well in sandy soil, but its favourite spot is a moist, shady place, where it soon increases by runners at the roots. *S.*

PHLOX STOLONIFERA.

ONE of the most distinct and certainly the most beautiful of Alpine *Phloxes* is *P. stolonifera*. It is quite distinct from the *subulata* section, in having distinctly ovate tufts of light green leaves; that are conspicuously hirsute. The flowers are quite as large as those of many of the *decussata* section; their colour is a showy, brilliant rose carmine, and they are produced during early spring. Having a prostrate, spreading habit, it makes a most charming rockery plant. *L.*

SAXIFRAGA GUTHRIANA.

SAXIFRAGA GUTHRIANA is understood to be a hybrid between *S. Andrewsii*, itself a hybrid, and *S. aizoon*. The plant is smaller and prettier than *S. Andrewsii*, and has a more stunted, though proportionate flower stem. To keep it in character it should be planted in somewhat poor soil, otherwise it will grow coarsely. In beauty, however, it is by many considered inferior to its variegated form, *S. Guthriana variegata*, which is now a rare plant in commerce. This is not surprising in view of

HARDY FLOWER BORDER.

ANEMONES.

AN interesting, romantic and mythological story is recorded of the *Anemone* or *Windflower* springing up from the tears shed by *Venus* over the corpse of *Adonis* after he was gored to death by the horny tusks of a boar.

Bion, the Sicilian poet, writes of the *Anemone* thus:—

"Where streams of his blood, there blushing sprung a Rose,
And where a tear has dropped, a *Windflower* blows."

However, the *Anemone* of to-day is not the fragile flower as depicted by this old poet, the persistency of the *Windflowers* being most remarkable, considering the graceful and delicate texture of many of their flowers.

From early spring until autumn, the rockery, borders and woodlands may be adorned by the many-coloured flowers of *Anemones*; all possess a charm quite their own in rich and delicate shades, and graceful elegance of their Fern-like foliage. When established, it is impossible to over-estimate the beauty of the plants.

The following *Anemones* are all exceedingly beautiful, and delight in a slightly shady position in deeply trenched, well worked sandy loam:—

A. ALPINA, one of the most beautiful of the Alpine *Anemones*. The flowers are snow white, with a faint tinge of purple on the outside. The plant grows to a height of 15 inches. *A. alpina sulphurea* is equally pretty, but has sulphur yellow flowers.

A. PULSATILLA (the Pasque flower) is a native of this country. Few plants are more handsome during the early spring, and a patch of the lovely, nodding, violet-purple flowers, with golden anthers, is not easily forgotten. When the flowers are over, the silvery grey seed heads are very ornamental. A calcareous soil and fairly sunny position suit this *Anemone* admirably. *A. Pulsatilla alba* is an equally showy plant, with white flowers.

A. NEMOROSA ROBINSONIANA: This is one of the most charming of our wood *Anemones*. The flowers are a pretty lavender blue colour. The plant is remarkably free in blooming, and the flowers last for a long period, fresh ones opening each day successively. *A. nemorosa Allenii*, a form also with lavender blue flowers, is an improvement on *Robinsoniana* in its larger blooms. *A. nemorosa alba grandiflora* has snow-white flowers; the variety *alba plena* has double white flowers.

A. RANUNCULOIDES produces numerous small golden yellow flowers, and is a good subject for the rockery.

A. RIVULARIS is a very beautiful Himalayan species, with pretty white flowers that have violet stamens.

A. SYLVESTRIS and its variety *PLENA* have pretty, nodding, snow white, sweetly scented flowers. *!*

A. PALMATA has distinct, palmate, shining green leaves and golden yellow flowers, produced on naked stems; *A. palmata alba* is similar to the type, except that it has snow white flowers.

EREMURUS (KING'S SPEAR).

THE genus *Eremurus* comprises a magnificent group of hardy plants from Central Asia, and they are worthy of the most prominent position in the garden. When established they do not require transplanting, and they adapt themselves to almost any soil and situation. However, they grow best in deeply trenched, well drained soil, composed of rich fibrous loam and coarse sand, and a situation facing south is preferable, with a covering of six inches of fine soil over the crown.

Undoubtedly the finest species are *E. robustus*, which grows from seven to nine feet high, and has an inflorescence four feet to five feet long, of a pretty rosy-Peach shade; *E. himalaicus*, which bears dense racemes of beautiful, snow white flowers on spikes, six feet tall, and *E. Bungei*, which has grass-like foliage, and slender spikes of bright yellow flowers. *W. Logan*.

COLCHICUM SPECIOSUM AT ARGATY, PERTHSHIRE.

A PLANTING of *Colchicum speciosum rubrum* made at Argaty, Perthshire, about three years ago, has been quite pretty this year in the rough grass by the side of a loch near the mansion. A proportion of the plants have not the red tube of the true variety *C. speciosum rubrum*, but the effect of the large group is most pleasing. Fortunately the Meadow Saffrons have remained untouched by rabbits, just as if the destructive creatures by some mysterious intuitive faculty understand that the *Colchicums* are poisonous. By the way, this fine Meadow Saffron looks exceedingly beautiful when cut or pulled at the base of the tube and lightly arranged in a crystal bowl together with the leaves of the *Montbretia*. Fairly rough grass is best for the Meadow Saffron. *S. Arnott*.

THLADIANTHA DUBIA

HOME CORRESPONDENCE.

I REGARD *Thladiantha dubia* as the most ornamental of all the Cucurbits that are hardy in Britain. It has elegant, softly hairy, light green heart-shaped leaves on slender stems, which attain a height of 6 feet or 8 feet, and the female plant, if the flowers are artificially pollinated, produces numerous scarlet fruits the size of a bantam's egg, and these are brilliant in colour for long after the rest of the plant is dead. I am anxious now, however, to draw attention to a remarkable feature in which it differs from every other perennial plant I have been able to find after a search of many years. It is perennial by means of its true roots, while every other plant I know is perennial by means of its stem system. It is the only perennial I know, Cucurbitaceous or otherwise, that is without a single bud in winter from which to grow in spring. The only note I have previously made upon this subject is in the *Bulletin* of the Botanical Congress of the Imperial Horticultural Society of Russia, held at Petrograd in 1884, at which I read a short paper, and as this must now be an almost forgotten publication, I desire to publish a further note on the subject in *The Gardeners' Chronicle*.

It would be remarkable if there were no other plant possessing the same feature, but I must leave the quest for it to those who have opportunities for search and observation. On the germination of the seed, the radicle quickly penetrates the ground and usually near its end it makes a tuber. Presently the seedling dies back to this root tuber, and from it the plant makes its next year's growth. It has no bud until one is made when growth recommences in spring. It is entirely a different case with every other plant I know that makes a tuber from which it is to grow after the resting period. In the case of the Potato, for instance, the seeds germinate in the same way; the root makes no tuber, however, but from the axils of the seed leaves tiny stems appear, which produce tiny tubers provided with scales and buds, from which future growths are made. Tubers, indeed, are defined as stem and bud formations, and never as a "root-tuber" supposed to grow. Its function, as in the case of the Dahlia, is the storage of food only. I have many times raised seedlings of *Thladiantha*, and have found that the plant invariably grows from the tuber of the radicle root as described above.

But the question still remains whether the plant is ever subsequently perennial by means of its stem system, and in order to answer it with recent knowledge, I have, during the past summer, made a fresh cultivation of tubers. They send out fibrous roots, some of which again produce the same kind of tuber, but sometimes a true root does proceed from the internode of an ascending stem when a tuber is also formed, but the result is quite the same, and it never happens that a plant is perennial by means of any stem growth. The case of *Thladiantha* is not at all to be compared with any other in which stems grow up from the root. In the case of the Elm, for instance, there is quite a freedom of growth from the roots, but the Elm tree does not die down every year to these roots, and depend upon them entirely for its existence.

Thladiantha dubia is a native of China, and is figured in the *Bot. Mag.*, t. 5469. It is well known in Botanic Gardens, and does well in the open supported by a few sticks, but at Cambridge, when Curator there, I found it do remarkably well against an east wall, with wire netting on which it could climb. The flowers are bell-shaped and yellow. In this position the female plant could grow by itself without any danger of getting mixed with the males, by the intermingling of its tubers, male flowers being brought as required from another part of the garden. The female flowers are very easy to set, and the fruits have been found to hang for a long time on the netting, forming a very attractive feature. They are said in the *Treasury of Botany* to be eaten in the Himalayas. R. Irwin Lynch, V.M.H.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

Carnivorous Squirrels.—Your correspondent's note on this subject (see p. 545) is interesting, though it is fairly well established that squirrels are to some extent carnivorous in their habits, but it is rather a shock to an ornithologist to hear of young "fieldfares" in Kent, as the fieldfare has never been known to nest in the British Islands. Chas. E. Pearson, M.B.O.U.

Memorial Sundial at Wisley.—In reference to your article on the above, in your issue of November 23rd, whilst the conception of a sundial as a memorial to some departed garden lover is a very happy and charming form of remembrance, that illustrated on page 306 is wretchedly miserable and ill-conceived, and to my mind reflects not an atom of credit upon those responsible for its erection. What a poor

Hibernation of Wasps.—Although parthenogenesis occurs in several orders of insects and hermaphrodites have been recorded commonly amongst ants, moths and butterflies, I am not aware that any cases of hermaphrodites amongst insects functioning sexually have been met with. Consequently I read Mr. Johnson's letter on p. 314 with considerable surprise, and at once wrote privately to him for chapter and verse. He replied that his remarks were based on a statement by Sir Herbert Maxwell, to whom I accordingly applied for further information, and he favoured me with the following reply:—

"I am greatly obliged to you for bringing to my attention the blunder whereof I was guilty in *Memories of the Months*, 4th Series, p. 273, where, in a note about social wasps, it is stated that 'in wasps the distinction of sex is fluctuating; unlike bees, their nature is so plastic that there are individuals intermediate between male and female, possibly destined to become one or other, as circumstances arise.' This, of



FIG. 150.—EARLY, DOUBLE-FLOWERING COSMEA.

(SEE P. 370.)

little base and badly proportioned column! Wisley ought to teach the garden world what is fine in gardening, but an erection like that illustrated makes one shudder. Properly treated and placed, a sundial may be made to form one of the very finest garden features, around which may be woven some of the most beautiful sentiments in life. If I might hazard an opinion, I think a dial embodying a memorial might, if possible, be more suitably placed on some sunny wall or building, which would tend to give a more permanent feeling and would allow of more space, alike for an inscription and motto. Many mottoes are very charming, for example, would one of the following not be appropriate?

"In life, like you, I marked the passing hours,
Now I have passed away, the task is yours."

or

"A span is all that we can boast,
An inch or so of time."

or

"Man is but vanity and dust,
In all his flower and pride."
—John A. Holms, Formakin, Bishopton, N.B.

course, is quite incorrect. I have not got the original note upon which the statement was founded; but it probably was made in comparison with the fact that the queen wasp's earlier brood consists entirely of imperfect females—workers; whereas the later brood contains males and perfect females. Herbert Maxwell, Monreith."

This seems to clear up the question very effectively! With reference to D. H. Dunn's letter in the issue of the 9th inst., he is not correct in saying that a wasp's egg "can be hatched to be either a queen, drone or worker." The drone eggs are unfertilised, and can become nothing but drones; whereas the worker and queen eggs are fertilised. Whether a worker egg can be reared into a queen by special feeding amongst wasps as amongst hive bees, is, I think, doubtful, because once a wasp nest has been deprived of its queen in any way, a new queen is, I believe, never reared, and the wasps become indifferent, and gradually forsake the nest. I do not follow Mr. Dunn's argument about the flowers. C. Nicholson, 35, The Avenue, Hale End, E.4.

SOCIETIES.

ROYAL SCOTTISH ARBORICULTURAL SOCIETY—ABERDEEN BRANCH.

THE annual meeting of this branch was held in the Douglas Hotel, Aberdeen, on December 9. Sir John R. Gladstone, Bt., of Fasque, Kincardineshire, president of the branch, occupied the chair, and there was a good attendance.

Mr. G. D. Massie, secretary and treasurer, submitted the annual report, giving details of the various meetings and excursions held during 1922, and stating that the membership was now 165. The financial side of the report showed credit balance of £26 8s. 2d., in the general account, and £1 3s. 6d. in the library account, and a debit balance of £3 6s. 8d. in the excursions account—leaving a net credit balance of £24 5s. The reports were unanimously adopted. Of four retiring vice-presidents, Mr. John Michie, M.V.O., Kincairn, Kincardineshire; Mr. S. J. Gammell, of Countesswells, Aberdeenshire; and Mr. Donald Munro, Banchoory, were re-elected; and Captain R. J. Nicol, of Ballogie, Aberdeenshire, was appointed in room of the late Mr. A. F. Irvine, of Drum Castle, Aberdeenshire. Major J. D. Ramsay, the King's Commissioner at Balmoral Castle, and Mr. Peter Leslie, of the Forestry Department, Aberdeen University, were re-elected members of the committee, and Mr. J. F. Annand, Forestry Commissioner, Aberdeen, and Mr. James Davidson were appointed new members. Mr. Massie was unanimously re-elected secretary and treasurer of the society, warm tributes being paid to his worth and work by the proposer. Lord Forbes and Mr. Michie were appointed to represent the branch on the parent society, Edinburgh, and it was decided to request representation on the board of the North of Scotland College of Agriculture. Mr. Michie to fill the post should the request be granted.

THE NORWAY SPRUCE.

Colonel John Sutherland, C.B.E., of the Forestry Commission, Edinburgh, was then called upon to give an address on "Spruce in Scottish Forestry." In his opening remarks, Col. Sutherland said that Aberdeenshire was noted as one of the northern county units in which the true Scots Pine had rightly gained a high reputation. If silviculture was to be undertaken as a serious commercial venture, the first consideration must be the ultimate financial result. It was not wise to be content with one crop of a certain species if in a hundred years they could secure two crops of another species, even if the market value of the latter was lower than that of the former. Both Norway and Sitka Spruces should, where cultural conditions were favourable, yield a fairly early return of timbers of commerce. They might give first place to the Norway type. In Scotland it could not claim to have had a reasonable chance. It had seldom been planted pure, and it usually was placed in ground deemed unsuitable for any other species. The returns from Norway Spruce were never compiled, and no one was astonished when it failed to make a crop.

The statistics of Norway Spruce so far compiled were particularly interesting. At Glendye (on Sir John R. Gladstone's estate), at an elevation of 350 feet, in a 12-inch coat of peat over boulder clay or granite, the tree gave 5,965 cubic feet per acre at 54 years of age. At Ballogie (Captain Nicol's estate on Deeside), at 650 feet above sea level, it was found that 4,335 cubic feet was the quantity at 43 years of age, with similar soil conditions. At Durriss (near Aberdeen), at 600 feet, the volume was 4,360 cubic feet in 40 years. At Mar Lodge (the Princess Royal's property at the head of the Dee valley), at 1,500 feet the volume was 7,180 cubic feet at 84 years, growing on a sandy loam over a quartzite formation. Considering the very indifferent treatment accorded to Norway Spruce in the past, these results were encouraging and it was fair to anticipate better crop yields with later day knowledge. For example, while it re-

quired moisture, it did not need a copious supply of water. It did not necessarily prosper only in the wet flats of the valley. It would grow on the hill-slopes, and it accommodated itself to shallow mild peats, but it did require a reasonable proportion of free mineral soil. Another valuable attribute of the Norway Spruce was its seed-bearing capacity, and the hardihood of the seedlings and plants in the nursery. It was a cheap plant to raise, and it was not a victim of any very serious attacking enemy of the forests.

THE SITKA SPRUCE.

The Sitka Spruce was brought from the Western American continent, and our knowledge of it, as a real part of any afforested area, was comparatively limited. At an age approaching 60 years it was found to make large specimens in moderate soil, giving a height of over 100 feet. He thought they could predict that it would grow rapidly in this country. Although discovered at an elevation of 3,000 feet and more, it seemed of no consequence as marketable timber above about 1,000 feet, and the best stands were universally in the valleys and low slopes under 500 feet. In Aberdeenshire, at 43 years of age, it grew 5,740 cubic feet; in Dumfries, at 20 years, 2,340 cubic feet; in Argyllshire, at 20 years, 2,560 cubic feet. Like the Norway Spruce it was prolific in seeding power, but in the nursery it was sensitive to frost, and somewhat difficult to protect and raise.

Under proper forestry conditions, both Norway and Sitka Spruce should produce a larger quantity of timber in less time than either Scots Pine or Larch. It did not follow that the productive power of Spruce would rival that of the Douglas Fir, but the planter had to anticipate his market, and there was no timber more generally in demand than Norway Spruce. For paper pulp it had special advantages, and if once obtainable in bulk there would be no limit to its market. The Forestry Commission were much impressed with the importance of Spruce, and at present they were planting about 50 per cent. of their plantations with Norway or Sitka Spruce.

A hearty response was given by the meeting to Sir John Gladstone's call for a warm vote of thanks to Col. Sutherland for his admirable address.

GLASGOW AND WEST OF SCOTLAND HORTICULTURAL.

THE monthly meeting was held on Wednesday, the 6th inst. Mr. John Cairns, chairman of the directors, presided.

The chairman introduced the newly elected secretary and treasurer, Mr. J. Carrick Kerr, assuring him a hearty welcome and every support from the members.

A lecture on "Allotments—as they are, and what they might be," was delivered by Mr. A. Buist, Gryfe Nursery, Bridge of Weir.

In the course of his address, the lecturer criticised the methods of some allotment holders, and described as unsightly or untidy some of the wooden erections and small greenhouses to be seen on allotments in districts where no restrictions were imposed with regard to the placing of greenhouses on the plots. "With the aid of plans and illustrations he described how a section of allotments should be laid out. The Corporation or local authority, he thought, should put up a good fence, and also drain the land so as to prevent disputes about main drainage. The fence did not require to be expensive, provided it was strong. If the city adopted a scheme of town planning, he said, provision should be made for allotments and open spaces among the new houses. The allotments would thus become a permanent feature of the district, and tenants would be in no danger of losing them. The scheme should provide for wide, short streets and two-storey houses, which were much better than the system of semi-detached villas already in vogue. If the land was drained and fenced all other work might well be left to the allotment holder under the superintendence of the Park Department, which would make regulations for the

paths and roadways, the width of borders, so that there might be uniformity of design. The department should also provide a border of trees round a section, the trees to be of as great variety as possible, and be correctly named, so that teachers from neighbouring schools might take their senior pupils there occasionally for nature study. It was sad to hear of city children being poisoned by eating berries or the pods of such a common tree as the Laburnum. With regard to size, he did not think that plots should be larger than 10 yards by 20 yards. He was in favour of a central greenhouse for each group of plots.

An interesting discussion followed, and on the motion of the Chairman, Mr. Buist was given a cordial vote of thanks.

At the close of the lecture Mr. Hugh M. Mackie, who retired recently from the position of secretary and treasurer of the society after 25 years' service, was presented by the members with a handsome writing bureau and two easy chairs in recognition of his services.

CARDIFF GARDENERS.

A MEETING of this Association was held on November 28, Mr. P. Meyers presiding. Carnations were staged very creditably. First, second and third prizes were awarded to Messrs. P. MEYERS, FREEMAN, and CROUCH respectively.

Mr. A. Fry gave a lecture on "Liliums" and compared his experiences of growing these flowers in Glamorgan and in the Eastern Counties. It was agreed that satisfactory results cannot be obtained without recourse to great preparation. *Lilium candidum* was accorded the highest position in the discussion, and *L. auratum* was referred to as useful in combination with *Rhododendrons*. In the average Glamorgan soil *Liliums* require soil that is well drained, and it is often necessary to dig a hole 3 ft. deep, place 6 inches of ashes in the bottom and add old potting loam mixed with old mortar and lime rubble; the bulbs are placed on this material, covered with 2 inches of coarse sand, and then the site is levelled up with good loam.

—At the meeting of this Association held on the 12th inst. Mr. L. T. Smith delivered a lecture on "Winter-flowering Begonias." He recommends propagation of these Begonias from cuttings taken from plants that have previously flowered well. The plants should be cut down and the new shoots used as cuttings, which should be inserted from March onwards. When rooted sufficiently the plants should be potted in a compost consisting of turfy loam, dry cow-manure and leaf-mould. The lecturer strongly advocated keeping the house close and well shaded until the flower appears.

DUMFRIES AND DISTRICT HORTICULTURAL.

THE annual meeting of this society was held in the Wesley Hall, Dumfries, on November 25, when there was a good attendance of members, presided over by Mr. A. W. M'Alister, the retiring president. The chairman reported the results of the work of the past year and reviewed the financial position, which was a satisfactory one, although there had been some reduction in the number of members and in the total income. The income exceeded the expenditure by fully £27, and the credit balance is now upwards of £75. He referred to a suggestion which had been made to launch out on a more elaborate scale, but deprecated doing so at the present time. He also referred to the desirability of giving more power to the committee regarding dealing with exhibits not grown by the exhibitors. Mr. M'Alister also stated that the cups presented by the two local newspapers had been won outright, and that one of these had again agreed to provide a cup for competition, and he expected a satisfactory reply from the other shortly. A discussion followed in which there was a general agreement that it was desirable to introduce some additional attractions, which might take the form of an industrial section, and

this and the question of an effort to increase the membership were left to the committee. Mr. A. W. M'Alister was re-elected president, and Miss J. Young was reappointed secretary and treasurer.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

THE monthly meeting of this society was held in the R.H.S. Hall on Monday, December 11, Mr. Arthur Bedford in the chair. Three new members were elected. One member over the age of 70 years withdrew from his deposit account the sum of £70 19s. 2d. The death certificate of one deceased member was received, and the sum of £23 15s. 7d. was passed for payment to his nominee. The sick pay for the month on the ordinary side amounted to £70 6s. 2d., distress grants came to £11 10s.; on the State Section the sick pay was £59 2s., and Maternity benefits £6.

EAST ANGLIAN HORTICULTURAL CLUB.

THE thirty-third annual meeting of this club was held at Norwich on December 13. The secretary, Mr. G. Todd, in his report, stated that great progress had been made in the past year's working; the net gain of membership was 12, which brought the total up to 244. On the financial side, income from all sources was £95 15s. 2d., and expenditure £87 2s. 2d., this being the first time for four years that the club has not drawn upon its reserve funds. The year's work on the educational side by means of lectures, essays and exhibitions, had been quite a success. A further list of lectures, etc., was announced, which indicated an interesting session during 1923, and special prizes are offered for a variety of subjects at the monthly meetings.

At the election of officers, Mr. J. E. Fitt, gardener to Sydney Morris, Esq., Earham Hall, Norwich, was elected president; Mr. J. W. Chapman, Mangreen Hall Gardens, vice-president; Mr. G. Todd, secretary; and John Clayton, Esq. (of Messrs. Daniels Bros., Ltd.), treasurer.

ROYAL HORTICULTURAL.

TRIAL OF BEET (LONG VARIETIES) AT WISLEY, 1922.

THE following awards have been made to Beets by the Council of the Royal Horticultural Society after trial at Wisley.

FIRST-CLASS CERTIFICATE.

To No. 58, *Cheltenham Green Leaf*, sent by Messrs. WATKINS and SIMPSON.

AWARDS OF MERIT.

To No. 67, *Northumberland* (Dewars), sent by Messrs. WATKINS and SIMPSON; to No. 72, *Dell's Crimson Leaved*, sent by Messrs. BARR and SONS; to No. 81, *Covent Garden Red*, sent by Messrs. WATKINS and SIMPSON; to No. 84, 86, *Pragnell's Exhibition*, sent by Messrs. BARR and SONS and Messrs. WATKINS and SIMPSON; to No. 97, *Dark Red Improved*, and to No. 98, *Exhibition No. 1*, both sent by Messrs. DICKSON and ROBINSON.

HIGHLY COMMENDED.

To No. 18, *Omega*, from Messrs. COOLING; to No. 61, *Cheltenham Green Top* (similar to 58, but not quite so regular), from Messrs. HURST and SON; to No. 76, *Dwarf Red* (Nutting's), from Messrs. BARR and SONS; to No. 77, 78, *Long Purple*, from Messrs. DOBBIE and Co. and Messrs. HURST and SONS; and No. 80, *Volunteer*, from Messrs. WEBB and SON—all these last three considered identical; to No. 79, *Dark Red Improved* (Dell's *Crimson* type, see 72), sent by Messrs. WEBB and SON; to No. 87, *Dell's Black Leaved*, from Messrs. HURST and SON; to No. 91, sent as Middleton Park but is Elcombe's *Victoria*, from Messrs. WATKINS and SIMPSON; to No. 104, *Victoria*, from Messrs. BARR and SONS; to No. 96, *Long Red Selected*, from Messrs. NUTTING and SONS; to No. 101, *Market Favourite*, from Messrs. DICKSON and ROBINSON.

MARKETS.

COVENT GARDEN, Tuesday, December 19, 1922.

Fruit: Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Apples,—		Grapes,	
British Columbian		—Almeria, barrel	20 0-27 6
—Jonathan	7 0-9 0	—Cannon Hall	7 0-10 0
—Mcintosh red	8 0-9 0	—Gros Colmar	1 3-4 0
—Wagener	7 0-8 0	—Muscat	5 0 8 0
Californian		Grape Fruit	22 6-25 0
—Newtown Pip.	14 0-14 6	Lemons	
—Oregon	15 0-17 0	—Messina boxes	14 0-15 0
English, per bus.		—cases	25 0-30 0
—Alington Pippin	2 6-5 0	—Murcia	20 0-25 0
—Blenheim Pippin	5 0-7 0	Nuts—Brazil	45 0-55 0
—Bramley's		—Chestnuts bag	18 0 26 0
Seedling	5 0-7 0	—Cob.	2 2-0 0
—Cox's Orange		Oranges,	
Pippin best		—Dessa	16 0-20 0
1/2 bushel	7 0-8 0	—Jamaica	22 0 0
—ordinary	4 0-5 0	—Mandarins	1 9 2 6
—Newton Wonder	5 0-7 0	—Murca	16 0-20 0
Nova Scotian,		Pears,	
—King of Tomkins		—Bonneville du	
County	20 0-21 0	—Comice, dozen	6 0-12 0
—Fallwater	16 0-20 0	Californian	
—North Greening	16 0-20 0	—case	14 0-17 0
—Ribston Pippin	20 0-24 0	—Winter Nels	
—Russet	26 0-30 0	—case	22 0-24 0
Bananas, singles	30 0-40 0	—Beurre d'Anjou	22 0-24 0
—doubles	30 0-40 0	Pineapples	20 0-25 0
Grapes		Tunis Dates, doz.	
—Alicante	1 0-1 9	cartons	5 6-6 6
—sp.c.	2 0-3 0		

Vegetables: Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Asparagus, bundle		Onions	
—Finest Devon	12 0-14 0	—Dutch, bag	3 6-4 0
—Best Devon	6 0-7 0	—English, cwt.	5 0-6 0
—Sprue	1 6-2 0	—Valencia, case	7 0-10 0
—French	8 0-12 0	Parsnips, cwt.	3 0-3 6
Beans,		Peas, lb.	3 6-5 0
—Guernsey lb.	3 0-4 6	Potatoes,	
—Maiden basket	3 0-6 0	—Guernsey, new, lb	1 6-2 0
Cabbage, tally	2 0-3 0	Dunbar	15 0-16 0
Carrots, cwt.	3 0-3 6	—King Edward	13 15-14 10
Cauliflowers,		—Others	13 10-4 10
—doz.	2 0-4 0	Rhubarb, Forced,	
—Celery, roll	1 6-2 6	—doz.	3 6-4 6
Cucumbers, doz.	18 0-30 0	Savoy, tally	3 0-4 0
Endive, doz.		Skakale, lb.	1 0-1 3
—English	2 0-2 6	Sprouts, bushel	1 1-3 1 9
—French	4 0-5 0	Tomatoes English	
Lettuce, doz.	1 0-2 0	—New crop, pink	8 0-9 0
—Lett., dozen	6 0-9 0	—Pink and white	7 0-8 0
Mushrooms, lb.	2 0-3 0	—Canary Islands	17 6-27 0
		Turnips, cwt.	3 0-3 6

REMARKS.—Trade has been rather more active owing to the Christmas demand, and values in some sections have improved. Imported Apples have slightly advanced in price for best packs, and best English Apples have shared in the improved conditions to some extent, although, generally, values are on the low side. Ample supplies of Oranges have been available at moderate prices. Bananas have continued to advance in price, and finished a firm trade. The usual brisk demand at Christmas for hothouse Groceries has resulted in better prices for the growers. Choice vegetables, such as Peas, Beans, new Potatoes, Asparagus and Spakale sold well in response to a good inquiry, and although their values tended to slacken towards the end of the week, mild weather has been responsible for increased quantities of Mushrooms. Salads have met a fair demand. Early consignments of forced Rhubarb are available. Canary Tomatoes are scarce, and their value firm. Green vegetables are plentiful. The Potato trade is fair, with ample supplies available. The fine weather has been favourable to trade, but the volume has not been so large as in some previous years.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d. s. d.		s. d. s. d.
Adiantum		Erica gracilis	
—cuneatum,		—48 per doz.	24 0-36 0
—per doz.	10 0-18 0	—60	12 0-15 0
—elegans	10 0-12 0	—Thumbs	6 0-8 0
Aralia Sieboldii	10 0-12 0	Erica hyemalis,	
Araucarias	30 0-48 0	—48's per doz.	24 0-36 0
Asparagus plu-		Erica nivalis	
mosus	12 0-15 0	—48	24 0-30 0
—Sprenger	12 0-18 0	—60	10 0-15 0
Aspidistra, green	48 0-72 0	—Thumbs	6 0-8 0
Asplenium, per		—Genistas 48's	15 0-18 0
doz.	12 0-18 0	—per doz.	15 0-18 0
—32's	24 0-30 0	Marguerites, per	
—nidus	12 0-15 0	—doz.	15 0-18 0
Azaleas, 48's		Neprolepis, in	
—per doz.	30 0-48 0	—variety	12 0-18 0
—60's	18 0-24 0	—32's	24 0-36 0
Cacti, per tray,		Palm, Kentia	24 0-30 0
12's, 15's	5 0-6 0	—60's	15 0-18 0
Chrysanthemum		—Cocos	24 0-36 0
—white per doz.	15 0-18 0	Pteris, in variety	12 0-21 0
—coloured	9 0-15 0	—large 60's	5 0-6 0
Cinerarias,		—small	4 0-4 6
—per doz.	12 0-18 0	—72's, per tray	
Crotons, per doz.	30 0-42 0	—of 15's	3 6-4 0
Cyclamens,		Solanums, per doz.	10 0-12 0
—per doz.	24 0-30 0		
Cyrtolium	10 0-15 0		

Out Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Adiantum deco-		Narcissus, Soleil	
rum, doz. bun.	10 0-12 0	—d'Or, per doz.	
—cuneatum,		—bun.	5 0-6 0
—per doz. bun.	6 0-8 0	French flowers	
Asparagus plu-		—Roses Safrano	
mosus, per bun.		—per pkt 24's	2 6-3 0
long trails, 6's	4 0-5 0	—Ranunculus,	
—med. sprays	2 6-3 6	—Scarlet, per doz.	
—short	1 0-1 6	—bun.	15 0-18 0
—Sprenger, per bun.		—Carmine	
—long sprays	2 6-3 0	—per doz. bun.	12 0-15 0
—med.	1 3-1 6	Orange, per doz.	
—short	0 9-1 0	—bun.	18 0 21 0
Camellias, white		Scarlet, Romano	
—per box	4 0-5 0	—large, per doz.	
Carnations, per		—bun.	18 0 21 0
—doz. blooms	3 6-5 0	—Violets, Parma,	
Christmas Roses		—per bun.	9 0-10 0
—per doz.	3 0-4 0	—single per doz.	4 6-5 0
Croton leaves,		Gardenias, per	
—var., per bun.	2 6-4 0	—box	10 0-15 0
Chrysanthemum		Heather, white,	
—pink, per doz.		—per doz. bun.	4 0-10 0
—bun.	30 0-36 0	Lilium longiflorum	7 0-8 0
—bronze	30 0-36 0	—speciosum long	
—white	36 0-48 0	—per doz.	10 0-12 0
—yellow	30 0-36 0	—short	0 0-10 0
—per doz. blooms		Lily of the Valley,	
—white	5 0-9 0	—per doz. bun	24 0-42 0
—yellow	6 6-8 0	Orchids, per doz.	
—pink	5 0-8 0	—Cattleyas	18 0-30 0
—bronze	5 0-8 0	—Cypripediums	6 0-9 0
—single varieties		Felargonium,	
—disbudded		—per doz. bunch,	
—blooms, per doz.	3 0-5 0	—double scarlet	10 0-12 0
—Spray coloured		Poinsettia, per	
—per doz. bun.	30 0-36 0	—doz. blooms	18 0-30 0
Daffodils, single,		Richardias (Arums)	
—per doz. bun	36 0-42 0	—per doz.	12 0-15 0
Fern, French per		Roman Hyacinth	
—doz. bun.	1 0-1 3	—per doz. bun.	24 0-30 0
Forget-me-not per		Roses, per doz.	
—doz. bun.	12 0-15 0	—blooms—	
French Flowers		—Frau Karl	
—Acacia (Mimosa)		—Druschki	2 6-5 8
—per bunch	1 6-2 0	—Madame A.	
—Anemone, m'd		—Chatenay	5 0-7 0
—per doz. bun.	21 0 24 0	—Melody	8 0-10 0
—Lilac, white, per		—Niphetos	3 0-4 0
—doz. sprays	6 0-7 0	—Ophelia	8 0-16 0
—Marguerite,		—Liberty	6 0-7 0
—yellow, per dz.		—Richmond	6 0-7 0
—bun.	4 6 5 0	—White Crawford	3 0-4 0
—Marigolds, per		Smilax, per doz	
—doz. bun.	4 0 4 6	—trails	3 0-5 0
—Narcissus, paper		Violets, single	3 6-6 0
—white, per doz.	7 6-8 0		

REMARKS.—Business is very brisk in this department, and it is very doubtful if supplies will be sufficient to meet all requirements for the Christmas trade. There promises to be very limited supplies from home growers. Scarlet and white flowers will be most in demand, and prices are likely to rise considerably before the week-end. Tulips and Hyacinths on bulbs constitute two of the most attractive lines for this week-end. Golden Spur Daffodils are increasing in quantity, but prices, like those for all other subjects, are sure to be firm during the next fortnight. It is difficult to give correct quotations of values for the next few days. Richardias (Arums) and Lilium longiflorum will be much in evidence. Lily-of-the-Valley is arriving in excellent condition, and supplies of this flower are likely to be good, also of Poinsettias, which are much in demand. Roses are gradually lessening in quantity, and prices are much higher for red, pink and yellow blooms. The most attractive sorts are Mme. Abel Chatenay, Melody, Ophelia, and Richmond. The consignments of Roses from the South of France consist of the varieties Ulrich Brunner, Frau Karl Druschki, and Safrano; all are arriving in good condition. According to present reports, Paper White Narcissus is likely to be reduced in quantity for a few weeks, owing to heavy storms in several districts. Prices for this flower have already doubled during the past week. Acacia (Mimosa) is arriving in better condition. Anemones, scarlet and white Ranunculus, and white Lilac will all be much in demand this week. There is a very fair demand for pot plants, and Palms, Ficus and Ferns are selling freely.

GARDENING APPOINTMENTS.

Mr. W. H. C. Bevan, late Gardening Instructor at Monmouth Reformatory School, Pontpool, and previously at Trefegar Park Gardens, Newport, Monmouthshire, as Gardening Instructor at Central London District Schools, Hanwell, W.7.

Mr. B. Allen, for three and a half years Foreman at Down Hall, Harlow, Essex, and previously Foreman at Ferneros, Fulmer, Slough, as Gardener to J. R. Hangerstone, Esq., Drinkstone Park, Bury St. Edmunds, Suffolk. (Thanks for Is. for the R.G.O.F. Box—Ens.)

Mr. R. Everett, for the past five years Gardener to Miss DARTS, St. George's School, Ascot, and previously seven years at Nalder Hill, Newbury, as Gardener to the Misses DARTS, 73, Bentish Hill, Upper Norwood, S.E.19. (Thanks for Is. for the R.G.O.F. Box—Ens.)

Obituary.

Sir William Cameron Gull, Baronet.—The death occurred on Friday, December 15, of Sir W. Cameron Gull, Bart., formerly M.P. for the Barnstaple Division of Devonshire. He was the son of the distinguished physician, Dr. William Gull, who attended the late King Edward in his serious illness, when Prince of Wales, and was created a baronet in recognition of his services. Sir Cameron Gull, who was sixty-one years of age, twice married, his first wife being a daughter of the late Lord Lindley, and grand-daughter of Dr. John Lindley, one of the founders of *The Gardeners' Chronicle*. Sir Cameron Gull was himself for many years on the Board of Directors of this paper, and interested himself in it right up to the time of his last illness. He had a large garden at his home, Frilsham House, Yattendon, Berkshire, in which he took the greatest interest, being especially keen on the subject of fruit growing.

TRADE NOTES.

A COUNCIL meeting of the Chamber of Horticulture was held at 18, Bedford Square, London, W.C.1, on the 13th inst. Mr. C. W. Leak (President) in the chair. The Secretary's report was read and discussed. The report dealt with the following subjects:—(a) General Election and the action taken by the Chamber in inviting candidates to answer a questionnaire based on the horticultural programme of the Chamber, 187 favourable replies having been received. The Council expressed its approval of the action taken and directed that the replies be tabulated for reference, which would probably result in securing much help in Parliament with future legislative work. The question of forming a stronger Horticultural Committee in Parliament was debated at length, some members expressing an opinion that better work would be done by forming a horticultural section of the existing Agricultural Committee in the House, thus strengthening this Committee and in return receiving their support, as interests of both industries were analogous in many instances. The following resolution was subsequently passed:—

"That it be an instruction to our Parliamentary Committee to meet early in January to formulate a programme and submit the same to the next meeting of the Council."

(b) Conferences re Horticultural Organisation held on October 20th, when the following resolutions were passed unanimously:—

(1) That a co-ordinating body in horticulture is necessary.

(2) That this conference is of the opinion that with certain alterations in its constitution, the Chamber of Horticulture could meet the need.

Proposals for such alterations are to be submitted at a future meeting, probably early in January.

(c) Imperial Fruit Show, 1922.—The best thanks of the Council were tendered to Messrs. Geo. Mount and Sons, W. E. Wallace and Sons, Mr. Frank Ladds and Mr. G. W. Leak for flowers and fruit supplied in respect of the decoration of the Chamber's Stand.

(d) Imperial Fruit Show, 1923.—That a public meeting had been held and it had been decided to hold this show at Manchester, organised by a Committee consisting of three representatives each from the National Farmers' Union, Federation of British Growers, Chamber of Horticulture, National Federation of Fruit and Potato Trades Association, National Federation of Retail Fruiters and Florists, and the Manchester Salesmen.

It was proposed and carried that Messrs. G. W. Leak, Geo. Monro and A. W. White be the representatives of the Chamber.

(e) Technical Committee held on October 25th, when experiments as to surface sterilisation of fruit were reported. Also, that addi-

tional representatives from horticultural colleges and universities be invited.

Mr. Engelmann called attention to a serious pest attacking Chrysanthemums in the U.S.A., and it was referred to the Technical Committee to obtain information from the Cornell University, with a view to investigation.

(f) Lord Mayor's Show—Fruit Car.—In conjunction with the National Federation of Fruit and Potato Trades Association the Chamber organised a Fruit Car Trophy, accompanied by carters and cultivators.

(g) Ghent Exhibition, 1923.—Mr. J. S. Brunton reported that a sub-committee of the Exhibition Committee had that morning been in conference with representatives of the Royal Horticultural Society as to organising a collective British exhibit. Preliminary arrangements were discussed, and it was agreed that the Royal Horticultural Society organise amateur interests and the Chamber trade interests.

It was proposed that Sir Douglas Newton, M.P., be asked to represent the Chamber on the Horticultural Council of the British Empire Exhibition, 1924.

A motion that the Chamber should make a request for direct representation on the Executive Council of this Exhibition was not carried.

The Secretary invited opinions as to the Chamber taking space on behalf of prospective exhibiting members, who would not be prepared to exhibit for the whole period of six months, but who might care to exhibit for a lesser period. It was not thought expedient to move in this direction until further information could be obtained from the organisers, and this point was therefore left over.

The Secretary asked the Council to consider the Government action in appointing a Departmental Committee to inquire into the methods and cost of selling and distributing agricultural, horticultural and dairy produce, having regard to the disparity between the price secured by the producer and that paid by the consumer.

Mr. Du Cann stated that the Horticultural Trades Association Executive had already considered this matter, and that it was decided to take no action either way on behalf of the Horticultural Trades Association.

The Chairman replied that it was a serious matter to other sections of the Chamber and affected them considerably. He suggested that investigation should be made with a view to making a request to be heard by the Departmental Committee.

After several opinions were stated urging action to be taken, it was agreed that the Secretary communicate with the various trade organisations in order to ascertain if they would be willing to attend a special conference thereon to decide upon definite lines of procedure.

Mr. Seymour Copley briefly outlined a case for the revision of passenger traffic rates on flowers packed in boxes consigned from the Spalding area stations. This case was considered to be a strong one, and was referred to the Transport Sub-Committee for immediate action.

ANSWERS TO CORRESPONDENTS.

AMERICAN BLIGHT ON APPLE SHOOTS: M. Y. F. and W. E. The Apple shoots are attacked by American blight or woolly aphid. The tree should be sprayed now with the following dressing: 1 lb. caustic soda, $\frac{3}{4}$ lb. carbonate of potash, 10 oz. of soft soap, and ten gallons of water, adding the soft soap last of all. Another good plan is to brush the main branches of the young tree infested with woolly aphid with a strong solution of Calvert's carbolic soap, thereby dislodging the aphides at once. The treatment may be continued in summer by spraying the parts affected with a weaker solution of Calvert's carbolic soap, not exceeding one ounce of the soap to each gallon of water.

APPLE LEAVES SCORCHED: J. W. The discussion on Leaf Scorch, to which you refer, appeared in the *Annual Report* of the Agricultural and Horticultural Research Station, Long Ashton, Bristol, for the year 1921, under the title of "Leaf Scorch on Fruit Trees." The article was the joint contribution of Messrs. Barker, Lees, Wallace and Wiltshire.

CAUSTIC ALKALI WASH: C. P. A good caustic alkali wash is made of 1 lb. of caustic soda (70 p.c.); $\frac{3}{4}$ lb. carbonate of potash (80 p.c.); $\frac{1}{2}$ lb. of soft soap and ten gallons of water. Dissolve the caustic soda and carbonate of potash in water and then add the dissolved soft soap.

CELERY: F. G. B. It is probable that you made the trench too deep, which in the case of your heavy, sticky soil would be liable to accumulate too much moisture, which would have a difficulty in draining away. The head sent inclines somewhat to coarseness, and this may be partly due to over-feeding with the manure water you mention. While Celery is a moisture-loving plant, it is possible to over-water it, especially on such land as yours. In future we would advise you to use less liquid stimulant and substitute a concentrated fertiliser.

FALLEN LEAVES IN SHRUBBERIES: J. M. If the leaves are not required for the making of hot-beds or leaf-mould, they should be lightly forked below the surface, as they will supply valuable material to the shrubs, etc., in the form of humus. This will be better than allowing them to remain on the surface, for, apart from presenting an untidy appearance, they would be blown into heaps and not enrich the ground evenly. Shrubberies that are lightly forked and left moderately rough on the surface present a very neat appearance, even in winter.

GRAPES FOR A VINERY: A. S. As you require from four to six different varieties of Grapes in your new vinery, we advise you to plant one vine of Black Hamburg, one of Madresfield Court, two of Muscat of Alexandria, and either one or two of Alicante and one of Appley Towers. There are no new varieties of Grapes to compare with these for quality, and all are easily grown.

NAMES OF FRUIT: E. H. W. 1, Beauty of Kent; 2, Lane's Prince Albert; 3 and 4, Dumelow's Seedling (syn. Wellington).—A. G. Apple Cox's Orange Pippin; Pear Catillac.—T. E. W. 1, Ellison's Orange; 2, Cellini; 3, Cornish Aromatic; 4, decayed; 5, Vicar of Winkfield; 6, B urre Clargeau.

SCHINUS MOLLE: F. T. The fruits are those of Schinus molle, a shrub or small tree bearing the popular name of Pepper Bush. The species is not hardy in this country, but has fruited under glass in several establishments; the bunches of reddish-pink berries are very ornamental, the individual fruits being about the size of Peppercorns. The plant grows freely in the south of France, and graceful, fruiting branches are exported thence to British flower markets during early December. These are used by florists for special forms of indoor decoration.

SAINTPAULIA IONANTHA: J. This charming little warm-house plant belongs to the same family as the Gloxinia, and requires practically the same treatment, from the time the seed is sown until the flowering stage. Good plants may be grown in 3-inch pots, and they form a charming edging material in the stove. Their chief requirements are a very peaty soil, perfectly clear drainage, a moist atmosphere, and syringing to ward off attacks of the plant's greatest enemy—red spider.

TOMATOS WITH HARD, GREEN PATCHES: *Constant Reader.* The hard, green patches on Tomato fruits is generally ascribed to a lack of potash in the soil. In future use plenty of wood ash, or a little sulphate of potash, in composts for Tomatos.

Communications Received:—D. T. S.—W. S.—J. W. B.—F. A. F.—F. G. B.—J. E. I.—M. M. B.—L. W.—R. R. G.—R. E.



THE

Gardeners' Chronicle

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 38.6°.

ACTUAL TEMPERATURE:—
Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, December 27, 10 a.m. Bar. 30.1; temp., 46°. Weather—Rainy.

The Electrification of Crops. A useful summary of the present state of knowledge on the effect of electrical discharge on the yield of crops is published in the *Journal of the Ministry of Agriculture* for December, 1922. As those interested in the subject are aware, careful and large-scale experiments in what bids fair to be known by the unpleasant name of electroculture have been carried out during the past few years by the Committee appointed in 1918 "to advise the Ministry of Agriculture in regard to all electrical questions in connection with the carrying out of experiments in electroculture." Sir John Snell, the Chairman, has taken a great interest in the experiments, the carrying out of which has fallen mainly to Professor V. H. Blackman. The field experiments with Barley and winter Wheat, Potatoes, etc., were made at Rothamsted, and pot cultures have also been made at that station. These trials, together with laboratory experiments to determine the effect of electric currents on plant growth, appear to hold out hope that the application of the electrical discharge to growing crops may prove sufficiently beneficial to make it of commercial value. For technical details of the mode of production of the current, reference should be made to the *Journal of Agriculture*. As to the results: of eighteen experiments, of which records are tabulated, fourteen gave positive results and four negative. The average

increase of yield in the former amounted almost to thirty per cent., and the average percentage decrease in the latter to slightly more than six per cent. Oats have given increased yields—as compared with those of control plots—so great as fifty per cent. (in 1918), thirty-five per cent. (in 1919), and fifty-seven per cent. (in 1920). On the other hand, similar experiments with the same crop at the Harper-Adams College gave only two per cent. increase in 1919, and a nine per cent. decrease in 1920. Winter-sown Wheat gave at Rothamsted, in 1919, an increased yield of thirty-eight per cent., but in the following year the electrified crops were four per cent. smaller than the controls. Clover-hay grown at Rothamsted in 1919 gave increases of fifty per cent. in the first crop and thirty-four per cent. in the second; but in 1920 the increased yield in favour of the electrified crops was only two per cent. That the electrical discharge may exert a considerable and beneficial effect on crop-yield—at all events in the case of certain crops—would appear from these results to be probable, and it is noteworthy that in no case did the application of the discharge result in more than a six per cent. decrease. With results at once so encouraging and so variable, it is evident that thorough investigation into the strength and time of application of the current are necessary. Such experiments are being made, and have already led to interesting results. Thus, experiments made in 1920, and repeated in 1921, show that alternating current is usually as effective as, or more effective than, direct current. They also indicate that plant growth may be increased by an upward current through it as well as by a downward current. So long ago as 1918 it was discovered that if a current of more than a certain amperage was used, seedling plants (Maize) sustained injury, but that current of lower amperage had an accelerating influence on their growth. What, however, bids fair to prove of even greater importance is the evidence that an electrical discharge applied for the first month only of the growing season may be as effective as one continued throughout the growing season. If this be confirmed, it cannot fail to prove of the greatest value, and particularly so to horticulturists. For they, at all events, often find it profitable to practise transplantation on a large scale, and if seedlings or cuttings when raised under conditions which admit of their being subjected to electrical discharge give larger crops than untreated plants, it might prove commercially advantageous to establish electrical nurseries for treating plants in this manner. Those interested in the subject will look forward to the publication of the fifth interim Report of the Committee, in which the results obtained in 1922 are to be described. The previous four Reports may be obtained free of charge on application to the Secretary of the Committee, Mr. W. R. Black, B.Sc., Ministry of Agriculture, 10, Whitehall Place, London, S.W.

Edinburgh Market Gardeners.—In the course of his remarks at the annual meeting of the Edinburgh Market Gardeners' Association, the president, Mr. David King, stated that the flower trade had been fairly satisfactory during the year, but for vegetable growers the season had been one of the hardest ever experienced. He considered the suggested new home for the Vegetable Market, near the Edinburgh Gas Works, was a most undesirable site, and thought the old market was large enough for present business. In his opinion, unless a new market encouraged an increase of business the present arrangements were to be preferred. Mr. David Watt, convener of the

Markets Committee of the Edinburgh Town Council, opined that unless the need for a new market was clamant it would be foolish to proceed with the suggested scheme, as its success depended entirely upon the good will of those who would use it.

The Colour of Citrus Fruits.—Apparently the colour of, say, an Orange or Grape Fruit is no real index as to the ripeness of the fruit, for a high colour may be artificially produced by exposing the fruits to certain gases. According to some particulars sent us from the Porto Rico Agricultural Experiment Station, Mayaguez, artificial colouring of Citrus fruits is resorted to by growers in that country by exposing them to gases produced by the combustion of gasoline or kerosene without raising the temperature, that is at a temperature of 76° to 86°. Chemically active gases such as chlorine or sulphur dioxide are also used for producing colour in the rind, but in all such cases the rind of the fruit may be spotted by the action of the gas unless the air is agitated in the colouring room by means of a fan or some such other means. It is also necessary to force fresh air into the colouring room and in such quantity as to keep the oxygen supply at about fifteen per cent. of the atmosphere, otherwise the stems loosen on a large percentage of the fruits, resulting in Diplodia decay. The effect of a gas upon the chlorophyll may be directly chemical, that is, it may act as a bleaching agent; the bleaching produced by sulphur dioxide is a typical example. The effect produced by the combustion products of oil is not of that kind. These latter gases may have present a little carbon monoxide, hydrogen and hydrocarbons, as well as some acid gases, the amount of which depends upon the completion of the combustion. Such gases are those which principally cause the change in colour of the chlorophyll. In Porto Rico it is unlawful to offer for sale Grape Fruit that has been artificially coloured, the juice of which has more than one part acid to seven parts total solids; in the case of Oranges the ratio must be one to eight.

The "Fruit Grower" Directory and Handbook.—From Messrs. Benn Bros., Ltd., of Bouverie Street, we have received a copy of their "*Fruit Grower" Directory and Handbook* for 1923, a work of reference for the fruit-growing and fruit-distributing industry. It is a large quarto volume, comprising nearly five hundred pages, the majority of which are devoted to addresses of fruit nurserymen, salesmen, etc., in alphabetical order—a most valuable list to those engaged in the fruit-growing industry. There is also a useful list of fruit traders in the Colonies, and another forming a Continental section. As showing the great usefulness of this part of the work, one may, for instance, find lists of firms exporting Figs from Turkey, Nuts from Spain and Oranges from Italy. Much general information of value to fruit growers is given in the early pages of the book, including an illustrated article on packing and grading produce for market; packing flowers for market; the best kinds of fruits and flowers for market; a fruit grower's calendar of work; hints on spraying; data relating to railway regulations, rates and transport; legal points affecting the horticultural trade and the various orders of the Ministry of Agriculture that have a special bearing on fruit growing. There is also a list of the trade organisations of the United Kingdom, and another of the various retail associations. The book has an attractively designed cover in stiff boards, and is sold at 10s. net.

International Co-operation in Seed Testing.—Mr. Edgar Brown, who has charge of the seed testing laboratories of the United States Department of Agriculture, recently made a journey to Europe and visited the seed testing stations of Great Britain, Denmark, Germany, France, Holland, Czechoslovakia and Switzerland. He is of opinion that, following the recommendations made at the International Seed Testing Congress, at Copenhagen, in 1921, all the countries having dealings with each other should make such modification in their methods of testing as will ensure a closer agreement in

the results of the analyses made by different nations. Mr. Brown has a high opinion of European seed testing stations, and observes that "most of the stations in Europe are housed in modern laboratory buildings designed for their special use, and fitted with modern equipment."

A Florists' Magazine for the U.S.A.—The proprietors, Messrs. C. E. Falls Service Company, 709, East 40th Street, Chicago, have forwarded us a copy of their magazine for retailers of flowers, entitled *The Progressive Florist*. The work is issued monthly, and the copy before us includes sixty pages of advertisements and text, and both advertisements and literary matter are freely illustrated. American florists are apparently much more alive to the value of advertising than growers in this country, and they are to be commended in the manner in which they draw attention to the best methods of utilising flowers, in the many excellent illustrations accompanying their advertisements. The magazine is admirably printed on art paper, and includes a very dainty frontispiece in colours. The Editor and proprietors are to be congratulated on the attractiveness of this publication.

The Ontario Grape Crop of 1922.—The Grape-growers of Ontario, Canada, have had a splendid season this year. It is estimated that between 15,000 and 20,000 tons were marketed, the growers receiving from £16 to £25 per ton. The most popular variety with Ontario growers is Concord.

Colour Sporting in Apples.—On page 362 of last week's issue we referred to a case of colour sporting in Apple Newton Wonder in Mr. J. C. Allgrove's nursery at Middle Green, Langley, and stated that there were coloured sports of several other well-known varieties. We learn from *The National Nurseryman* of the U.S.A. that the famous American Apple Stark's Delicious has also sported. A farmer named Louis Mood, of Ferrell, noticed a limb of one of his Stark's Delicious Apple trees with dark red fruits, while those of the other limbs were of the ordinary light colour. The attention of a nursery firm in Missouri was directed to the sport, with a result that the farmer was given \$5,000 "for the tree, limb, the scions, buds and cuttings." In addition to this, the farmer will receive a royalty on the sales of the trees of the new variety. An engineer has taken the measurement of the tree, with its exact location, and a legal agreement said to cover many pages of typewritten matter has been drawn up. The sporting is doubtless in accordance with the procedure described by Mr. E. A. Bunyard on page 168, and not, as believed by the local nurserymen of Ferrell, caused by "a blossom blown from some other variety of Apple, which lodged on the limb, took root and yielded the new fruit."

Closing of a Famous U.S.A. Nursery.—One of the best-known nurseries in America, that of Messrs. Thomas Meehan and Sons, Germantown, Philadelphia, has been sold for building developments. Mr. Thomas Meehan, the owner of the nurseries, was assisted by his brothers, Joseph and Edward, and the firm sent out rare trees and shrubs to all parts of the world. Thomas Meehan was later assisted in the business by his three sons, and the whole of the Meehan family were specialists in their respective spheres, Edward Meehan being a most skilled propagator and a man who could tell one plant from another at any season of the year. Thomas Meehan for thirty years edited the *Gardeners' Monthly*, and he was the author of *Native Flowers and Ferns of the United States*. In 1853 he wrote *The American Handbook of Ornamental Trees*, dedicated to the memory of John Bartram, the patriarch of American arboriculture, which described about three hundred plants with which he was personally familiar. By his writings and popular articles, Mr. Thomas Meehan interested and educated plant buyers, and his nursery attained considerable fame. The many rare specimen trees retained for propagating purposes are destined to be destroyed, including one of the first Japanese-leaved Maples that Mr. Meehan introduced into America about 1876. Before his death in 1901 he took his three

sons into partnership, and the eldest, Thomas B. Meehan, is now engaged with his son under the name of T. B. Meecher and Co., at Drecher, where they have over two hundred acres of hardy trees and plants. Another son, J. Franklin, conducts a landscape business at Mount Airy, while the third son, Mr. S. M. Meehan, has retained the name of the old firm, Thomas Meehan and Sons, and also succeeded his father as the editor of *Meehan's Monthly*.

Mr. J. Shelton.—Few, if any, gardeners who specialise in fruit cultivation have such a wonderful record of prize winning for Grapes as Mr. J. Shelton, gardener to Lord Hillingdon, at The Wilderness, Sevenoaks. In 1916 Mr. Shelton won five first prizes for Grapes at the Royal Horticultural Society's fruit show, four in 1917, four in 1918, seven in 1919, seven in 1920, three in 1921, and nine in 1922. In view of these records it is hardly necessary to state that Mr. Shelton is a clever cultivator of indoor fruits, but it should be added that his record is not confined to Grapes, as he has been awarded a Silver Banksian Medal for forced Strawberries, and Knightian Medals for collections of Apples and Pears shown in December and January. He has also won other medals



MR. J. SHELTON.

and several silver cups at autumn fruit shows. Mr. J. Shelton's wide experience in horticultural matters commenced in 1889, at Shipley Hall, Derbyshire, under the late Mr. W. Elphinstone. In 1893 he entered service at Osberton, under the late Mr. S. Woods and Mr. T. H. Crisp. Four years later he moved to Berkeley Lodge Gardens, Burton-on-Trent, and in December, 1897, he became general foreman under Mr. A. R. Allan, at Hillingdon Court, Uxbridge, where he remained until October, 1903, when he entered upon the responsible position he still holds. Mr. Shelton has made a speciality of Carnations, which are grown very extensively and well at the Wilderness, and that he has won a Silver Flora Medal for Souvenir de la Malmaison Carnations is evidence of his skill with a section which is invariably regarded as a test of cultivation.

A New British Calamintha.—Mr. H. W. Pugsley showed a specimen of *Calamintha boetica* at the meeting of the Linnean Society on the 14th inst. The new form was first found in this country near Swanage, in Dorsetshire, in 1900, and again in 1912. It is of interest as being an additional unit in the Lusitanian element in the British Isles. *Calamintha* was placed in the genus *Melissa* by Linnaeus; the other three recognised British species are *Calamintha ascendens*, Jord., *C. Nepeta*, Savi, and *C. sylvatica*, Bromfield.

Cherries from South Africa.—A consignment of Cherries recently reached Covent Garden from growers in South Africa. The fruits, which formed part of a small experimental consignment, were of exceptionally good quality, and met with a ready sale. They were of the White Heart type. We believe this is the first time in the history of the market that Cherries have been on sale a week or so preceding Christmas.

Presentation to Mr. J. K. Ramsbottom.—A very pleasant function took place at the Red Lion Hotel, Spalding, on Wednesday evening, December 20, when Mr. J. K. Ramsbottom was made the recipient of a gold watch and chain by the members of the Spalding and District Bulb Growers' and Market Gardeners' Association. In making the presentation, Mr. O. D'Alcorn, the president, referred to the great services rendered by Mr. Ramsbottom to the Daffodil-growing industry in this country, and especially to his ability to place before the growers a successful method of treatment for the eelworm disease, which, at one time, had reached very alarming proportions in the district. In accepting the gift Mr. Ramsbottom said that several years ago it fell to his lot to investigate the Daffodil disease, and it was the aim of every investigator in pathological plant research to place before the growers economical treatments in order to keep the many plant pests and diseases within reasonable limits. He was of the opinion that the hot-water treatment of Daffodil bulbs had given a new lease of life to the Daffodil industry, which at one time was certainly threatened with extinction. He urged growers to still keep a careful eye on their stocks, and in thanking the members for the very acceptable gift, he wished them every success in their business of flower and bulb production.

Rattan Trade of Singapore.—Not only does the Singapore district produce large quantities of Rattan canes, but it imports from 26,000 tons to 34,000 tons per annum, for re-export. The principal purchases are made in the Dutch East Indies. America is a large buyer of Rattan canes, and in 1920 imported 6,480 tons to the value of 1,362,000 dollars, chiefly for use in furniture factories in Michigan.

Appointment for the Ensuing Week.—Thursday, January 4: Manchester and North of England Orchid Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Calendar of Operations.* In taking leave of my portion of the *Calendar of the Chronicle*, after a two years' probation, I may perhaps be permitted a few extra remarks. In the first place, I would offer an apology for any errors into which I may have fallen during my course. Horticulture is a profession so multifarious in its bearings, and its principles capable of such varied application, through circumstances frequently of a merely local character, that no Calendar writer may hope to escape errors, or at least what may appear errors to some persons. I have made it a point from the first to recommend nothing as mere opinion, but to confine myself to suggestions based on well investigated principles. A Calendar is not the place for whimsical speculations; its great business is, I conceive, to direct attention to all matters of importance at the respective periods in which they should be carried out. I therefore venture to express a hope that my advice has frequently proved of service to the uninitiated; and it now merely remains for me to bid my successor, whoever he be, God speed, and to wish him success. Horticultural matters are making rapid advances, and the go-ahead maxim—to borrow a transatlantic phrase—must indeed henceforth be the order of the day. Mere practical routine will not long suffice, although sufficiently estimated. Horticulture, like agriculture, is determined to invoke the aid of science, and both will, I am assured, at no distant day, assume a much more important position. Robert Errington, Oulton Park, December 23. *Gard. Chron.*, December 25, 1847.

The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Gardener to His Grace the Duke of Marlborough, K.G., Blenheim Palace, Woodstock, Oxon.

Seasonable remarks.—Although the past season has been far from an ideal one, owing to the lack of sunshine, Orchids have made much finer growth than at one time seemed possible. The growths not being so fully matured as after the bright weather of last year, care must be taken that no serious fluctuations of temperature are allowed, as immature plants suffer much sooner than properly ripened ones. Where seedlings have been raised during the summer there will always be plenty of work, as constant handling and attention will be necessary to ensure good results. The work of raising hybrid plants is of a most engrossing nature, and a few successes atone for many disappointments. The spring and summer entail an amount of routine work, such as shading, airing, and spraying, which will now be curtailed, and the repotting of many seedlings, which had to be held over then, may be proceeded with. It is a matter of gratification that small seedlings of the whole of the evergreen Orchids do not resent being disturbed during the winter, provided the operation be done carefully, and they are accommodated afterwards in suitable quarters. In repotting any members of the Cattleya family it is essential that the small pseudo-bulbs should be completed before disturbing them. It is worse than useless to attempt the repotting of small Dendrobiums and deciduous Orchids during the winter.

THE KITCHEN GARDEN.

By JAMES E. HATHWAY, Gardener to JOHN BRENNAND, Esq., Baldersby Park, Thirsk, Yorkshire.

Shallots.—As soon as the ground can be got into suitable condition the bulbs of Shallots should be planted, as the longer season they have the better, and frost will not harm them. Trench the ground and manure it well, if this has not been done already. Plant the bulbs in rows 1 foot apart by slightly pressing them in the soil, and then draw some of the latter over them.

A Retrospect.—In some respects the past season has not been the best for certain classes of vegetables. The showery weather and lack of sunshine were unfavourable to Peas and Onions, the latter running too much to top, and especially those sown out of doors. Peas for want of sun, after the earliest batch, filled their pods badly. Potatoes have been exceptionally heavy crops. Our best sorts were King Edward, Majestic, Rhoderick Dhu and Arran Comrade; the last is a Potato of fine quality. Cauliflowers and Cabbages suffered very much in the early part of the year from grub, but the autumn has been very favourable to all kinds of green vegetables, and Cauliflowers are still turning in, owing to the very mild autumn and winter. Amongst the varieties of vegetables I have tried and found do well this season are Peas: Peerless, Delicacy, Rival and Supreme. Onions: Al and Premier Cabbage Tender and True, Cauliflower Purity. Lettuces: White Chavigny and Non-such. Dwarf Beans: Evergreen. Superlative and Magpie; and Brussels Sprouts: Solidity and Dwarf Gem.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Lieut.-Col. SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

Potting.—If pyramids or bushes have not already been bought or lifted for potting they should be secured at once. I strongly advise owners of late orchard houses to purchase a few trees annually and grow them on for at least one year in the reserve garden, and when well set with buds pot them at the fall of the leaf. Pears, Cherries and Plums may be left

out of doors until the end of the year, when they should be housed, not for forcing, but for the protection of the swelling buds from attacks by birds. A few Cherries and Plums may be taken indoors and grown in a little warmth from fermenting leaves. The house should be ventilated to the fullest extent, and the trees will make rapid progress without resorting to the use of fire-heat. As the buds swell the trees may be gently syringed once during the forenoon of bright days. The roots will require plenty of tepid water, especially if they are not bound, as all stone fruit trees should be before they are in the best condition for early forcing. As the buds swell and show signs of expanding, the usual enemies of these trees, grubs and aphides, should be looked for and checked. Trees planted out in inside borders require



FIG. 151.—ATHROTAXIS LANIFOLIA (SEE P. 380).

similar attention as regards fresh air and the most limited use of fire-heat. A good soaking of the roots with water warmed to a temperature of 70° will be of great help to the trees when the buds are on the move. The temperatures for Cherries and Plums may range from 40° to 45° at night, and 50° to 55° by day; no harm will happen to the trees if the temperature is a little higher in very mild weather, provided the house is liberally supplied with fresh air.

HARDY FRUIT GARDEN.

By H. MARKHAM, Gardener to the EARL OF STRAFFORD, Wrotham Park, Barnet.

Planting.—Any planting that still remains to be done should receive attention on favourable occasions in order that the work may be completed as soon as possible. Where the soil is of a somewhat heavy character and in a sticky condition scatter a few shovelfuls of rather dry and finer soil amongst the roots before covering them with the ordinary soil of the garden. See that all the stems are well protected against rabbits and hares, otherwise, where these animals are troublesome, they may do much harm to the bark in a single night.

Raspberries. If not mulched or top dressed already, Raspberries should receive this attention. Good mulchings of manure and old top soil from vine borders placed over the roots will greatly benefit the future crops. The Raspberry is a gross feeder, and being surface rooting, suffers quickly on light land from drought. The latter can only be overcome by mulching and constantly feeding the plants with rich materials.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to SIR C. NALL-CAIN, Bart., The Node, Codicote, Welwyn, Hertfordshire.

Roses.—Roses that were re-potted or top-dressed, as advised in a previous calendar, should, if they are required to bloom early, be placed in a house near the roof glass. Very little fire-heat is needed in their early stages of development, but once growth becomes active the amount of warmth should be increased. Care is needed in ventilating; cold draughts must be prevented, or mildew may attack the foliage; a further preventive of mildew is to spray the plants in the morning with weak, soapy water. As the plants advance in growth and the buds are formed, the roots may be given a little concentrated fertiliser.

General remarks.—At this season of the year the roof glass of all houses should be cleansed in order that the plants may receive the maximum amount of light. It will be necessary to wash the glass at short intervals. Plants growing in cold frames are so nearly hardy that the sashes should only be entirely closed in times of severe frost. At other times air should be admitted both day and night, and always in accordance with the outside temperature. Damp is the greatest enemy of plants in frames, and the latter should never be coddled, but kept sturdy by ventilating the frame on all favourable occasions. Examine the plants frequently, and remove all dead and decaying leaves. Slugs are sometimes troublesome, and means should be taken to trap these pests. Continue to propagate Chrysanthemums as strong cuttings become available, and remove from the propagating frame early cuttings that have made roots; after a few days stand them near the roof glass.

THE FLOWER GARDEN.

By EDWIN BUCKETT, Gardener to the Hon. VICARY GRUBB, Aldenham House, Hertfordshire.

The Aster Border.—By this date the growths of the Perennial Asters will have died down, and after gathering any seed that is required, the old stems should be cut low down, removed and burned. The seed should be sown as soon as it is gathered, in boxes filled with a light, moist compost, and should be placed in gentle heat to germinate, not allowing the soil to become dry. When the seedlings appear the boxes should be placed in a cold frame, where they should remain until the seedlings are pricked out in the early spring.

Planting Hedges.—After the position of the hedge has been decided on, the ground should be thoroughly well prepared for the reception of the plants. Too often this preliminary preparation is overlooked, and the plants merely dumped into a shallow trench. Drainage also should be provided, if necessary, and if the soil is very poor, it should be enriched with well decayed manure. Given these attentions the hedge should soon form an object of interest, as well as utility. There are many plants that form good hedges, and of the evergreen sorts, few are better than Holly, Yew, Cupressus, Viburnum Tinus (in mild localities) and Box, whilst in the warmer districts of the country, such as the south-western counties, Oleas may be employed for the purpose with success. Deciduous subjects that are useful are Beech, Berberis, Hornbeam and Thorns. One of the prettiest hedges is formed of strong growing bush Roses, giving them sufficient space to develop properly; the low growing polyantha Roses make a very pretty dwarf edging, and are a pleasing change from the dwarf Box edgings commonly met with.

EDITORIAL NOTICE.

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Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

MR. KINGDON WARD'S SEVENTH EXPEDITION IN ASIA.*

No. V.—Lion Rock.

WINTER is as tedious as a twice-told tale in these regions; even in mid-April it is reluctant to give way to spring.

I loosed several doves, in the guise of collectors, to see how the vegetation was faring, and the few Rhododendrons they returned with did not hold out much promise of flowers in bulk for some time.

On April 24 we visited Lion Rock—an isolated limestone cliff between the plain and the lake, rather like Gibraltar in appearance. Camp was pitched in a ravine which divides the mountain from the main range. Next day we made our first assault on the peak, whose summit rises about 3,000 feet above the plain.

However, we were stopped by precipices and bad weather, but found in flower a Rhododendron I wanted—probably the same plant of which I had collected seed at Mu-li the previous year; anyhow, it is closely allied. This species (K.W. 4486), though I had not then seen it in flower, I nicknamed, prophetically, "limestone beauty." It was in flower, a beautiful sight, the flowers brilliant Heather purple, with brown anthers, the leaves silver-grey. It is a low-growing shrub, clinging to the cliffs, in deep shade, easily recognised by the large, leafy calyx and loose four-flowered trusses. We had already found two other closely allied species of the same group.

Another plant which caught the eye was a Veronica; it was only last season's fruits, really, but the tall spikes looked promising, and I saved a remnant of seed on the chance that it might prove a good garden plant.

When we returned to camp rain set in. It rained till the small hours, then ceased suddenly. Everything was very still. The temperature fell ten degrees with astonishing swiftness, and when we woke up it was snowing heavily, and the forest was already white. The snowstorm continued all day, and we could do nothing. The mules had to be sent down to the plain.

In the circumstances there was no alternative but to go down ourselves, and next morning—April 27—down we went, soon getting clear of the snow. It was obvious, however, that it would lie in the forest for a week.

Nevertheless, the weather now began to mend and the snow disappeared from the tops of the 14,000 foot ranges to the west in a few days; or seemed to. Two days later we set out for the summit of the divide which separates the Yung-ning basin from the Yang-tze.

We had, of course, just crossed this range; but there are peaks along its length over 2,000 feet above the pass, and it was towards these we directed our steps.

After passing through the Pine forest we entered a narrow valley, where the only thing in flower was *Primula sonchifolia*; a wilderness of down-trodden, brown stems and leaves told of high meadow here in the summer.

Next day, April 30, we entered the Rhododendron forest and the snow, the latter deep and soft. After a tiring climb we came out into the alpine region, a maze of bleak, glaciated valley heads, eaten out of the limestone range. Camp was pitched on a grassy fell at 14,000 feet. Patches of snow lay about, and a keen wind hummed amongst the rocks. A glance round was enough; we should be able

to tell from the withered sticks and cushions what to expect here, but we certainly should not find any flowers. I decided to spend May day here and then return to the plain.

After a sharp frost, May 1 dawned, the sky turquoise blue, the air clear as crystal. It was a wonderful day. I climbed the highest peak at hand, 14,800 feet, and saw the whole panorama of snow peaks to the north, alas, inaccessible! Right at our feet lay the plain of Yung-ning, and the sapphire lake, separated by Lion Rock. A day's search even revealed a few flowers which could not resist such a day. A purple *Nivalis Primula* was up, and the blue veined petals of *Solms-Laubachia*, anticipating the foliage, brightened the thick, woody stems of this curious Crucifer. The foliage of a *Rhododendron* unknown to me was brought in, but, unfortunately, there was no hint of flowers. On the whole it was a day more full of promise than of actual achievement.

On May 2 we returned to the monastery, and a few days later we attacked Lion Rock once more, and in beautiful weather reached the summit. There was not much to be seen except the view, however, and a *Rhododendron* with orange felted leaves and pinkish-purple flowers,

at first sight it looked more like a *Gentian* than a *Primula*. Unfortunately, we could not find the place where it grew.

We now turned northwards towards Mu-li, following the divide between the Yung-ning basin and the rivers to the west. For the most part we were in Pine forest, and there were few flowers. At last we began to climb again, and on the fourth evening we pitched camp at 14,000 feet, below a group of limestone peaks which rose a thousand feet higher. The mountains here had been extensively glaciated. Rhododendrons were scarcer than ever, and few of the dozen or so species which were to be found here were as yet in flower. I added one more to my list, a purple flowered shrublet allied to "*Limestone Beauty*" already referred to; but this was not a limestone plant, nor did it seek shade.

After a brisk frost in the early morning May 14 dawned clear as crystal, and we spent the day climbing the limestone peaks. It was disappointing to find so little in flower, but as there was scarcely a vestige of snow, even at 15,000 feet, except in the deepest gullies, it was hardly surprising. In fact, it must be confessed that these high, limestone towers were



FIG. 152. SPECIMEN HOLLIES IN THE HOLLY WALK AT KEW (SEE P. 379).

which had escaped discovery the previous year. So we descended.

We had now been nearly three weeks at Yung-ning, and it was time to be moving on. Consequently, on May 10, we started for Mu-li by a roundabout route, first crossing the range to the west. The Pine-Oak forest here was carpeted with a small pink *Androsace*, a genus which, though not nearly so prolific as *Primula*, is nevertheless represented by a good many species in this part of the world. The ubiquitous *A. spinulifera* of course grows everywhere. If it was rare instead of common, or local instead of widespread, its extreme forms would doubtless rank as distinct species, or at any rate as well marked varieties. The cinnabar red *A. Bulleyana* (or *A. coccinea*?), of the dry river gorges further west, is one of the most striking species. In the high alpine zone are several cushion plants, of which *A. Chamaejasme* is the most familiar. In the woods, besides the species above referred to, was a procumbent weed with small, yellow-eyed, white flowers.

We crossed the range at about 14,000 feet, and found the open pastures strewn with purple flowered *Nivalis Primula*. *P. vincaeflora* and *P. secundiflora* were also just coming into flower. One of my collectors, some days previously, had found on this range a small, blue flowered *Primula* quite unknown to me—indeed, I could not call to mind any species which it resembled;

almost barren of vegetation. A *Nivalis Primula*, with flowers of Tynan purple—probably a dwarf variety of the plant found in alpine pastures—and the beautiful little *Nivalis P. minor* (or near; K.W. 4081 of 1921) shared the highest alpine slopes. Sometimes it became a little difficult to distinguish between them, as the former was at its highest limit as dwarfed as the latter. But *P. minor* always has a white eye (though the flower colour may be anything from lilac to purple) and is fragrant; *Primula Nivalis* purple has a dark eye and no scent. Moreover, the latter has more flowers in the truss, and a larger capsule than *P. minor*—as I must continue to call it, no doubt erroneously. However, K.W. 4081 is said to be germinating well, and should flower this year; it will then be possible to compare it with true *P. minor* from the A-tun-tzu region, which has been in cultivation from my seeds for some years. The two plants are not likely to be identical.

Another *Primula* just coming into flower under the bushes was the yellow flowered curiosity with reflexed petals, K.W. 4179 of last year, also germinating well. This must be one of the Maximowicz section, though what it is doing down here was a mystery. The Maximowicz *Primulas* are said to belong to north China, and by no stretch of the imagination can latitude 28 deg. be called north China,

* The previous articles by Mr. Kingdon Ward were published in our issues of May 14, June 18, July 23, August 20, September 3, October 8, October 29, 1921; January 7, January 21, March 11, March 25, April 8, April 22, May 6, May 20, June 3, June 17, July 1, July 15, July 29, August 5, August 26, September 9, September 23, October 7, October 21, November 4, November 18, December 2, and December 16, 1922.

which means Kansu, Shensi and the most northern parts of Tsu-chuan. Can this be *P. szechuanica*, a yellow-flowered species found, I believe, by Wilson? It seems hardly likely, though I do not know that plant.

In any case, K.W. 4179 *Primula* S. Maximowiczii is not a plant of much garden merit; the yellow is rather muddy, and the sleek-looking flowers are small. But it is certainly a curiosity.

We continued the march to Mu-li on May 15, keeping along the irregular crest of the divide at an average altitude of 14,000 feet, with huge walls and towers of limestone, now on one side, now on the other. There were vast exposures of bare rock, which never would support a plant. The bush *Rhododendron* was all of one species, and that was not in flower. There was a lot of purple *Nivalis* *Primula*, but not much else. In the evening, however, we descended through a belt of forest, where *Rhododendron* "giant rose" (K.W. 4211) was blooming magnificently. The small lavender-blue intricatum *Rhododendron* was also in flower here (K.W. 4184). Flowers which lack the blue pigment are not uncommon; they are then, however, not white, but a glowing rosy pink.

One more march brought us down to Mu-li, after crossing a high pass. As we came down into the lower woods, chiefly evergreen Oak and *Picea*, with a few shrubs, ribands of white *Clematis* appeared trailing from the bushes. On the rough, limestone outcrops, a small, violet *Nivalis* *Primula* (K.W. 4141) appeared in masses. This may be *P. pulchella*, a somewhat variable species, which seems to demand the visible outcrop of limestone before it will deign to grow. Its A-tun-tzu representative is *P. pulchelloides*, which I found some years ago, and so far as I remember it is not a common plant; whereas *P. pulchella* is abundant, between Mu-li and Li-chiang. With it were two purple-flowered plants, a *Roscoea* and *Morina betonicoides*.

The slopes here were covered chiefly with Pine and scrub Oak, but a touch of colour was added by *Rhododendron decorum* and *Azalea*, coming into flower on the dark green background. In one of the deep gullies which gash the cliff just above the monastery I found a *Decaisnea* in flower, a plant which I had missed the previous year. At dusk we reached our quarters, which we had left exactly six months previously; a lot of things had happened since then, though. F. Kingdon Ward.

TREES AND SHRUBS.

THE HOLLIES

In many ways *Ilex Aquifolium* with its very numerous varieties and hybrids is our most useful and showy evergreen, but it is surprising how few public parks and private gardens contain a representative collection of the best forms. The idea has been, apparently, to plant large numbers of the common green Holly and a few varieties, thus losing the beautiful effects it is possible to obtain with a good selection of varieties that requires no more trouble. While a fine feature at all seasons of the year, it is in winter that the Hollies are seen to the best advantage.

The fact that considerable transplanting is in progress in the Holly collection at Kew suggested the writing of a note for the festive season. Other evergreens are used to decorate the home, but the Holly is the one mostly associated with Christmas.

It was in 1874 that the late Sir Joseph Hooker planned the Holly Walk (Fig. 152), which is 880 yards in length, and commenced the formation of the national collection of Hollies at Kew, which to-day numbers some one hundred and twenty species, varieties and hybrids. The continued growth of the plants and of the number of specimens means the expansion of the collection from time to time; it is one of these periodical extensions, and the largest during its forty-eight years of existence, that is now in progress.

That the Holly will thrive in most soils can be very readily gathered by watching the hungry-looking yellow sand dug out in the process of transplanting the Kew Hollies, though

good loamy soil is always worked in with the sand when filling in the holes. The Holly, more especially its green varieties, is a good town shrub. In the Liverpool Botanic Garden the variety *Shepherdii*, named in compliment to the first Curator of those gardens, is one of the very few satisfactory evergreen shrubs. These gardens are not far from the Edge Hill Railway Depot and in a smoky district that is most unsatisfactory for gardening.

Though useful for hedges, screens, and shrubberies, it is as specimen trees or bushes that Hollies are seen to the greatest advantage.



FIG. 153.—*ILEX AQUIFOLIUM WILSONII*; A NEW HYBRID HOLLY.

Starting with a central growth, the training of the trees by a periodical shortening of those side shoots which grow too long, while limiting the top to one leader, is easy. Do not, however, except in the formal garden and hedges, use the shears, or adopt a method of hard pruning with the secateurs, as this at once destroys the distinctive beauty of growth, which varies in such a marked degree in the many different species, varieties and hybrids.

To those who regard showery weather in September, or April and May, as the best times for planting evergreens it will be rather surprising to learn of the work in progress at Kew, but at both normal seasons for planting Hollies Kew is thronged with visitors. Transplanting machines are now available, which will readily move balls of soil weighing five, ten, twenty or more hundred-weights, attached to the roots, according to the size of the specimens, and thus the plants feel no ill-effects from transplanting.

Propagation of Hollies is by seeds, cuttings, layering, budding and grafting. Seeds are employed to raise the species and provide stocks on which to bud or graft the varieties and hybrids. Holly seeds usually take from one to two years, occasionally longer, to germinate. Cuttings made from half-ripened wood of the current season's growth, with a thin heel of old wood attached, are best inserted during July and August. A length of about 4 inches is suitable. The cuttings should be placed in pots of sandy soil in a close propagating case, with slight bottom heat. If inserted in a cold

frame or under a handlight, a length of about 6 inches is preferable. In nurseries, grafting in spring under glass and budding in summer are preferred to cuttings, as the plants reach a saleable size quicker, but in later years it is difficult to see any difference between plants propagated by layering and cuttings or grafting and budding. The beautiful specimens of Weeping or pendulous Hollies are obtained by grafting or budding on stocks of the common Holly at a height of 6, 8 or 10 feet. In addition to the "weeping" form (var. *pendula*) of the common green Holly, there are variegated forms, two of the best being Perry's Silver Weeping (var. *argentea pendula*) and Waterer's Golden Weeping (var. *aurea pendula*).

The average height of the Holly is from 40 to 50 feet. Several specimens at Kew exceed 50 feet. London records a tree at Claremont as 80 feet high; this example does not exist now, but there is one approaching that height at Mount Edgecombe in Cornwall.

The following twelve varieties and hybrids comprise a representative and distinct selection of the best sorts in cultivation:

Ilex Aquifolium argentea regina (Silver Queen), the best white or silver variegated Holly; male.

I. A. aurea medio-picta (Golden Milkmaid), centre of the leaf golden with a thin irregular margin of green; male and female.

I. A. aurea regina (Golden Queen), a very showy golden Holly with richly coloured leaves; male.

I. A. camelliaefolia, one of the largest-leaved green varieties, vigorous and free in growth, forming a large, shapely specimen; it has extra large berries and dark green leaves 4 or 5 inches long by 1½ to 2 inches wide.

I. A. flavescens (Moonlight Holly), has leaves more or less flushed with bronzy-yellow, especially when young, thus giving the trees a very distinct and attractive appearance on the closely cut turf of a well-kept lawn; female.

I. A. Golden King, the finest of all the golden variegated Hollies.

I. A. handsworthensis (Handsworth New Silver), perhaps even more valuable than Silver Queen, as it produces berries freely.

I. A. Lawsoniana, a variegated form of *Hendersonii*; it has a fairly large leaf with a large, irregular, yellow blotch in the centre.

I. Mundi, one of the most distinct of the large-leaved green Hollies, is now generally regarded as an *Aquifolium* × *platyphylla* hybrid; broadly ovate leaves are about 4 inches long and 2 inches wide; a free-growing male Holly.

I. A. recurva; this belongs to the small-leaved, spiny group with dark green leaves, and a close-growing habit, but it has a strong leading shoot.

I. A. Watereriana (Waterer's Holly), a compact, slow-growing, golden-variegated Holly, often growing as much in width as height (if not pruned to any other shape); this is a particularly useful variety for the formal garden and terrace.

I. A. Wilsonii (see Fig. 153) is one of the best hybrid Hollies—*I. Aquifolium* × *I. platyphylla* (or *baleariae*). It is vigorous in growth and has large, glossy, green leaves of exceptional substance, up to 4 or 5 inches long and 3 inches wide, with spiny edges. This is among the largest of the red-berried Hollies.

Additional varieties to complete a list of twenty-five, including the three pendulous varieties mentioned, are:—*argentea marginata*, *argentea marginata elegantissima*, *aurea marginata*, *doringtonensis*, *ferox* (Hedgehog Holly), *fructu-luteo* (yellow-berried Holly), *Madame Briot*, *Marnockii*, *scotica* and *Smithiana*.

The reason why many Holly trees never produce berries is that as a rule male and female flowers are borne on different trees. *A. O.*

ATHROTAXIS LAXIFOLIA.

ALL three species of *Athrotaxis* are suitable only for the more favoured parts of the country, but where the climate permits them to be grown, they disclose a charm of distinct habit together with considerable beauty. In general appearance and character *A. laxifolia* comes nearly midway between the two others, so much so, that Kent, in the *Manual of Coniferae*, remarking upon this, wrote, "This form is so nearly intermediate between *A. cupressoides* and *A. selaginoides* as to suggest the possibility of being a hybrid between them." And while there seems no reason to doubt that *A. laxifolia* is a true species, it does suggest a hybrid origin. The leaves are decidedly longer and freer than those of *A. cupressoides*, which favours a *Cupressus* in its closely adpressed leaves; it is also quite distinct in this respect from *A. selaginoides*, which has a likeness to several of the tender *Araucarias* and to *Cryptomeria*, but its leaves are distinctly softer and more tender than any of them. The curved leaves of mature specimens of *A. laxifolia* are somewhat sharp-pointed, but this character is usually absent in young specimens, which often bear their foliage somewhat adpressed, simulating a stouter and less whipcord-like *A. cupressoides*. This peculiarity is

well seen in the illustration of a young plant (Fig. 151), and has induced some growers to consider such to be a distinct species, and to give it Maule's name of *A. Domiana*, which is merely a synonym of *A. laxifolia*.

The intermediate *Athrotaxis* is usually quite distinct in habit, and while the other two species generally make quite regular and narrow pyramids up to 20 ft. or a little more in height, *A. laxifolia* is less formal in appearance and makes rather a spreading, large bush. So far as I have seen, it does not cone nearly so freely as the other two species, consequently seedlings from home grown seeds are rare.

Some years ago, I was shown a large batch of splendid seedlings of *A. selaginoides* raised from seed collected from the fine example at Coldretnick, in Cornwall.

In hardiness, *A. laxifolia* also continues its intermediate character. I have known *A. cupressoides* successfully withstand frost which browned the tips of the leaves of *A. laxifolia* and killed *A. selaginoides* outright.

Where there are any climatic doubts, it would be well to plant in a well-drained position, facing west for choice, and to follow the commendable custom that obtained when it was fashionable to plant Conifers on a slight mound. *A. C. Bartlett.*

ORCHID NOTES AND GLEANINGS

LAELIO-CATTLEYA EXIMANTIN.

CATTLEYA MANTINI (Bowringiana × Dowiana) is one of our brightest winter Orchids, and the crossing of it with *Laelio-Cattleya Eximia* (*C. Warneri* × *L. purpurata*) by Frederick J. Hanbury, Esq., Brockhurst, East Grinstead, gives another and a larger-flowered addition to the class. The sepals and petals of the newcomer are clear mauve colour; the lip, which approaches that of *L.-C. Eximia*, is Tyrian purple, with an orange base that has light yellow lines.

Cypripedium Gainsborough (Thomsonii × Fairrieanum) from Mr. Hanbury, has a white dorsal sepal with Apple green base, from which ascend dark, branching, claret lines. The

petals are gamboge yellow with dark lines; the lip is tinged with purple.

Cypripedium Emily Brown (G. F. Moore × Fairrieanum), also raised at Brockhurst, is a large flower, showing *C. Fairrieanum* in the broad decurved petals, and the dark lines on white in the dorsal sepal. The petals and lip are honey yellow tinged and lined with purple.

ORCHIDS FROM WARMHAM COURT.

C. J. LUCAS, Esq., Warmham Court, Sussex, sends flowers of seedlings flowering in his collection, three of which are new.

Odontoglossum Mandarin (McNabianum × Jasper) is a very remarkable flower of a rare type. All the segments are broad, the sepals being heavily blotched with chocolate purple, with thin bars of Primrose yellow and yellow tips. The petals are similarly marked, but the inner halves and base of the lip are pure blue, a feature which is rare and very attractive.

Odontoglossum Zenarden (Zena × ardentissimum) has the sepals nearly covered with large chocolate purple blotches, the petals white with chocolate purple blotches on the inner half, and the broad lip white with purple base.

Odontodia Brightness (Odm. Eva × Oda. Charlesworthii) is of uniform ruby red colour, with a prominent gold crest on the lip.

The known varieties received are *Odontoglossum Purple Queen II.* (Delta × Corona) with perfectly formed and attractively marked flowers, and *Odontodia Margaret*, a large red flower with white margin.

GARDEN NOTES FROM S.W. SCOTLAND.

CYNOGLOSSUM amabile, a Chinese Hound-tongue of much merit, has received of late much favourable notice in gardening journals, and deserves all praise for the beauty of its sky-blue flowers and the freedom with which they are produced. But care should be taken not to plant it where dogs or cats are likely to come, for it bears innumerable little burrs of a peculiarly adhesive and irritating quality, which, if they get into the fur of an animal, inflict intolerable torment. I received a timely

NEW HYBRIDS

(Continued from December 2, page 326).

Name.	Parentage.	Exhibitor.
Brasso-Cattleya Boadicea	B.-C. Digbyano-Schroderae × C. Warszewiczii Sanderiana	Sanders.
Brasso-Cattleya Hercules	B.-C. The King × C. Luddemanniana	Sanders.
Brasso-Laelio-Cattleya Lemoniana	B.-L.-C. The Baroness × C. Schroderae alba...	Flory & Black.
Brasso-Laelio-Cattleya Our Prince	B.-C. Mrs. J. Leemann × L.-C. Black Prince ...	Sanders.
Cattleya Donald McKenzie	Miss Williams × Hardyana	Julius Roehrs Co.
Cattleya Goveri	Warszewiczii × Rhoda	R. G. Thwaites, Esq.
Cattleya Octavia	Fabia × Octave Doin	R. G. Thwaites, Esq.
Cattleya Oliver Lines	armavillierensis × Dowiana aurea	Julius Roehrs Co.
Cattleya Magdalena Lowe	Prince Edward × Dowiana aurea	Julius Roehrs Co.
Cattleya Mrs. Edward Roehrs	Prince John × Dowiana aurea	Julius Roehrs Co.
Cymbidium Milo	J. Davis × Tracyanum	Sanders.
Cypripedium Aglaon	Earl Tankerville × Hitchinsiae	Sanders.
Cypripedium Earl of Chester	bingelyense (Chorltonii) × Lord Roberts	Mrs. Gratrix.
Cypripedium Emily Brown	G. F. Moore × Fairrieanum	F. J. Hanbury, Esq.
Cypripedium Etta	Mrs. Rickards × Chardwar	R. Windsor Rickards, Esq.
Cypripedium Etta var. Dainty	parentage unrecorded	H. T. Pitt, Esq.
Cypripedium Gainsborough	Thompsonii × Fairrieanum	F. J. Hanbury, Esq.
Cypripedium Montcalm	Shozun × Breadnought	Mrs. Gratrix.
Cypripedium Oxon	Psyche × Lord Ossulston	Duke of Marlborough.
Cypripedium Pacatta	Iroilus var. eboracum × Pyranus	Armstrong & Brown.
Cypripedium Pinchaba	Gaston Bultel × Minos Youngii	J. Evans, Esq.
Laelio-Cattleya Alpha III	C. Hardyana × L.-C. Luminosa	Dr. Gratiot.
Laelio-Cattleya Albert C. Burrage	L.-C. Herscentia × C. Dowiana aurea	Julius Roehrs Co.
Laelio-Cattleya Betus	L. Loria × C. Brenda	McBean.
Laelio-Cattleya Champagne	L.-C. warnhamensis × C. armavillierensis ...	Sir J. Colman.
Laelio-Cattleya Ernest Lane	C. labiata × L.-C. Martinetii	Julius Roehrs Co.
Laelio-Cattleya Eximantun	L.-C. eximia × C. Mantunii	F. J. Hanbury, Esq.
Laelio-Cattleya Enchantment	C. Rex × L.-C. Isabel Sander	Sanders.
Laelio-Cattleya Martinii	Rubens × Martinetii	R. G. Thwaites, Esq.
Odontodia Brightness	Odm. Eva × Oda. Charlesworthii	C. J. Lucas, Esq.
Odontodia Fairy	Oda. Vuylstekeae × Odm. Magali Sander	Sanders.
Odontodia Pegasus	Odm. amabile × Oda. Madeline	McBean.
Odontodia Royal Scot	Odm. King Arthur × Oda. Coronation	McBean.
Odontocidium Graireanum	Odm. Thompsonianum × Oncid. macranthum ...	Mon. H. Graire.
Odontoglossum Isabel	V.-C. × Gatten Emperor	Sir J. Colman.
Odontoglossum Magnificent	majestum × Magali Sander	Sanders.
Odontoglossum Mandarin	McNabianum × Jasper	C. J. Lucas, Esq.
Odontoglossum Purple Beauty	Edwardii × Lady Roxburgh	Sir J. Colman.
Odontoglossum Vega	King Arthur × Midnight	McBean.
Odontoglossum Zenarden	Zena × ardentissimum	C. J. Lucas, Esq.
Odontonia Luna	Odontonia Magali Sander xanthotes × Odm. crispum xanthotes	Charlesworth.
Sophro-Cattleya Pamela	S.-C. Doris × C. Trianae	R. G. Thwaites, Esq.
Sophro-Cattleya Sexaurea	C. Dowiana aurea × S.-C. Saxa	Sanders.
Sophro-Laelio-Cattleya Lustre	S. grandiflora × S.-L.-C. Sandhage	Charlesworth.
Vuylstekeara Aspasia	Oda. Charlesworthii × Miltonia Charlesworthii	Charlesworth.

reminder of this last night, when, after working in a border where this plant grows, I found my nether garments densely peppered with them. Viewed under a strong lens, the prehensile mechanism of these burrs is interesting. *C. nervosum*, a Himalayan relative of the other, with deep blue flowers, is practically innocuous in this respect; its seeds are neither so aggressive nor so multitudinously produced.

The past autumn has made itself memorable for an abundance of Roses. Even now, on the eve of the winter solstice, it is possible to fill a vase with fresh blooms. Were I asked to name a brace of varieties for late flowering, they should be the thornless *Zéphirine Drouhin* and *Lady Pirrie*; neither of them show blooms, but invaluable at this season. I have seen *Corallina* make a fine November display in a Surrey garden, but it does not seem to relish our west coast conditions.

In mild districts *Griselinia littoralis* makes a beautiful hedge, especially near the sea. It makes an admirable shelter for subjects that shrink from strong wind, and at this season its shining grass-green foliage is a refreshing sight. In its native New Zealand, where it is known as *Kapuka*, it grows to a tree 30 to 50 feet high; but, in this country, like the *Cherry Laurel*, being usually propagated by cuttings, it is most often seen in bush form.

In ordinary seasons we have learnt to rely on the hybrid *Rhododendron Nobleanum* for gaiety. In 1921 it began to flower in October and continued at intervals till March; but this year, though profusely set with flower buds, not a bloom has opened before mid-December. There are several forms of this excellent old hybrid, a cross raised at Knap Hill between *R. arboreum* and *R. caucasicum* well nigh a century ago. The best form, more arboreal in habit than the others, has become very scarce; indeed, it seems to have passed out of the trade altogether. Those who have it (and it flourishes in many old country places) would do wisely to put down layers.

Another effect of the backward season has been to defraud us of bloom on *Fatsia japonica*, one of the chief ornaments of early winter. Plenty of massive flower spikes have been formed amid the foliage, but too late to allow of their development into the semblance of carved ivory. This shrub ranks among the finest evergreens, and, strange to say, the great leaves stand considerable exposure to wind with impunity. *Herbert Maxwell, Monreith.*

THE BULB GARDEN.

BULBOUS IRISES.

SPANISH and English Irises may now be planted. These are useful subjects for many purposes; in the herbaceous borders they may be utilised for filling bare spaces in the foreground, or they may be grown in beds by themselves. Ordinary, well-drained soil on the gritty side suits them well, the members of the Spanish group requiring soil of a little lighter texture than the English Irises.

They are valuable for furnishing cut blooms early in the year, and their many beautiful shades of colour and dainty appearance render them suitable for a position in any garden, large or small.

There are also many beautiful species of bulbous Irises that are suitable for planting in the rock garden. As some of these plants flower in winter, it is advisable to grow them under glass to prevent the blooms being damaged by inclement weather. Artificial warmth is not necessary, and where a house is devoted to the protection of Alpine plants, these lovely Irises should be included. They may be planted in pans for the purpose. By this means a supply of pretty flowers may be had from the different bulbous Irises from October through the winter and spring to June. The plants should be placed in the pans in September or October. Two of the choicest species are *I. pumila*, which produces its deep purple and violet-toned flowers in April, and *I. reticulata*, a species producing violet flowers in February and March. *E. B.*

FRUIT REGISTER.

PEAR WINTER NELIS.

THIS small-fruited variety is one of the very best of late Pears, and was classed by the late Mr. Archibald Barron as amongst the finest of all Pears. It seems to require a warm district, as in the colder parts the rather weak growth does not ripen well, and because of its somewhat feeble growth it does best on the more vigorous Pear stock, rather than the Quince. Imported fruits are, this winter, of very luscious quality, and they seem extra fine in this respect, probably because home grown Pears have been so poor in flavour this season. Intending planters should include this choice Christmas Pear in their lists. *T.*

HOME CORRESPONDENCE.

Mrs. Jane Wells Loudon (see p. 368).—I was greatly interested in Mr. Brotherston's article on this accomplished authoress, and surprised to find he omits any reference to her work entitled *The Amateur Gardener's Calendar*. This book deals with work in the garden for each month of the year, somewhat in the style of the *Calendar of Gardening Operations*, but much fuller, there being very copious extracts from articles by writers in the gardening Press, many from the *Gardeners' Chronicle*. It is a very valuable work, although much of the matter is now out of date; the copy I have is a revised edition by Mr. William Robinson. There is need for an



FIG. 154.—CHRYSANTHEMUM MRS. A. ROBERTSON, N.C.S. FIRST CLASS CERTIFICATE, NOV. 27; R.H.S. AWARD OF MERIT, NOVEMBER 28. SHOWN BY MR. NORMAN DAVIS. (SEE PP. 329 AND 330.)

APPLE ORLEANS REINETTE.

A RECENT writer complains (p. 343) that this Apple does not keep in the fruit room without shrivelling. May I point out that like most other Reinettes its keeping qualities entirely depend upon thorough ripening on the tree. I was eating Orleans Reinette in March this year, quite firm and crisp, thanks to the sun of 1921, but even after the present summer I have this Apple in the store quite firm and hardly ready for use at present. A few experiments tried last year showed that fruits gathered so soon as they were fully grown and well coloured were a little lacking in flavour, and those left on the tree so long as they would hang were a little mealy in texture. I would recommend anyone who grows this Apple to wrap the fruits in paper and put them in a box directly they are gathered. They can then be kept in any shady or cool place without the slightest danger of shrivelling. *Edward A. Bunyard, Maidstone.*

up-to-date edition of a work of this character and although the title is *The Amateur Gardener's Calendar*, professional gardeners would find it extremely useful. The energy both Loudon and his wife possessed must have been far in excess of the average person, for it has always astonished me how they were able to accumulate the vast number of references given in their works. Take, for example either of Loudon's works, *Arboretum et Fruticetum Britannicum*, *Encyclopædia of Gardening*, or *Encyclopædia of Plants*. They teem with details, and in the case of the first it would appear that every tree of note of any particular kind standing in his time was recorded. His references to Grecian gardens, Roman gardens, French gardens, etc., must have involved years of research. No fewer than 18 pages of small type are devoted to the list of works referred to in compiling his *Encyclopædia of Gardening*. Loudon is justly entitled to be known as the doyen of garden authors. *T.*

SOCIETIES.

READING GARDENERS'.

At the last fortnightly meeting of the 1922 season, held in the Recreation Club Room, Abbey Hall, Mr. H. H. Cook presided over an excellent attendance of members.

The subject for discussion was "The Cyclamen," and this was introduced by Mr. W. Broomfield, The Gardens, Cliffe House, Maple-Durham. He mentioned that the Cyclamen gave a brilliant display in the greenhouse during the winter and spring months; it is of varied colours, exceedingly useful for table decoration, and may be grown as a perennial for several years, but it is advisable to grow a batch of seedlings each year. Cultural details were given, such as sowing of seed, soil, potting, watering, manures, etc. A good discussion followed, in which Messrs. Cook, Blackwell, Alexander, J. Wynn, Young, M. Goddard, Townsend, Carter and H. Goodges took part, the latter moving a vote of thanks to Mr. Broomfield for his instructive lecture.

In the competition for Potatoes, both kidney and round varieties, many finely coloured tubers were shown. For three dishes of kidneys the first prize was gained by Mr. W. GOWER, The Gardens, Calcot Grange; second, Mr. D. TURNER, The Gardens, Coley Park; and third, Mr. J. WYNN, The Gardens, Hammonds, Checkendon. Mr. GOWER was also successful in winning the first prize in the class for three dishes of round Potatoes; second, Mr. G. GODDARD, Reading; and third, Mr. F. ALEXANDER, The Gardens, Kennetts Lodge, Theale.

In the non-competitive section an Award of Merit was awarded to Mr. W. TOVEY, The Gardens, Leighton Park, for two vases of fine blooms of *Chrysanthemum Edith Cavell*, and the judges directed special attention to a seedling Carnation raised by Mr. Broomfield. The *Gardening Illustrated* Bronze Medal offered for the competitor gaining the highest number of points in the various competitions held during the autumn session was won by Mr. J. WYNN.

NATIONAL CARNATION AND PICOTEE.

The annual general meeting of the National Carnation and Picotee Society was held on the 16th inst., in the small committee room of the Royal Horticultural Hall, Vincent Square, when a number of members were in attendance, with the president, E. Charrington, Esq., in the chair.

The report and statement of accounts for 1922 were passed unanimously, the accounts showing a balance in hand of £51. The committee's action in adventuring to hold two exhibitions, one on July 10 and the other on July 24, 1923, was confirmed.

Edmund Charrington, Esq., was re-elected president, and H. R. Taylor, Esq., a vice-president. The committee was reappointed with the addition of Mr. Ernest G. Lowe. Messrs. J. J. Burnett and Sons, chartered accountants, of Southampton, were reappointed auditors and thanked for their past services. Mr. J. J. Keen was re-elected honorary treasurer and secretary.

Some discussion took place as to the desirability of issuing with the annual report a Carnation Year Book, and a small sub-committee was appointed to consider the matter and report at a future meeting.

NATIONAL CHRYSANTHEMUM.

This Society's Floral Committee held its concluding meeting for the season at the Royal Horticultural Hall, Westminster, on December 11, when the following awards were made:—

FIRST-CLASS CERTIFICATE.

Cream Favourite.—A delicate cream coloured sport from *Favourite*, the latter a popular pure white market variety. The new comer is said to be an even greater favourite with florists than this type, and it has been on the market for some time past. Shown by MR. NORMAN DAVIS.

Dr. Jacobs.—A medium-sized Japanese variety that promises well for decorative use and the

supply of the market. The colour is rich crimson, with dull gold reverse. Shown by MR. KEITH LUXFORD.

Veres.—This is an attractive market variety, and for this purpose received the present award. It is already fairly well-known, and its bronzy apricot colour is most effective. Shown by MR. KEITH LUXFORD.

COMMENDATION.

Winter Gem.—This medium-sized Japanese variety should prove useful for market work and for general decorative purposes. The colour is a pleasing shade of golden amber. Shown by MR. NORMAN DAVIS.

NORTH OF ENGLAND PANSY AND VIOLA.

The annual meeting of the North of England Pansy and Viola Society, held at the Market Tavern, Bradford, on the 16th inst., was well attended. The President, Mr. A. S. Croasdale (Colne) presided. The Secretary (Mr. F. E. Sutcliffe) thanked the exhibiting members for their excellent support at the four shows held at Leeds, Saltaire, Sheffield, and Nelson. The members had received this season in prize-money close upon £70. The balance-sheet showed a loss of £5 on the year's working, which was subscribed before the meeting closed. An interesting function was the presentation of a gold watch and Albert to the Secretary, Mr. F. E. Sutcliffe, in appreciation of his services as general secretary and organiser. The President made the presentation. The retiring officers were thanked, and their successors elected.

NEW HORTICULTURAL INVENTIONS.

LATEST PATENT APPLICATIONS.

- 33792.—Grant, W.—Flower pots. December 11.
- 34075.—Kipling, W. R.—Machine for cutting grass, and for removing overgrowing grass, etc. December 14.
- 33136.—Horsefield, H. C.—Marking grounds. December 5.
- 33250.—Robinson, Bros., Ltd.—Watering cans, etc. December 6.
- 32557.—Brown, A. M.—Method of applying insecticides, etc., to plants. November 29.
- 32727.—Himman, R.—Combined seed drill and rake. November 30.
- 32392.—Kidd, R. E.—Collapsible flower-holders. November 27.
- 31676.—Rogers, W. A.—Machine for trimming lawn edges. November 20.
- 32050.—Russell, W. A.—Trellis for training Peas, etc. November 23.

SPECIFICATIONS PUBLISHED THIS MONTH.

- 168317.—Gaud, P. J.—Process for directly treating seeds and the like to increase the productivity thereof.
- 189311.—Glover, J. A. J., and Burn, L.—Garden and like rollers.
- 189345.—Savage, A. J.—Hand tool for cultivating and scarifying land.
- 188746.—Kelly, J. R.—Shovels, spades, digging forks, and the like.
- 188941.—Gardner, A.—Handy instrument for the sowing of small seeds.
- 189037.—Walkey, J. W.—Preparation for preventing blight in fruit trees and for destroying blight in trees infected therewith.
- 189044.—Pugh, Ltd., C. H., and Bull, G. F.—Lawn mowers.

ABSTRACT PUBLISHED THIS MONTH.

- 187711.—Grease, etc., bands for tree trunks.
- A portable device for applying the material to form a sticky band for a tree trunk to protect it from insects has been devised by Mr. J. A. Sears, of Barn End Lane, and A. E. Martin, Post Office, both in Wilmington, Kent. It comprises a portable receptacle in the form of a bellows with a nozzle carrying a guide plate, the upper hinged member of the bellows having an opening provided with a cover. Instead of a guide plate, a roller may be used.

The material is forced out through the nozzle by operating the handles, or the bellows may be operated by a screw.

This list is specially compiled for *The Gardeners' Chronicle*, by Messrs. Rayner and Co., Registered Patent Agents, of 5, Chancery Lane, London, from whom all information relating to patents, trade marks and designs may be obtained gratuitously.

ANSWERS TO CORRESPONDENTS.

BERRIED PLANT AGAINST A WALL: J. W. The plant you refer to is *Pyracantha coccinea*, formerly known as *Crataegus Pyracantha*. It is evergreen, and forms a small tree up to fifteen feet high. The plant does not cling to the wall, but needs to be attached in some way. There appear to be superior forms, for the one we possess has much larger and brighter berries than those of some of our neighbours. There is also a yellowish-orange fruited variety, known as *Lalandei*, and this is suitable for growing against red brick walls, on which the ordinary scarlet form does not show to advantage. Birds sometimes attack the fruits, but this may be prevented by spraying them with a distasteful mixture, such as *Quassia* extract mixed with bitter Aloes. The plant does not transplant easily, except when in a young state, and you should obtain small specimens in pots.

CELERYAC TURNING BLACK AFTER COOKING: N. R. The cause of the roots turning a black colour when cooked is probably due to them being bruised before cooking; or it may be due to bacteria.

FROST ON VEGETABLES: K. R. Certain vegetables, including Celery, Savoys, Parsnips and Jerusalem Artichokes, are usually considered much better eating after they have been subjected to frost on one or two occasions. Celery is always crisper and sweeter after it has been exposed to a little frost, due, probably, to the changes brought about in the cell contents by the influence of frost, and this also may be the reason why Parsnips are sweeter, as the frost seems to favour the production of sugar in the roots.

FRUIT TREES AND FROST: G. F. It is not advisable to prune fruit trees during frosty weather, as the freshly exposed tissue may receive such injury from severe cold that may result in decay setting in. Frost is especially harmful to fruit trees when the latter are trained direct to wires, but in the case of warm walls the injury from this cause is not likely to be very serious.

PLANTING BULBS: F. T. It is not too late to plant certain kinds of bulbs, including Daffodils, Tulips, Hyacinths, bulbous Irises, and Anemones. Crocuses also may be planted, but these and such kinds as *Scillas* and *Muscari* are much better planted in October or November. The winter has not been very severe and the ground is not exceptionally cold, so that if the planting of bulbs is done forthwith, the plants will probably make a considerable amount of root growth during the winter, should the weather continue favourable.

TREE FERNS: E. These Ferns will do well in the usual compost employed for Ferns and should be grown in comparatively small receptacles in keeping with the size of the root system. It is very beneficial to syringe the stems frequently, and, instead of removing the old fronds, to draw them down to the stems and secure them by a band of string. By this means the stems will keep moist longer after syringing. Some of the tree Ferns are exceedingly impatient of drought at the roots, and if the soil is allowed to become very dry on one occasion only, it will react very injuriously upon the plant.

Communications Received—D. T. S. R. E.—D. S.—W. T.—Horlus—W. M.—J. T. B. A. J. H.—J. C. T.—R. W. T.

